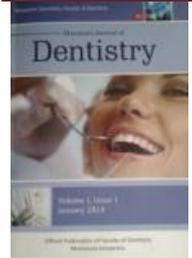# Live Modelling Vs Tell- Show-Do Technique for Behaviour Management of Children in the First Dental Visit

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Abstract:

Objectives: Unlike many other nontraditional management techniques, there is some evidence that live modeling is making its way into more dental clinics. Tell–Show–Do is the most commonly used technique in pediatric dentistry. The objectives of the present study are to evaluate and compare children response (aged 6-9 years) to these Live Modelling and Tell Show Do techniques during first visit treatment. Measuring objective and subjective parameters of stress, including pulse rate, oxygen saturation, and facial image scale.

Methods: The study was conducted on a sample Egyptian children presenting for the first time to the Pediatric Dental Clinic - Mansoura University, Egypt. Children aged 6-9 years, randomly divided into the following 3 groups: Group A: live modelling technique (mother as model). Group B: live modelling technique (father as model). Group C: tell–show–do technique. Each group composed 40 Children, 20 Girl and 20 Boy.

Results: All children were subjected to rotary prophylaxis treatment and the vital sign and FIS were recorded, the average pulse rate and FIS scores over the entire treatment period were significantly lower among girls/boys in group A (live modelling by mother) than among those in group B (live modelling by father) and group C (tell– show–do method); ($P < 0.001$). Oxygen saturation showed no significant differences between the three groups.

Conclusions: live modelling technique is valuable in Behaviour Management of pediatric dentistry.

Keywords: live modelling, behaviour management, pulse rate, oxygen saturation, facial image scale.

Introduction

Dental fear is a common, essential and inevitable emotion that appears as a response to the stress induced by various dental procedures. Its intensity varies from nervousness and anxiety to dental phobia and it is considered to be the main barrier for successful completion of treatment [1,2].Dentists have a wide variety of techniques available to them to assist management of child with anxiety [3]. The assessment of dental anxiety before dental treatment will help the dentist to facilitate proper technique for anxiety management. There are four types of dental anxiety assessing scales in children are: psychometric scales, projective techniques, behavior evaluation and physiological measures [4].

Objective stress parameters can be obtained by measuring pulse rate, breath rate, skin resistance, blood pressure [5].Several epidemiologic inquiries have revealed that the non-pharmacologic technique called "tell–show–do," which consists of explaining and demonstrating the operation of the instruments used during treatment remains the most commonly used technique in pediatric dentistry [6-8]. Modelling is another non-pharmacological technique described by Bandura [9]. It is the process of acquiring behaviour through observation of a model. Greenbaum and Melamed reported that the first study of modelling in pediatric dentistry was conducted in 1969, and several other studies followed in the 1980s [10-12].

According to these studies, two forms of modeling, live and recorded are effective in reducing children's fear and anxiety of dental treatments and promoting adaptive behavior [10,13,14], and worth being further explored as recommended by Baghdadi [15]. The idea behind modelling is that one person's behaviour can be altered as a result of them observing another person performing a given behaviour [16]. Modelling in other health settings has been well studied [17], and research has demonstrated that children can also benefit from viewing other children or their parents undergoing dental treatment, without fear reactions or aversive

consequences [17-19]. Modelling can be done live using a parent or significant other person in the child's life [20].

Materials and methods

The proposal of the research was approved by the ethical committee of Mansoura University. This study sample was conducted on 120 children 6-9-years old, presenting for the first time to the Pediatric Dental Clinic - Mansoura University, Egypt.

Children evolved in the study were presented for a first visit to the Pediatric Dental Clinic - accompanied by father or mother who is conditioned to have the mental and physical capacity to be as models. The selected children were divided into three groups:

Group A: children who were prepared for dental treatment by the live modelling technique with the mother as model.

Group B: children who were prepared for dental treatment by the live modelling technique with the father as model.

Group C: children who were prepared for dental treatment with the tell–show–do technique.

Presented by the pediatric dentist who performed treatment, each group was equally subdivided by gender to (girls/boys) to determine whether gender was a determining factor. Objective and subjective parameters were used to assess the degree of dental anxiety of children in the six subgroups. The child's subjective anxiety was recorded after the entire prophylaxis treatment finished, using facial Image Scale [21]. Children were asked to indicate on the scale the appropriate point that best represented their fear sensation, while sitting on the dental chair after finishing dental procedure (Fig. 1).

