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Acceptability of Different Behaviour Management Techniques in Paediatric Dentistry: A Study of Chinese, Indian and Malay Parents

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ABSTRACT

Introduction: Uncooperative behaviours of Paediatric patients disrupt the quality of the treatment rendered, thereby increasing the treatment time, triggering restlessness amongst the young patients and in some instances increase risk of accidental injury.

Objective: To assess the parental acceptance of different behavior management techniques (BMTs) used during dental treatment of children in three major ethnic groups (Chinese, Malay, and Indian) in Malaysia.

Methods: A total of 72 parents were included in the study, further divided into 3 groups depending on ethnicity. Two university hospitals within Malaysia were chosen for data collection in the years 2019 and 2020. A videotape was used according to the American Academy of Paediatric Dentistry (AAPD) derived BMTs to showcase consenting parents ten of the AAPD approved BMTs in the following order: Tell Show Do, Voice Control, Modelling, Action Restraints, Distraction, Parents Present or Absent (PP/A), Hand Over Mouth (HOM), Nitrox Oxide (NO), Oral sedation (OS) and General Anaesthesia (GA). The parents were asked by a coordinator to mark on the scale.

Results: Statistical analysis of individual BMTs revealed a significant difference in the three ethnicities ($P=0.05$) with all other techniques remaining unremarkable when compared in the three groups.

Conclusion: Tell-show-do, distraction and modelling parental presence/absence and reinforcements have been shown to produce similarly acceptable results amongst. Physical restraint, oral sedation and general anaesthesia were the least approved in the current study.

Key Words: Behavior management techniques, Dental treatment, Paediatric dentistry, Ethnic groups, Chinese, Malay, Indian

INTRODUCTION

Paediatric dentists reported that 13% of all children demonstrate reluctance as patients while 11% act negatively.¹ Such uncooperative behaviours disrupt the quality of the treatment rendered, thereby increasing the treatment time, triggering restlessness amongst the young patients and in some instances increase the risk of accidental injury. Such reluctant and uncooperative patients are often managed by various pharmacological (sedation and anaesthesia) and non-pharmacological Behaviour Management Techniques (BMT). Most commonly used techniques according to the American Academy of Paediatric Dentistry (AAPD) include positive pre-visit imagery, direct observation, tell-show-do (TSD),

ask-tell-ask, voice control, modelling, positive reinforcement and descriptive praise, distraction, parental presence/absence, and advanced behaviour guidance techniques, such as protective stabilization, sedation, the controversial 'hand-over-mouth' technique and general anaesthesia.²

Most of the widely available methods require the parents and legal guardians to approve of the means, which is affected by a multitude of socioeconomic, racial, philosophical, cultural, and geographic factors.^{3,4} While there have been studies evaluating parental acceptance to such techniques in the Western world no such evaluations have been made as of now within the Asian sphere. Therefore, the current study aimed to evaluate the parental acceptance to various BMTs

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when the study was subjected to three of the major ethnic groups of Asia; Chinese, Indian and Malay. The null hypothesis was formulated that there will be no significant differences in parental acceptance of different BMTs when assessing the three ethnic groups.

MATERIALS AND METHODS

Two university hospitals within Malaysia were chosen for data collection in the years 2019 and 2020. Only parents of the three ethnicities educated in written and spoken English have considered whose children were under the age of 18. Children with special disabilities were excluded. Seventy-two parents were conveniently considered with 22 in each of the 3 groups. Ethical approval for the study was obtained from Jawatankuasa Etika Penyelidikan Manusia (JEPeM) of USM (USM/JEPeM/19070410)

A videotape was made according to AAPD derived BMTs to showcase consenting parents ten of the AAPD approved BMTs in the following order: Tell-Show-Do (TSD), Voice Control (VC), Modelling, Action Restraints, Distraction, Parents Present or Absent (PP/A), Hand Over Mouth (HOM), Nitrox Oxide (NO), Oral sedation (OS) and General Anaesthesia (GA). The video was 10 minutes in duration, after which the parents were asked to express their level of agreement to each method using a 100-point visual analogue scale (VAS). The left end of the scale read “completely acceptable” and the right end of the scale read “completely unacceptable”. The parents were asked by a coordinator to mark on the scale.

A statistical software (SPSS, IBM Corporation) was used to evaluate the normality and was followed by 1-way ANOVA to compare the mean of three independent groups and Post Hoc Analysis (Bonferroni).

RESULTS

The demographics of the parents have been described in Table 1. The rankings provided by the parents of each ethnicity have been demonstrated in Table 2. Statistical analysis of individual BMTs revealed a significant difference in the three ethnicities ($P=0.05$) with all other techniques remaining unremarkable when compared in the three groups. Detailed outcomes of each BMT has been described in Table 3.

