



## Implication of preferential behavior modification technique based on personality profile in pediatric patients

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### Abstract

Children bring their unique personalities into the dental chair, and these traits significantly influence how they respond to treatment. Whether a child is shy and reserved or outgoing and talkative, their personality can determine how anxious or cooperative they might be during a dental visit. Recognizing and working with these differences can be the key to a smoother, more positive experience for both the dentist and the patient.

**Objectives:** This study aimed to explore how a child's personality categorized as introvert, ambivert, or extrovert affects their behavior during dental treatment. It also sought to identify which behavior management techniques (BMTs) work best for each personality type to reduce anxiety and improve cooperation.

**Methods:** A total of 48 children aged 7 to 12 years attending their first dental visit were included in this cross-sectional observational study. Each child's personality was assessed using the Introversion–Extroversion Personality Inventory (IPEI), and their behavior was evaluated using the Frankl Behavior Rating Scale before and after treatment. Based on their pre-treatment behavior and personality, an appropriate behavior management technique was applied. Techniques included counselling, desensitization, Tell-Show-Do, and others.

**Results:** There was a statistically significant improvement in behavior following the use of tailored BMTs ( $p < 0.001$ ). Extroverted children responded best to counselling and storytelling techniques, while introverts showed better cooperation with desensitization and voice control. Ambiverts benefited most from Tell-Show-Do and desensitization. Overall, the most commonly effective technique was counselling, followed closely by dental story books and desensitization.

**Conclusion:** Understanding a child's personality can guide dentists in choosing behavior management strategies that truly work. A one-size-fits-all approach is no longer enough in pediatric care. By aligning techniques with personality traits, we can reduce anxiety, improve cooperation, and make dental visits more comfortable and even enjoyable for children.

**Keywords:** Behaviour Management, Child's Personality, Introvert, Ambivert, Extrovert, Behaviour Modification, Pediatric Dentistry

### Introduction

Pediatric dentistry extends beyond treating teeth, it involves understanding the child behind the smile. Every child comes with a unique personality, and what reassures one may not work for another. For this reason, recognizing and adapting to personality differences is essential in pediatric dental practice.

The concept of personality originates from the Latin word *personare*, meaning "mask," once used in theatre. Over time, the term has evolved to describe the complex interplay of thoughts, emotions, and behaviors that define how individuals engage with the world. Psychology today views personality as a dynamic system of internal traits that shape consistent behavioral patterns<sup>1</sup>.

In children, these traits become particularly significant in high-stress environments such as dental clinics. Extroverted children may express anxiety loudly, introverted children may withdraw, and ambiverts often display a blend of both behaviors. This makes pediatric dentists balance clinical efficiency with empathy, making behavior management techniques not just helpful but essential<sup>3</sup>.

Anxiety is a crucial determinant of child behavior during treatment. Unlike fear, which is triggered by a clear cause,

anxiety is often vague, anticipatory, and internally driven. Its expression varies across personality types, shaping how children cope in the dental setting<sup>2</sup>. Integrating psychological understanding into pediatric dentistry not only improves cooperation and treatment outcomes but also fosters trust between the child and the dentist.

### Aim and Objectives

The purpose of this study was twofold

1. To investigate the relationship between personality type (introvert, ambivert, extrovert) and child behavior during dental treatment.
2. To identify the most suitable behavior management techniques (BMTs) for each personality type in order to enhance cooperation and reduce dental anxiety.

### Methodology

This cross-sectional observational study was conducted at the Department of Pedodontics, Mahatma Gandhi Dental College and Research Institute, Jaipur. Ethical clearance was obtained, and informed consent was collected from all guardians prior to participation.

**Sample Selection**

A total of 48 children aged between 7 and 12 years, attending their first dental visit, were included in the study. Only children requiring Class I restorations were considered.

**Inclusion criteria**

- Medically fit children aged 7–12 years
- First dental visit
- Requirement of Class I restoration
- Parental consent obtained

**Exclusion criteria**

- Children with deep caries or pulpal involvement
- Children with prior dental treatment experience
- Medically compromised children
- Lack of parental consent

**Assessment Tools**

Personality type was assessed using the Extroversion–Introversion Inventory developed and validated by Arip *et al.*<sup>[4]</sup>. Child behavior was evaluated using the Frankl Behavior Rating Scale (FBRS) before and after treatment.

**Procedure**

Based on each child’s pre-treatment personality profile and behavior, appropriate BMTs were applied. These included counselling, desensitization, Tell-Show-Do, parental presence/absence, modelling, distraction, and voice control.

Following the application of these techniques, post-treatment behavior was re-evaluated using the FBRS to measure effectiveness.

