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The Papoose Board: Parents' Perceptions and Attitudes of Its Usage in Their Child's Dental Treatment

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Cover Page Footnote

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ORIGINAL ARTICLE

The Papoose Board: Parents' Perceptions and Attitudes of Its Usage in Their Child's Dental Treatment

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ABSTRACT

Parental perception and attitudes are important parameters in deciding the most suitable behavioral management technique for their children's dental treatment. **Objective:** This study sought to evaluate parents' perceptions, attitudes, and concern in using a papoose board (PB) on their child during dental treatment as a behavioral management technique in dentistry, as well as determine the sociodemographic factors associated with parents' willingness to use the PB for their children's dental care. **Methods:** One hundred parents from three locations with at least one healthy child aged between 4 and 7 years old were randomly identified. A self-made video (duration of 94 s) depicting the systematic placement of a PB on a child prior to dental treatment was viewed. Subsequently, each parent completed a validated 12-item questionnaire consisting of two domains: i) demographics and ii) acceptance given. A horizontal-visual analog scale was used to measure acceptance. Descriptive analysis, Pearson correlation coefficient, and simple logistic regression analysis were performed to generate the mean and standard deviation, frequency, percentage, and correlation. **Results:** Seventy-six parents completed the study. Approximately 63.2% of respondents felt that the PB is an effective technique to use, and 65.8% would permit its use during dental treatment for their children. However, 43.4% of respondents were worried about their child's dental treatment. The age of the parents is a significant factor in their decision to use the PB. **Conclusion:** The PB appears to be well accepted by parents as a behavioral management technique in the condition that a proper explanation of its usage is given before its application.

Key words: attitude, behavioural management, dental treatment, papoose board, perception

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INTRODUCTION

The primary goal of giving dental care to children is to make the experience as atraumatic as possible. The child's acceptance toward the behavioral technique is a factor to consider other than the child's needs, urgency, and type of treatment at a particular time.¹ Social settings have evolved greatly throughout the years and are leaning toward emphasizing parental approval and increasing participation in their child's treatment.² However, problems arise when children are unwilling to cooperate during dental treatments, leading to the development of various behavioral management techniques.

According to Peretz and Zadik, parents are more accepting toward aversive techniques if they are given

a thorough explanation before treatment and witness their child during treatment.¹ In a study conducted by Havelka et al. to determine the direct effect of social status and parents' acceptability, they found that the result varies greatly irrespective of social background.³ They stressed on the importance of informed consent in determining parental acceptance. In a study done in the UK by Crossley and Joshi, they found that rapport and trust between the child and the dentist can be easily established when the parents participate in treatment. They reported that children are more cooperative when their parents are present.⁴ Thus, a parent's presence in the operation has a significant impact on his or her child's treatment. By contrast, a study that assessed different methods of obtaining consent for pharmacological and invasive behavioral techniques found that the level of education significantly influences the preference of techniques.⁵⁻⁷

In the literature, great variability exists in parental attitudes toward passive stabilization; thus, parents should be given a thorough explanation of the indications, risks, benefits, and possible alternatives prior to utilizing the technique.³ A papoose board (PB) is a safe stabilization device with easy application technique, and it is highly effective in managing uncooperative children or anxious patients.⁸⁻¹⁰ Deep touch pressure provided by a PB will help the patient reduce his or her anxiety level, and the patient will feel calm and secure during dental treatment.⁹ This method is classified as passive stabilization.

In previous studies, the usage of the PB and physical restraint were unaccepted by parents.^{1,3,10-13} However, recent studies reported that parents become receptive toward the behavioral technique when they are well informed regarding the management technique in detail compared to general anesthesia.^{1,11,14,15} A previous study conducted in 1992 demonstrated a statistically significant difference between two social statuses, namely, high and low social status. Individuals from a low social status were reported to be more receptive toward the use of the PB than those from a high social status. This difference was possibly because those from a low social status were more likely to have experienced the PB themselves than those from a high social status.³

Grounded by these issues, this study aimed to evaluate parents' perceptions, attitudes, and concern in using PB on their child during dental treatment as a behavioral management technique in dentistry and assess sociodemographic factors associated with parents' willingness toward the usage of the PB for their child's dental care.