DISCUSSION

The current study aimed to evaluate the different BMT acceptability levels within Chinese, Indian and Malay ethnicities. Nine out of 10 BMTs demonstrated no significant differences in the amount of approval among the three ethnicities

with only BMT modelling showing significant differences ($P=.05$). Therefore, the null hypothesis was partly rejected.

This study found that all three ethnicities equally approved Tell-Show-Do, Audio Visual (distraction), Parental Absence/ Presence and Modelling. However, there was a significant difference ($P<0.05$) in the amount of approval given to modelling when comparing Chinese and Indian ethnicities. While previous studies have shown modelling as an effective technique with either filmed modelling⁵ or live modelling^{6,7} in the Western world, the current study presents contradictory findings when comparing the attitudes of the two largest Asian ethnicities. Modelling and positive/negative reinforcements have had mixed results in the past with certain authors preferring positive⁸ while others commenting for negative^{3,9-11} attribute these possible disagreements to cultural differences^{12,13} argued that modelling is only effective when the child's anxiety is controlled before the procedure and the child can be modelled at a relaxed state. However, this study was limited to evaluating Chinese parents of Malaysia and the findings could be different if carried out in Mainland China or India.

While tell-show-do has presented the most popular BMT, similar to previous findings,^{3,9} distraction was also a highly preferred technique. This disagrees with older studies¹⁰ which questioned the effectiveness of the technique. However, children nowadays are more attuned to mobile multimedia and therefore are more sensitive to visual distraction techniques. The current findings agree with previous authors in terms of general acceptability of voice command¹⁴ and the widespread disapproval of general anaesthesia in the Asian culture.¹⁵ The ‘hand-over-mouth’ technique along with other forms of physical restraint have been labelled controversial and the current Asian findings are similar to results of previous studies conducted in Europe.^{2,10} In addition to physical restraint, most Asian parents disapproved the readily available conscious sedation as well as general anaesthesia, as was seen in European parents as well.²

Finally, the method of child upbringing greatly affects the type of BMT effective on the child.¹⁶ Authors found that authoritative parenting allows for more cooperative children in the dental practice requiring no BMTs in most cases.¹⁷ Other studies indicated that authoritarian and permissive parents likely encourage their children to respond to positive behaviour.¹⁸ Overprotective parenting however leads to the child being less tolerant of sufferings and in most cases require some form of BMT during dental care.^{19,20} Whether the same findings hold for Asian ethnicities should be a subject of future research. Further studies can be done to evaluate the correlation of different demographic variables in Asian culture, which may affect the child's behaviour and required BMT in dental practice.

CONCLUSION

Tell-show-do, distraction and modelling parental presence/absence and reinforcements have been shown to produce similarly acceptable results amongst Asian parents with statistically insignificant differences in the amount of approval given for the techniques. Physical restraint, oral sedation and general anaesthesia were the least approved in the current study.

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Table 1: Demographic details of the parents

	Overall	Malay	Chinese	Indian
Child age	7.96 (3.10)	7.64 (3.58)	8.11 (1.71)	8.44 (3.22)
Gender				
Male	43 (59.7)	20 (55.6)	12 (66.7)	11 (61.1)
Female	29 (40.3)	16 (44.4)	6 (33.3)	7 (38.9)
Parent age				
18 - 25	5 (6.9)	2 (5.6)	1 (5.6)	2 (11.1)
26 - 35	27 (37.5)	14 (38.9)	8 (44.4)	5 (27.8)
36 - 45	31 (43.1)	16 (44.4)	7 (38.9)	8 (44.4)
46 - 55	8 (11.1)	3 (8.3)	2 (11.1)	3 (16.7)
56 - 65	1 (1.4)	1 (2.8)		

Table 1: (Continued)

	Overall	Malay	Chinese	Indian
Education				
High school	11 (15.3)	7 (19.4)	3 (16.7)	1 (5.6)
Collage	35 (48.6)	22 (61.2)	6 (33.3)	7 (38.9)
Master	24 (33.3)	7 (19.4)	8 (44.4)	9 (50.0)
PhD	2 (2.8)		1 (5.6)	1 (5.6)
Income				
<2000	16 (22.2)	10 (27.8)	2 (11.1)	4 (22.2)
2001 – 5000	40 (55.6)	20 (55.6)	10 (55.6)	10 (55.6)
5001 and above	16 (22.2)	6 (16.7)	6 (33.3)	4 (22.2)

