



## EVALUATION AND COMPARISON OF ANXIETY IN PRETERM AND FULL-TERM CHILDREN AGED 4-6 UNDERGOING RESTORATIVE TREATMENTS

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### ABSTRACT

*A preterm newborn is defined as a baby born before 36 weeks and 6 days of gestational age. These children are susceptible to long-term complications. These children are sometimes exposed to high demands. One of these is being in various dental conditions. Anxiety and fear may be experienced by patients referring to a dentist, especially in children. The various effects of preterm birth on neurodevelopmental and cognitive outcomes may also affect cooperation in the dental care situation and oral health. Therefore, the purpose of this study is to evaluate stress in pre-term children and compare it with term children in order to understand these children and manage them correctly in dentistry. In this cross sectional study a total of 127 premature children born under 29 weeks of 14 gestational age in Al-Zahra Hospital of Tabriz University of Medical Sciences between 2015 and 2017 were identified. Children who needed restorative amalgam treatment of the mandibular molar were selected for this study. Finally, 120 preterm children participated in the study. The following variables were collected and analyzed: Anxiety during amalgam restoration based on the Faces version of the Modified Child Dental Anxiety Scale questionnaire and General anxiety of the child based on the PAS questionnaire. Statistical analyses were performed using SPSS 22. The significance level was set at  $P < 0.05$ . The overall mean of the Modified Child Dental Anxiety in preterm children ( $16.45 \pm 5.083$ ) was significantly higher than full-term. There were significant differences in obsessive-compulsive disorder between the two groups, but in the overall mean, there were no significant differences between the two groups. There was no significant relationship between anxiety during dental treatments and anxious mood in the full-term group.*

*Based on the results, it can be concluded that there was a significant difference between the anxiety of preterm and full-term children, with higher levels of general anxiety in these children.*

**Keywords:** Anxiety, Preterm, Full-term, Restorative dentistry.

### INTRODUCTION

A preterm newborn is defined as a baby born before 36 weeks and 6 days of gestational age. 'Very preterm' is used to describe babies born between 29 and 32 weeks, and 'extremely preterm' to describe children born between 23 and 28 weeks.<sup>1</sup>

Today, the majority of these children survive without significant impairments.<sup>2,3</sup> Because of improvements in neonatal intensive care in recent decades, 'extremely preterm' babies have a greater chance of survival than ever before.<sup>4</sup>

However, these children are susceptible to long-term complications, such as physical health problems, behavioral and psychiatric disorders, and emotional difficulties during childhood.<sup>4</sup> These complications increase with decreased gestational age and birth weight.<sup>2,5</sup>

These children's cognitive and behavioral disorders include learning disabilities that affect school achievements and subsequent academic achievements.<sup>6</sup> Reports also indicate low IQ and perceptual ability in these children.<sup>7,8</sup> These children are sometimes exposed to high demands.<sup>7</sup> One of these is being in various dental conditions. In such cases, the demands and expectations of the child do not always correspond to their capacity and maturity.<sup>9</sup>

Anxiety is an emotional state that precedes the actual encounter with the threatening stimuli, which sometimes is not even identifiable.<sup>10</sup> Anxiety and fear may be experienced by patients referring to a dentist, especially in children. Dental anxiety evokes physical, cognitive, emotional, and behavioral responses in an individual. It is a frequently encountered problem in dental offices.<sup>11,12</sup>

Dental anxiety during the first visit of the child can be attributed to several factors such as previous adverse medical experiences, learning from family members or peers, individual personality traits, lack of understanding of the situation, facing negative images in the media etc.<sup>13</sup>

Anxiety during treatment can be attributed to stimuli such as the sight of a needle, the sound of a turbine, the smell of eugenol and dentin, as well as the sensation of high-frequency vibrations.<sup>14</sup>

Anxiety is often associated with painful stimuli that can reduce the pain threshold, leading to greater pain perception. Treating patients with severe anxiety is a challenge for dentists.<sup>11,12</sup> These patients, due to reduced cooperation, need more treatment time.<sup>13,14</sup>

The prevalence of dental anxiety varies between 3% and 43% worldwide, with higher anxiety levels in early childhood because of a predominance of perceptual illusions over logical reasoning.<sup>15</sup> The reported prevalence of dental anxiety is higher in girls than in boys, although a few studies have reported no differences between the two genders.<sup>16</sup>

The various effects of preterm birth on neurodevelopmental and cognitive outcomes may also affect cooperation in the dental care situation and oral health. Oral health is an integral part of one's general health and well-being; however, little is known about how prematurity affects oral health and other related areas, such as dental care and dental fear and anxiety (DFA) in preschool children.<sup>1</sup>

Therefore, this study evaluated the level of anxiety in premature children to identify and understand the behavioral management problems of these children during dental treatment to allocate the necessary time and methods to treat them.