METHODS

This study was a cross-sectional, questionnaire-based research. Systematic random sampling was applied. A total of 100 respondents were recruited. Before collecting the data, face validation was conducted by involving the first 24 respondents to ensure respondents' optimum comprehension of the questionnaire. The sample was recruited from the Faculty of Dentistry of Universiti Teknologi MARA (UiTM), Faculty of Medicine of Universiti Teknologi MARA (UiTM), and Hospital Sungai Buloh. This study was approved by the Ethical Committee of Research Management Institute Universiti Teknologi MARA (UiTM). (600-IRMI(5/1/6)REC/115/17).

The first 24 parents served as a pilot study. The preliminary result and feedback from this pilot study were assessed and analyzed. Amendments and improvement acknowledged from the pilot study were considered to make non-substantial changes to the final questionnaire.

Parents with at least one fit and healthy child aged between 4 and 7 years old and able to communicate in Bahasa Malaysia and/or English were selected. Each respondent was approached with a general information pamphlet concerning the PB as a behavioral management technique in Pediatric Dentistry before they were invited to participate in the study. If they agreed, then a consent form with the information sheet that explained what participation entailed was given. The respondent was given instructions to view a demonstration video that was 94 s long. The video showed a step-by-step demonstration of PB placement on a cooperative patient until treatment began. Each respondent was asked to complete a 12-item questionnaire consisting of two domains: (i) part I: demographic and (ii) part II: acceptance. This information was used to evaluate parents' perceptions and attitudes in using PB as a behavioral management technique on their children during dental treatment. In part II, the questionnaire was used to assess the correlation between parents' concern about the effectiveness of PB and permission to use PB on their child, as well as their child's treatment needs.

The demographic questionnaire included the age of parent/guardian, gender, level of education (primary education/secondary education/diploma/bachelor's degree/higher education), occupation, and household incomes. After the video was shown, each respondent was required to answer three questions as adapted from a study carried out by Paryab et al.⁵ The questions were as follows: (i) Do you think this technique is effective? (ii) Would you permit us to use the technique on your child? (iii) Are you worried about your child's treatment? The study incorporated this validated questionnaire without substantial content modification.

A horizontal-visual analog scale (H-VAS, 100 mm) was used to measure acceptance. The horizontal line measuring from 0 mm (totally disagree) to 100 mm (totally agree) was used for each question. The respondent answered each question by placing a vertical line on the scale, and a numerical value was given to each rating. The number of millimeters from the left to the vertical line placed by the respondent was converted to a numerical value.⁵ All measurements were rounded to the nearest millimeter. Previous studies have found the VAS instrument to be reliable in measuring parental acceptance of behavioral management techniques.¹¹

Data analysis

The data were analyzed using IBM SPSS software (Version 23.0, IBM Knowledge Center, USA). Descriptive statistics was performed to generate the mean, standard deviation, frequency, and percentage. Logistic regression was run to assess the association of factors toward parents' acceptance, which was represented by question number

A P-value of less than 0.05 was accepted as significant. Pearson correlation was used to assess the strength and direction of the associations between two variables of the acceptance questions (for example, between permit score and effective score and between worried score and permit score).

RESULTS

Summary of respondents’ demographics showed that the mean age for respondents was 40.95 years old, and the mean number of children was 3.39. More than half of the respondents were female (77.5%) as compared with males (22.4%). As for ethnicity, among 76 respondents, 90.8% of the respondents were of Malay ethnicity. Approximately 36.8% of the respondents had a secondary education background, followed by respondents who were degree holders (31.6%). Moreover, 47.4% of the respondents belonged to the middle income bracket (RM3000 to RM10000), which corresponded to the respondent’s educational background (Table 1).