Table 2: Parent rankings and acceptance toward different BMTs

BMTs	Overall		Malay		Chinese		Indian	
	Rank	Mean (SD)	Rank	Mean (SD)	Rank	Mean (SD)	Rank	Mean (SD)
Tell-Show-Do	1	93.47 (14.26)	1	94.17 (10.52)	1	93.89 (12.43)	1	91.67 (21.49)
Audio Visual (distraction)	2	81.94 (18.05)	2	82.50 (20.75)	2	82.22 (13.53)	2	80.56 (16.97)
Parental Absence/Presence	3	73.89 (22.62)	3	79.44 (21.64)	3	66.11 (18.83)	3	70.56 (26.00)
Modelling	4	50.56 (24.20)	4	51.39 (27.79)	4	40.00 (12.83)	4	59.44 (22.09)
Voice Control	5	34.31 (25.94)	5	31.39 (29.58)	5	39.44 (21.00)	6	35.00 (22.82)
Nitrous Oxide Inhalation	6	31.67 (22.77)	6	26.11 (22.71)	6	36.11 (16.85)	5	38.33 (26.18)
Oral Sedation	7	24.58 (27.32)	7	25.00 (32.38)	7	23.33 (21.42)	7	25.00 (22.30)
Action Restraints	8	17.92 (23.37)	9	17.22 (25.14)	9	17.78 (18.65)	8	19.44 (25.08)
Hand-Over Mouth	9	15.28 (17.76)	10	11.67 (16.82)	8	20.56 (15.89)	9	17.22 (20.52)
General Anesthesia	10	13.06 (27.41)	8	17.22 (34.44)	10	7.22 (12.27)	10	10.56 (21.55)

Table 3: Statistical analyses of all 10 BMTs

Tell-Show-Do			
	Mean (SD)	F statistic (df)	p-value
Malay	94.17 (10.52)	1.22 (2)	0.312
Chinese	93.89 (12.43)		
Indian	91.67 (21.49)		
Voice Control			
	Mean (SD)	F statistic (df)	p-value
Malay	31.39 (29.58)	0.58 (2,69)	0.562
Chinese	39.44 (21.00)		
Indian	35.00 (22.82)		
Modelling			

Table 3: (Continued)

	<i>Mean (SD)</i>	<i>F statistic (df)</i>	<i>p-value</i>
Malay	51.39 (27.79)		
Chinese	40.00 (12.83)	3.12 (2,69)	0.050*
Indian	59.44 (22.10)		
Hand-Over Mouth			
	<i>Mean (SD)</i>	<i>F statistic (df)</i>	<i>p-value</i>
Malay	11.67 (16.82)		
Chinese	20.56 (15.89)	1.68 (2,69)	0.194
Indian	17.22 (20.52)		
Action Restraints			
	<i>Mean (SD)</i>	<i>F statistic (df)</i>	<i>p-value</i>
Malay	17.22 (25.14)		
Chinese	17.78 (18.65)	0.05 (2,69)	0.948
Indian	19.44 (25.08)		
Parental Absence/Presence			
	<i>Mean (SD)</i>	<i>F statistic (df)</i>	<i>p-value</i>
Malay	79.44 (21.64)		
Chinese	66.11 (18.83)	2.44 (2,69)	0.095
Indian	70.56 (26.00)		
Audio Visual (distraction)			
	<i>Mean (SD)</i>	<i>F statistic (df)</i>	<i>p-value</i>
Malay	82.50 (20.75)		
Chinese	82.22 (13.53)	0.07 (2,69)	0.932
Indian	80.56 (16.97)		
Oral Sedation			
	<i>Mean (SD)</i>	<i>F statistic (df)</i>	<i>p-value</i>
Malay	25.00 (32.38)		
Chinese	23.33 (21.42)	0.02 (2,69)	0.976
Indian	25.00 (23.00)		
General Anaesthesia			
	<i>Mean (SD)</i>	<i>F statistic (df)</i>	<i>p-value</i>
Malay	17.22 (34.44)		
Chinese	7.22 (12.27)	0.90 (2,69)	0.413
Indian	10.56 (21.55)		
Nitrous Oxide Inhalation			
	<i>Mean (SD)</i>	<i>F statistic (df)</i>	<i>p-value</i>
Malay	26.11 (22.71)		
Chinese	36.11 (16.85)	2.26 (2,69)	0.112
Indian	38.33 (26.18)		

All significant (P value) were set to <0.05

Post Hoc Analysis (Bonferroni): Malay vs Chinese not significant ($P=0.293$), Malay vs Indian not significant ($P=0.718$), Chinese vs Indian significant ($P=0.047$).