**Results**

In the present study, behaviour management technique used for Ambivert was desensitization and tell show do. For Extrovert, Counselling was required for majority of the participants (25%), followed by dental story book for 21.4% children, distraction technique was used for 14.3% extroverts and modelling was required 10.7% respectively. For, introverts most common technique used was desensitization and voice control (22.2%) respectively. Tell show do as behaviour management technique was used for, 16.7% children. In introvert parental presence was required for 11.1% children whereas in extroverts it was required only for 3.6% children whereas in ambiverts this technique was not used.

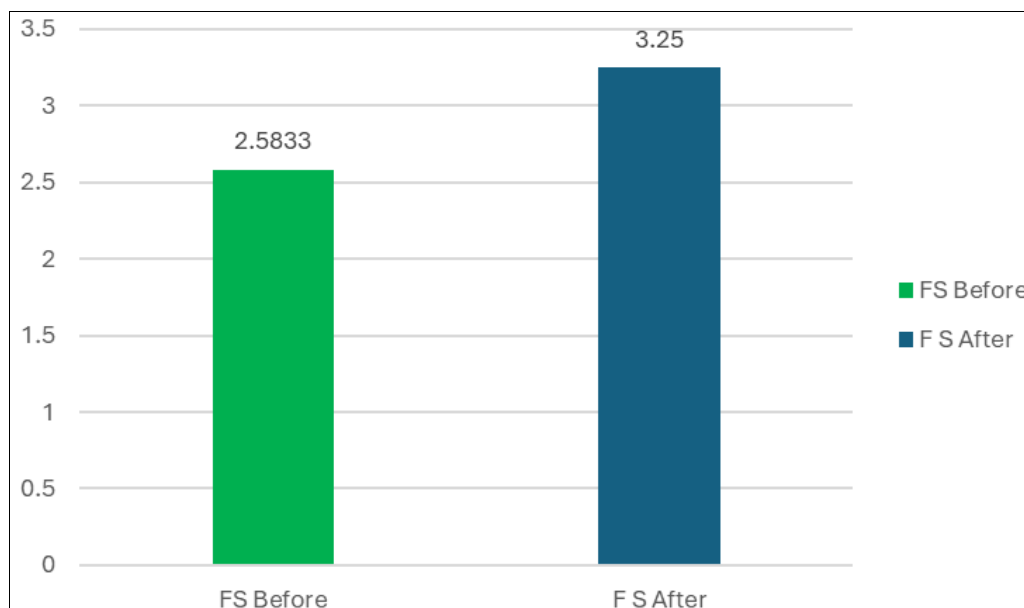
Overall, the results showed, counselling was the most commonly used in extroverts and most of the introverts required desensitization technique. In ambiverts desensitization and Tell show do both techniques were used respectively. It was observed that out of total children included in study most commonly used technique was counselling (16.7%) followed by dental story books (12.5%), desensitization (12.5%), voice control (12.5%), Tell Show Do (12.5%) respectively. These findings were not statistically significant. (p>0.05)

**Mean Age of the Children**

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Age	48	7.00	12.00	9.2708	1.51221
Valid N (listwise)	48				

Mean age of the participants in the study was 9.27±1.51 years

Score		Mean	N	Std. Deviation	Std. Error Mean	Mean Difference	
Score	FS Before	2.5833	48	.94155	.13590	-0.666±0.519	<0.001**
	F S After	3.2500	48	.75794	.10940		



3.25±0.75 which was found to be statistically highly significant.(P<0.001)

The average FS Score before treatment was 2.5±0.94 after the behaviour management technique the FS score was

**Distribution of participants based on BMT used for different personality types**

		Personality Type			Total	P value
		Ambivert	Extrovert	Introvert		
BMT	COMMUNICATION	Count	0 <sub>a</sub>	0 <sub>a</sub>	1 <sub>a</sub>	1
		% within Personality Type	0.0%	0.0%	5.6%	2.1%
	COUNSELLING	Count	0 <sub>a</sub>	7 <sub>a</sub>	1 <sub>a</sub>	8
		% within Personality Type	0.0%	25.0%	5.6%	16.7%
	DENTAL STORY BOOK	Count	0 <sub>a</sub>	6 <sub>a</sub>	0 <sub>a</sub>	6
		% within Personality Type	0.0%	21.4%	0.0%	12.5%
	DESENSITIZATION	Count	1 <sub>a</sub>	1 <sub>b</sub>	4 <sub>a,b</sub>	6
		% within Personality Type	50.0%	3.6%	22.2%	12.5%
	DISTRACTION	Count	0 <sub>a</sub>	4 <sub>a</sub>	1 <sub>a</sub>	5
		% within Personality Type	0.0%	14.3%	5.6%	10.4%
	MODELLING	Count	0 <sub>a</sub>	3 <sub>a</sub>	0 <sub>a</sub>	3
		% within Personality Type	0.0%	10.7%	0.0%	6.3%
	PARENTAL ABSENCE	Count	0 <sub>a</sub>	0 <sub>a</sub>	1 <sub>a</sub>	1
		% within Personality Type	0.0%	0.0%	5.6%	2.1%
	PARENTAL PRESENCE	Count	0 <sub>a</sub>	1 <sub>a</sub>	2 <sub>a</sub>	3
		% within Personality Type	0.0%	3.6%	11.1%	6.3%
REWARD	Count	0 <sub>a</sub>	1 <sub>a</sub>	1 <sub>a</sub>	2	
	% within Personality Type	0.0%	3.6%	5.6%	4.2%	
TELL SHOW DO	Count	1 <sub>a</sub>	2 <sub>a</sub>	3 <sub>a</sub>	6	
	% within Personality Type	50.0%	7.1%	16.7%	12.5%	
TENDER LOVE CARE	Count	0 <sub>a</sub>	1 <sub>a</sub>	0 <sub>a</sub>	1	
	% within Personality Type	0.0%	3.6%	0.0%	2.1%	
VOICE CONTROL	Count	0 <sub>a</sub>	2 <sub>a</sub>	4 <sub>a</sub>	6	
	% within Personality Type	0.0%	7.1%	22.2%	12.5%	
Total		Count	2	28	18	48
		% within Personality Type	100.0%	100.0%	100.0%	100.0%