Figure 1 demonstrates the respondents’ acceptance of PB as a behavioral management technique. More than half of the respondents agreed that the placement of PB before dental treatment was effective (63.2%) and allowed this technique to be used on their child (65.8%). Approximately 52.6% of the respondents were not worried about their child’s treatment.

To determine sociodemographic factors correlated with respondents’ acceptance toward the usage of PB for their child during dental care, simple logistic regression analysis was performed. Age was proven significant to the model ($P<0.05$). As the age of parents decreased by 1 year, the parents had a 6.7% lesser chance to permit their children to be treated using PB as a behavioral management technique (95% CI: 0.87, 1.00; Table 2).

We understand that VAS initially should be treated as a continuous data measured in millimeters. However, for the sake of our analysis, we later categorized the respondents into groups based on whether they agreed or not. Categorizing them based on the midpoint of 50 mm was not preferable because we preferred to have high confidence for those belonging to the YES group. The 60 mm was chosen as the cutoff point. This cutoff point was limited to our research and not meant for use in other studies.

The outcome was analyzed as measurement biases with VAS. It resulted in cognitive processes used by the respondents when completing the instrument, which was controlled as context bias. This kind of bias reflects the fact that the VAS score for a state depends on the number of better and worse states presented at the same time. The study decided to divide the VAS score into two ends as “totally disagree” and “totally agree”.

Table 1. Demographic characteristic of the respondents

Variable	Mean (SD)	N(%)
Age	40.95 (7.372)	
Number of children	3.39 (1.515)	
Gender		
Male		17 (22.4)
Female		59 (77.5)
Ethnic		
Malay		69 (90.8)
Chinese		2 (2.6)
Indian		
Others		5 (5.5)
Level of education		
Primary school		3 (3.9)
SPM		28 (36.8)
Diploma/STPM		13 (17.1)
Degree		24 (31.6)
Higher education		8 (10.5)
Income		
Low		34 (44.7)
Middle		36 (47.4)
High		6 (7.9)

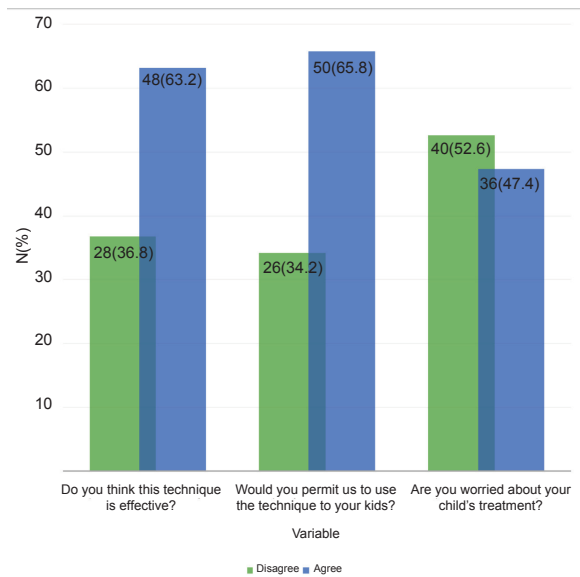


Figure 1. Parents’ acceptance toward the use of papoose board as a behaviour management technique

Ethnicity was excluded from the variables due to the unequal distribution of sample size among three major races: Malay, Chinese, and Indian. Other variables ($P<0.25$) including gender, income, level of education, and age ($P<0.05$) were forced into multiple logistic regression for variable selection into the model. However, all variables were not fit for the multiple regression model; thus, results from simple logistic regression were used. Moreover, a direct correlation

Table 2. Simple logistic regression analysis to identify sociodemographic factors associated with parents' acceptance toward papoose board