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The present study investigated two physiological parameters of stress- pulse rate and oxygen saturation, measured with pulse oximeter (Biolight Co., LTD J/M70-A008-2011C2), at 60-second intervals for a total of 5 data points. Each child's pulse rate and oxygen saturation was monitored during the entire prophylaxis treatment. Data were tabulated, coded then analyzed using the computer program SPSS version 17.0 to obtain the statistical comparison between the different groups, the significance of difference was tested using one of the following tests:-

The ANOVA test used to compare (pulse rate, oxygen saturation, age) data, Kruskal-wills H test used for inter-group analysis of facial image scores (FIS).Spearman's rho correlation test was used to assess relations between pulse rate and facial image scores. A *P* value <0.05 was considered statistically significant (S). And a *P* value <0.0001 was considered highly significant (HS) in all analyses.

Results

This work is carried out on 120 children were aged from 6 to 9 years with mean age 7.1 years; 60 girls and 60 boys. They all met the study criteria and voluntarily participated in the study: They were distributed equally into three groups; A, B, and C according to the study design. Each group divided to two equal subgroups by gender (girls / boys). The pulse rate over the entire treatment period in (girls/boys) was significantly lower in group A (live modelling by mother) than among those in group B (live modelling by father) and group C (tell– show–do method); (*P* < 0.001) as in Table 1 and 2. Among girls the mean difference in pulse rate between the groups A and B 17.07 beats/min and the mean difference between the groups A and C 20.87 beats/min. But in boys the mean difference between the groups A and B 16.58 beats/min, and the mean difference between the groups A and C 22.73 beats/min (Fig. 2).

Analysis of (FIS) scores revealed that, the average scores of fear perception by girls in group A were (1-2) which are lower than the scores in group B (2.25-4) and group C (1.25-3). The difference between the three group was highly significant (P<0.001). But in boys group A was (1-3) which are lower than the scores in group B (3.00-4.75) and group C (2.00-3.75). The difference between the three groups were highly significant (P<0.001) (there was no difference between groups B and C) as show in Table 3 (Fig. 3).

Discussion

This study was undertaken to compare the effects of live modelling and the tell–show–do method in reducing children's anxiety during dental treatments and to determine which of the particular model (mother/ father) used in live modelling were effective by live model technique. The comparison between groups A & C among two gender showed that live modelling with the mother as the model was more effective in reducing pulse rate than the tell-show-do method (*p* = 0.001). Of the 2 categories of live models used, mothers represented the most satisfactory model which appears clearly by difference in pulse rate between groups A&B .Girls showed decrease level of dental anxiety when compared with boys in the three groups (A, B&C), that appear clearly by highly significant

probability P value to the three group respectively (0.001, 0.002, 0.002).

Analysis of (FIS) scores similarly revealed that, fear perception range by group A (Live modeling mother) was the lowest compared with group B (live modeling father) and group C (Tell Show Do) which was highly significant (*P<0.001*). The results generally, favoured group A (mother as model) over groups B (father as model) and C (tell show do) for each of the 2 subgroups based on gender.

These results may be explanted by the following factors:

The relationship between a child and their dentist is a special one, as children do not choose to attend a dentist; their parents bring them. Parents may also play an important part in reducing a child's anxiety and allowing the dentist to form a treatment alliance [22]. Parents are also able to accurately predict the likely behaviour of their children [23,24], here in our study children look up to their parents to learn how to react in any situation, and repeat same behaviour from their parents. Children who have had negative experiences associated with medical treatment may be more anxious about dental treatment [25-27]. Similarly, fear sustained from previous unhappy dental visits has also been related to poor behaviour at subsequent visits [25,27].

Children who know they have a dental problem are more likely to exhibit negative behaviour at the first dental appointment [23,28], thus the first visit is corner stone in behaviour shaping. A relationship between maternal anxiety and difficulties in child patient management at all ages has been shown [22, 23, 25,26, 28, 29], thus when mother is unable to contain their own dental anxieties it may increase the child's own anxiety, in such cases when mother was less fearful helpful in reducing anxiety from her child [22]. Thus explained why the mother was the best model of the two parents. Many dentists have firm views on whether a parent should be present when dental treatment is carried out [30].

However, parents also have views and many prefer to be present during treatment, especially if their child is young or at an initial visit [21,30], thus in our study sharing the parents was happen. The Modelling technique is based on the psychological principle that people learn about their environment by observing others' behaviour, using a live model [31,32], to exhibit appropriate behaviour in the dental environment. This may demonstrate appropriate behaviour via a third party, decrease anxiety by showing a positive outcome to a procedure a child requires themselves, and illustrate the rewards for performing appropriately [33], from this the children in our study more motivated to be part when see one of them parent's participated in the session. Learning capacity (i.e., copying the model's behaviour) improves with age [16, 27, 34]. From this age of children participated in our study was ideal with increasing learning capacity.

