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

Md Toufiqur Rahman1, 2, Aimi Kamarudin1, Sumaiya Zabin Eusufzai3, Noraida Mamat1, Ahmad Shuhud Irfani bin Zakaria4, Mohmed Isaqali Karobari5

1 Paediatric Dentistry Unit, School of Dental Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia; 2 Conservative Dentistry & Endodontics, Update Dental College & Hospital, Dhaka; 3 Department of Community Dentistry, School of Dental Sciences, Health Campus, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia; 4 Department of Family Oral Health, Faculty of Dentistry, National University of Malaysia, 50300 Kuala Lumpur; 5 Conservative Dentistry Unit, School of Dental Sciences, Health Campus, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

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 behaviour management techniques (BMTs) used during the 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 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 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=.05) with all other techniques remaining unremarkable when compared in the three groups.

Conclusions: 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 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 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. Seventytwo 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<.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<.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 modelling or live modelling 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 positive while others commenting for negative attribute these possible disagreements to cultural differences.1213 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, distraction was also a highly preferred technique. This disagrees with older studies 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 command 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)

| Table 2: Parent rankings and acceptance toward different BMTs |
| BMTs | Overall | Malay | Chinese | Indian |
| 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

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| 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 | Mean (SD) | F statistic (df) | p-value |
| Malay | 51.39 (27.79) | 3.12 (2,69) | 0.050* |
| Chinese | 40.00 (12.83) | | |
| Indian | 59.44 (22.10) | | |

| Hand-Over Mouth | Mean (SD) | F statistic (df) | p-value |
| Malay | 51.39 (27.79) | | |
| Chinese | 40.00 (12.83) | | |
| Indian | 59.44 (22.10) | | |
Table 3: (Continued)

|                      | Mean (SD) | F statistic (df) | p-value |
|----------------------|-----------|------------------|---------|
| **Action Restraints**|           |                  |         |
| Malay                | 17.22 (25.14) |                  |         |
| Chinese              | 17.78 (18.65) | 0.05 (2,69)      | 0.948   |
| Indian               | 19.44 (25.08) | 0.05 (2,69)      | 0.948   |
| **Parental Absence/Presence**|           |                  |         |
| Malay                | 79.44 (21.64) |                  |         |
| Chinese              | 66.11 (18.83) | 2.44 (2,69)      | 0.095   |
| Indian               | 70.56 (26.00) |                  |         |
| **Audio Visual (distraction)**|           |                  |         |
| Malay                | 82.50 (20.75) |                  |         |
| Chinese              | 82.22 (13.53) | 0.07 (2,69)      | 0.932   |
| Indian               | 80.56 (16.97) |                  |         |
| **Oral Sedation**    |           |                  |         |
| Malay                | 25.00 (32.38) |                  |         |
| Chinese              | 23.33 (21.42) | 0.02 (2,69)      | 0.976   |
| Indian               | 25.00 (23.00) |                  |         |
| **General Anaesthesia**|           |                  |         |
| Malay                | 17.22 (34.44) |                  |         |
| Chinese              | 7.22 (12.27)  | 0.90 (2,69)      | 0.413   |
| Indian               | 10.56 (21.55) |                  |         |
| **Nitrous Oxide Inhalation**|           |                  |         |
| 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 <.05
Post Hoc Analysis (Bonferroni): Malay vs Chinese not significant (P=.293), Malay vs Indian not significant (P=.718), Chinese vs Indian significant (P=.047).