Variable	Regression coefficient (b)	Crude odds ratio (95% CI)	Wald statistics	P-value
Age	-0.69	0.933 (0.87, 1.00)	3.86	0.049
Gender				
Female	0	I		
Male	0.71	2.025 (0.67, 6.09)	1.57	0.210
Level of education				
Primary school	0	I		
SPM	0.41	1.500 (0.12, 19.18)	0.10	0.755
Diploma/STPM	2.22	0.800 (0.06, 11.30)	0.03	0.869
Degree	0.19	1.214 (0.09, 15.66)	0.02	0.882
Higher education	-1.79	0.167 (0.01, 2.98)	1.48	0.224
Income				
Low	0	I	3.19	0.20
Middle	-0.84	0.431 (0.15, 1.21)	2.55	0.11
High	-1.18	0.308 (0.05, 1.84)	1.67	0.20
No. of children	-0.15	0.863 (0.63, 1.18)	0.84	0.359
Are all children healthy?				
No	0	I		
Yes	0.22	1.250 (0.36, 4.29)	0.13	0.723

*Statistically significant $P < 0.05$ **Table 3.** Pearson correlation among permission to use papoose board, concern about children's treatment, and effectiveness of papoose board

	Would you permit the usage of PB on your children?	Are you worried about your children's treatment?	Do you think PB is effective?
Would you permit the usage of PB on your children?	1 76	-.2 .083 77	.841** .000 76
Are you worried about your children's treatment?	-.200 .083 76	1 76	-.304 .000 76
Do you think PB is effective?	.841** .000 76	-.304** .008 76	1 76

*statistically significant $P < 0.05$; PB: papoose board

was observed between the effectiveness of the method with permitting its usage and parents' concerns of their child's dental treatment, with a significance level of less than 0.05 (Table 3).

DISCUSSION

This study aimed to evaluate parents' perception, acceptance, and willingness to use PB as a behavioral management technique in Malaysia. PB is not widely introduced and used in Malaysia, possibly because most pediatric dentists in the country favor dental treatment under general anesthesia (GA) to manage uncooperative and anxious pediatric patients.¹²

Parental attitudes that are more accepting toward GA and sedation rank third in acceptability behind tell-show-do and nitrous oxide sedation as compared with passive restraint (PB), which remains at the bottom of the list; this result could also be one of the potential reasons why usage of PB is not well-known among Malaysian parents.¹³ One study reported that the two important reasons why parents choose their children's dental treatment under GA are dental fear and repeated unpleasant dental experiences. Seeking dental treatment under GA was easy for 93% of the parents, and most of them were satisfied with their child's GA experience.¹⁴ Treatment under GA results in increased quality and durability, which will improve a child's quality of life.¹⁵ Thus, parents are more accepting of pharmacological management instead of physical management.¹⁶

However, GA is a costly method of delivering dental care. Pediatric patients that undergo dental treatment under GA often complain of post-operative complications, which include dental pain, difficulty in eating, nasal bleeding, throat discomfort, nose discomfort, sleep alteration, weakness, drowsiness, dehydration, fever, nausea, vomiting, hoarseness, diarrhea, and constipation.¹⁷⁻¹⁹ PB might provide a better option than other dental treatments as it is cost-effective, helps stabilize and calm patients, and reduces complications and risks during dental treatment.²⁰

Our findings showed that 63.2% of respondents agreed that PB was an effective behavioral management technique. Similar results were reported on a study conducted on mothers of whom 96% agreed that placement of PB is necessary to perform dental treatment even though it may be stressful for their child.¹⁰ Approximately 65.8% of our respondents would permit PB placement to be used on their children. These findings amplified the study of Frankel, where 86% of the mothers reported willingness for their child to be treated with PB.¹⁰ In our study, the number of mothers who participated was higher compared with that of fathers. This study suggested that mothers showed more positive attitudes toward PB usage than fathers. By contrast, a study conducted by Peretz and Zadik demonstrated that 78% of mothers were against the usage of PB.¹ Another survey conducted among Saudi parents also showed contradicting results as PB was the least accepted technique.²¹ Nevertheless, our statistical analysis further proved that gender was not associated with respondents' acceptance.