Most studies of live modelling date back to the 1980s and 1990s [33, 35-39], and recent results are therefore not more; as such, comparisons of the current results with those of three recent studies were feasible. Our result regarding the effect of parental presence in the treatment room and effect on the children behaviour of decreasing anxiety and

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fear did not support result of. Shindova M. and Belcheva A., they found that, the parental presence or absence in the treatment room has no impact on the anxiety level of the children aged 6 -12 years during their clinical examination. This may be due to the difference of technique (live modelling) and the study design by precipitant of parents rather than presence only [40].

The result of this study showed that live modelling is more effective in reduced anxiety more than tell show do technique during dental treatment session, this results supported by the result of. Farhat-Mchayleh, et al in 2009 found that, children who received live modelling with the mother as model had lower heart rates than those who received live modelling with the father as model and those who were prepared by the tell–show–do method ($p < 0.01$). The model used for live modelling (father or mother) and the child's age were determining factors in the results obtained [17].

Sharma A. and Tyagi R., in 2011 [41] also reported that techniques like live modelling and tell show do are very effective in modifying a child behaviour. And this

support our results, although the difference was in the design of that study because using multiple visits session starting from prophylaxis to restorative pulp therapy and extraction to children with age range from 2 to14 years old, they concluded that techniques like live modelling and tell-show-do are very effective in achieving treatment goals in all age groups [41].

Conclusion

According to the methodology and based on the result of present study we can concluded that:

1. Live modelling is a technique worth practicing in pediatric dentistry.
2. The mother as live model more effective than father as a model in reducing children anxiety during the first visit.
3. The model used (e.g., mother or father) and the age of the child represent determining factors in the success of this technique.

Table 1: *Comparison between groups A, B, and C in girls regarding FIS, O2 saturation, and pulse rate.*

	Live modelling-Mother group A (n=20)	Live modelling-Father group B (n=20)	Tell-Show-Do group C (n=20)	*Test used*	*P* - value	Sig.
Age Mean ±SD	7.1±0.91	7.1±1.2	7.4±1.09	ANOVA	0.6	NS
FIS Median(IQR)	1(1-2)	3(2.25-4) [a]	3(1.25-3) [b]	Kruskal wllis	<0.001	HS
O2saturation Mean ±SD	98.2±0.75	98.28±0.45	98.29±0.99	ANOVA	0.9	NS
Pulse Mean ±SD	82.68±7.02	99.75±8.8 [a]	103.55±10.18 [b]	ANOVA	<0.001	HS

IQR: Interquartile range *P* –value: Probability HS: Highly significant   NS: Non significant.
a: Highly significant between Live modelling-Mother group AND Live modelling-Father group.
b: : Highly significant between Live modelling-Mother group AND Tell-Show-Do group.

Table 2: *Comparison between groups A, B, and C in boys regarding FIS, O2 saturation, and pulse rate.*

	Live modeling-Mother group A (n=20)	Live modeling-Father group B (n=20)	Tell-Show-Do group C (n=20)	*Test used*	*P* – value	Sig.
Age Mean ±SD	7.00±1.26	7.25±1.12	7.25±1.07	ANOVA	0.73	NS
FIS Median(IQR)	2(1-3)	3(3.00-4.75) [a]	3(2.00-3.75) [b]	Kruskal wallis	<0.001	HS
O2saturation Mean ±SD	98.12±0.82	98.24±0.52	98.22±1.15	ANOVA	0.89	NS
Pulse Mean ±SD	93.28±9.42	109.86±10.39 [a]	116.01±12.72 [b]	ANOVA	<0.001	HS