0.243

**Personality-Based Effectiveness of BMTs**

- **Introvers:** Most benefited from desensitization (22.2%) and voice control (22.2%), followed by Tell-Show-Do (16.7%). Parental presence was supportive in 11.1% of cases.
- **Extroverts:** Responded most positively to counselling (25%), followed by dental storybooks (21.4%), distraction (14.3%), and modelling (10.7%).
- **Ambiverts:** Benefited equally from Tell-Show-Do (50%) and desensitization (50%).

Overall, counselling was the most frequently used and effective method (16.7%), followed by dental storybooks (12.5%), desensitization (12.5%), voice control (12.5%), and Tell-Show-Do (12.5%). Although these patterns were observed, statistical analysis revealed no significant difference in technique effectiveness across personality types (p > 0.05).

**Discussion**

Pediatric dental appointments often require balancing technical treatment with an understanding of the child’s emotional world. This study highlights the strong influence of personality type on how children respond to behavior management techniques.

**Personality and Response Patterns**

Extroverted children, being naturally communicative and socially responsive, showed the greatest improvement when

interactive methods such as counselling and storytelling were used. Storybooks helped transform dental treatment into an engaging, less intimidating experience, fostering both cooperation and understanding.

In contrast, introverted children often displayed withdrawal or silence in response to stress. For them, gradual exposure through desensitization proved most effective, as it allowed familiarity with the dental environment at a slower pace. Calm but firm voice control also reassured these children and reduced anxiety without overwhelming them. Importantly, parental presence provided an additional emotional anchor for some introverted children.

Ambiverts, positioned between the two extremes, showed flexible responses. They benefited from structured, stepwise techniques such as Tell-Show-Do, which combined explanation with demonstration. This approach provided both clarity and reassurance, allowing ambiverts to feel in control.

**Clinical Significance**

These findings support the growing recognition that no single behavior management strategy works for all children. A child’s resistance or silence should not be misinterpreted as cooperation but rather understood as a reflection of their underlying temperament. Similarly, hyperactivity or restlessness may stem from anxiety rather than disobedience. Aligning BMTs with personality allows dentists to respond to the child’s emotional needs rather than just the outward behavior.

Our results are consistent with previous studies, which emphasize the link between temperament and behavior in

dental settings. Pop-Jordanova *et al* [2], demonstrated that anxiety expression varies across personality types, while Thamilvanan *et al* [3], highlighted the importance of tailoring strategies to child temperament. Moreover, Rothbart and Ahadi [1] described personality development as an interaction between temperament and external influences, reinforcing the importance of individualized approaches in clinical care.

### Practical Implications

The use of creative tools, particularly dental storybooks, showed promise in reducing anxiety among extroverts but could be expanded for other personality groups. Introducing personality profiling as a routine step in first dental visits may help develop individualized behavioral roadmaps. Such approaches can transform pediatric dentistry from a potentially stressful event into an empowering, child-friendly experience.

### Conclusion

Understanding the emotional and psychological makeup of pediatric patients is key to providing personalized dental care. This study demonstrates that tailoring behavior management techniques to a child's personality type can significantly improve cooperation and reduce dental anxiety.

- Extroverts respond best to counselling and storytelling approaches.
- Introverts benefit from desensitization and voice control, with parental presence playing a supportive role.
- Ambiverts show the most improvement with structured approaches such as Tell-Show-Do and gradual exposure.

These findings emphasize that a one-size-fits-all approach is insufficient in pediatric dentistry. By integrating personality profiling into routine dental assessments, clinicians can create more comfortable, cooperative, and positive treatment experiences, ultimately fostering long-term trust and compliance in young patients.

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