Video film usage in the study was regarded as convenient in transferring information to the respondents. The demonstration video of PB usage was performed in a positive and stress-free environment, which may lead to PB acceptance among the respondents. In comparison with another study by Fields et al. who used a similar method in which respondents were asked to view a demonstration video regarding PB placement on a patient, PB was rated as the least accepted behavioral management technique following their poor perceptions toward their child's reaction.²² Approximately 47.4% of respondents expressed concern for their children's dental treatment. Previous studies by Fields et al. and Ramos et al. highlighted the type of treatment they needed that contributed to parental concern.^{22,23} Other than previous parents' experience, personality traits and parental anxiety are correlated with this issue.^{3,10,18,24,25} This study explored the use of video explanation in combination with written and verbal explanation to obtain consent and participation as previously done.^{26,27}

Concerning the selected research venue, Sungai Buloh is a suburban area with populations (in decreasing order) of Malay and other indigenous (49.9%), Chinese (40.5%), Indian (8.2%), and others (1.5%).²⁶ Majority of

our respondents are Malay as most Chinese and Indian participants did not meet the inclusion criteria required, which was at least one fit and healthy children aged between 4 and 7 years old. Furthermore, some non-Malay ethnicities were uncomfortable communicating in either Bahasa Malaysia and English, which limited the number of non-Malay participants. Thus, the results of this study could not represent Malaysian parents in general.

Gender, level of education, household income, number of children, and health status of the children were not associated with respondents' expressed attitudes toward the use of PB. Boka et al. stated that parents whose children had been treated at the university clinic and have lower income and educational levels are more accepting of PB as a behavioral management technique as compared with parents whose children were treated at a private practice.²¹ Nevertheless, their findings were not proven in the present study. In our study, age was statistically significant to the acceptance of parents to allow PB usage for their children.

Pearson correlation revealed that parents' permission was positively associated with PB usage effectiveness, with a significance level less than 0.05. The more they believe that PB is effective, the higher probability they will allow the placement of PB on their children. By contrast, parents' concern of the dental treatment was negatively associated with the effectiveness of PB placement. Thus, the more worried they were about their children's dental treatment, the less they believed the efficiency on their children. Most studies reported that passive immobilization or physical restraints are among the least accepted treatments. Thus, we noted an increase in PB acceptance among our targeted sample.

Numerous previous studies reported that PB is mainly indicated in young uncooperative children.^{1,2,8,10,12,13,16,25} However, its usage for reasonable cooperative children is not denied. Thus, our study sought to extrapolate its usage to any type of children receiving dental treatment. The study aimed to normalize the usage of PB in any type of children accepting dental treatment, but our target sample was parents with normal children.

Respondents' judgment concerning the behavioral management technique was more positive and accepting when sufficient information was given. Informed parents reported higher acceptance levels of behavior management technique than uninformed parents.²¹ Allen et al. proved that verbal explanation is the best method to use as it produces well-informed parents with consent.²⁶ Verbal explanation ensures that both clinicians and parents achieve a parallel understanding by involving two-way communication between two parties.^{26,27} In conclusion, parents in the studied area showed positive attitudes and acceptance toward the use of PB on their child during dental treatment as a behavioral management technique in

dentistry. Age of the parents was the only determining factor that influenced parents' willingness toward the use of PB where older parents were more receptive toward PB than their younger counterparts. Thus, 60 mm was chosen as the cutoff point. This cutoff point was limited to our research and not meant for use in other studies.²⁸ The study decided to divide the VAS score into two ends as "totally disagree" and "totally agree".²⁹

CONCLUSION

The PB appears to be well accepted by parents as a behavioural management technique in the condition that a proper explanation of its usage is given before its application. Within the limitation of the study, we found that the total number of samples was the immediate limitation of the study. Moreover, our decision to use a questionnaire not written in Bahasa Malaysia prevented us from engaging with other patients who were not proficient in English. For future study, we can improve the i) inclusion and exclusion criteria to establish a targeted group and ii) sample size to widen our search and location, thereby representing the targeted group well.

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CONFLICT OF INTERESTS

All authors declared that they have no conflict or financial interest in the study.

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