IQR: Interquartile range *P* –value: Probability HS: Highly significant NS: Non significant.
a:Highly significant between Live modelling-Mother group AND Live modelling-Father group.
b: Highly significant between Live modelling-Mother group AND Tell-Show-Do group.
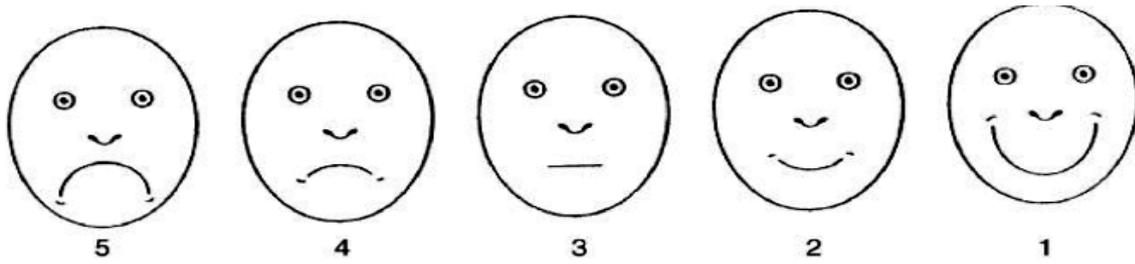
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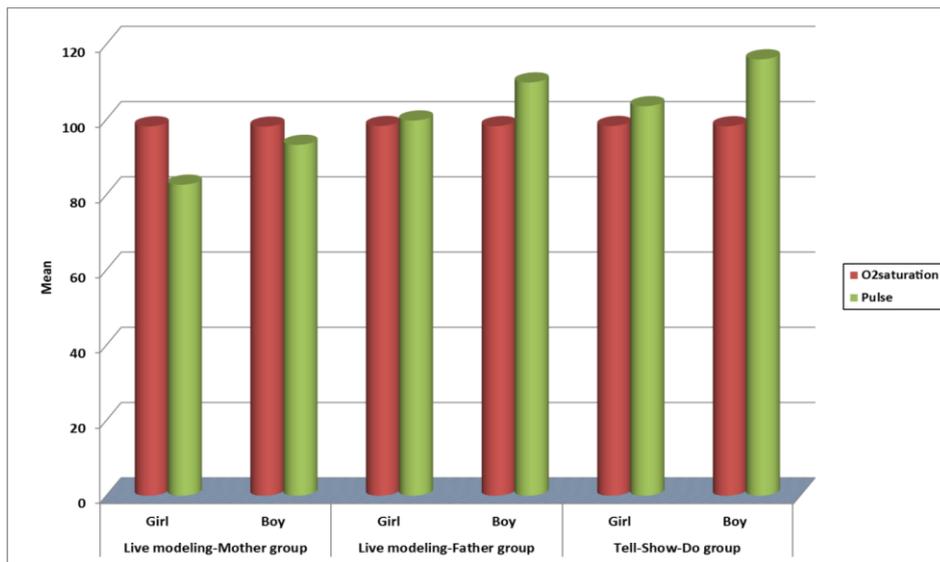Figure1: Facial Image Scale (FIS).

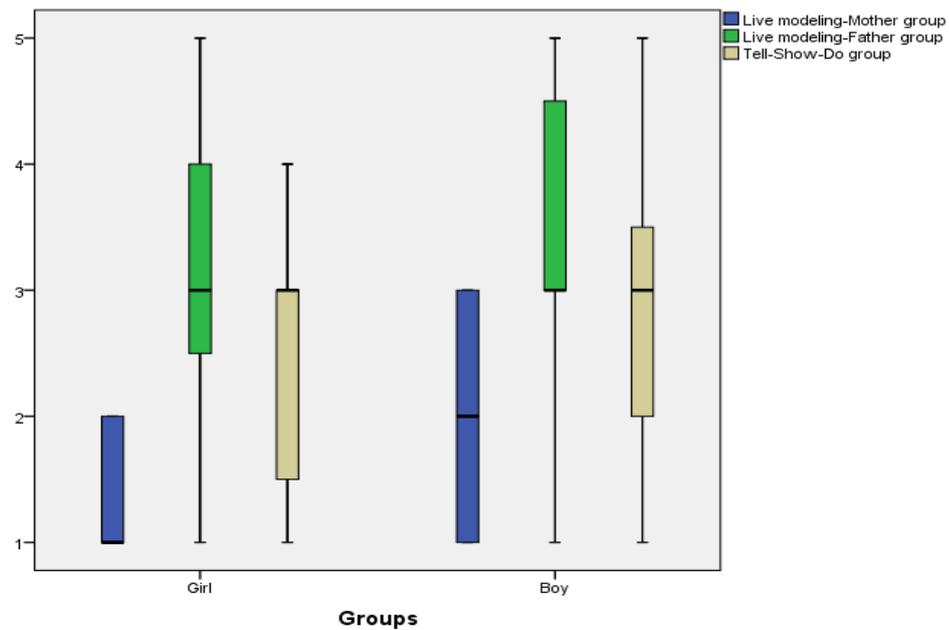Figure 2: The mean difference of pulse rate and oxygen saturation between groups (A, B and C) in all groups.

Figure 3: Facial Image Scores in different groups according to gender.

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