Dental anxiety is only one of the critical factors that influence dental behavior. The uncooperative behavior of preschool patients cannot be explained by dental anxiety alone, as



not all patients with dental anxiety show uncooperative behavior. Thus, not all uncooperative behavior is the product of dental anxiety.<sup>17,18</sup>

Other factors, such as personality characteristics and temperament, may influence behavior.<sup>19</sup> Dental fear and anxiety have also been linked to increased general fears. Dental fear itself may be a manifestation of another disorder, such as fear of heights (acrophobia) and flying, claustrophobia, and other fears. Dental fear and anxiety may also be linked to general behavioral problems, and children at risk of developing internalizing disorders (i.e., separation anxiety disorder, generalized anxiety disorder, obsessive-compulsive disorder) are more likely to exhibit dental fear.<sup>20</sup>

General anxiety has been well linked to dental anxiety.<sup>21</sup> Because of this relationship, we also evaluated general anxiety in this study.

## MATERIALS AND METHODS

### *Study Design and Population*

This cross-sectional study was carried out in the Department of Pediatric Dentistry, Faculty of Dentistry, Tabriz University of Medical Sciences.

A total of 127 premature children born under 29 weeks of gestational age in Al-Zahra Hospital of Tabriz University of Medical Sciences between 2015 and 2017 were identified. We matched full-term children in sex, age, and number for each preterm child. After explaining the purpose of this study to parents during a telephone call, they were invited to the Pediatric Dentistry Department to treat decayed deciduous teeth. Written consent was obtained from the patients' parents, and verbal consent was obtained from the child.

After a comprehensive examination of the oral cavity, children who needed restorative amalgam treatment of the mandibular molar were selected for this study. Seven children were excluded due to non-compliance with the inclusion criteria or unwillingness to continue their cooperation, and finally, 120 preterm children participated in the study. To improve the reporting of the randomized clinical trial, we followed the Consolidated Standards of Reporting Trials diagram (Figure 1).

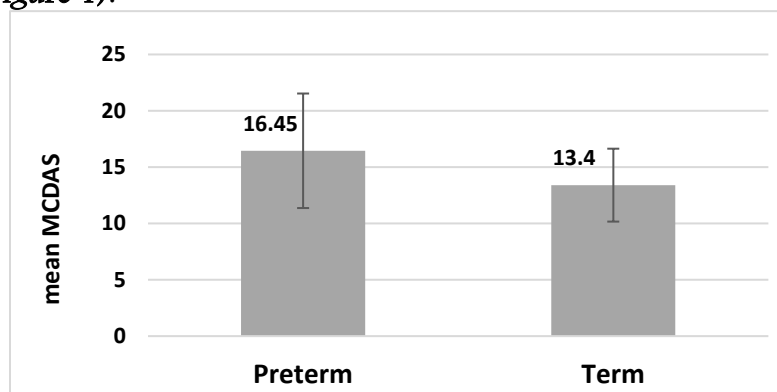


Figure 1. Consolidated Standards of Reporting Trials Diagram.



The following variables were collected and analyzed:

Anxiety during amalgam restoration based on the Faces version of the Modified Child Dental Anxiety Scale questionnaire

General anxiety of the child based on the PAS questionnaire

#### *Ethical Considerations*

The present study was ethically approved by the Ethics Committee on Human Studies at Tabriz University of Medical Sciences under the code IR.TBZMED.REC.1400.861. In addition, the current clinical trial was registered in the Iranian Registry of Clinical Trials under the code IRCT20210103049926N1.

In the present study, the parents were asked to read, understand, and complete the informed written consent form for their child's participation in the study. In addition, due to the Covid-19 pandemic, the patient and parents were asked about any symptoms of Covid-19, such as fever, cough, shortness of breath, or other symptoms of respiratory diseases. If there were any symptoms, the patient was excluded from the plan and referred to the relevant care centers.

#### *Inclusion Criteria*

Children 4-6 years of age

Children with no dental treatment history

Presence of at least one carious mandibular primary molar requiring restorative treatment

Children with the ability to cooperate during the dental treatment

#### *Exclusion Criteria*

Children with symptoms of respiratory disease or Covid-19

The patient or the parents' reluctance to cooperate at any stage of the study

Chronic or serious medical problems, including CHD

#### *Study Protocol*

Preterm patients were identified from the hospital medical records and invited to participate in this study by telephone. Study conditions were explained to parents, and written consent was obtained. Verbal consent was obtained from the child too.

All the children were examined by a pediatric postgraduate student, a record was made, and children who needed mandibular primary molar amalgam restoration treatments were selected.

Medical conditions, including gestational age, weight, Apgar, multiple pregnancies, and medical complications, were obtained from the medical records archives of Al-Zahra Hospital.

Iranian demographic data questionnaire was used to assess the socioeconomic status. To assess the general anxiety and fear in the children, the Preschool anxiety scale by Spence and Rapee (1999) was filled by the parents.



Before starting the clinical procedure, instruments were introduced to the child by the usual behavioral control techniques, including the tell-show-do method, to establish efficient child communication.

After inferior alveolar nerve block injection, a class I or II amalgam restoration of primary mandibular molars was performed. All the dental procedures were carried out by a final-year postgraduate pediatric dentistry student in 30-45 minutes.

Behavioral Profiles of Anxious Solitary Children assessment by MCDAS questionnaires were completed by the children (20 and 21) at the end of restorative treatments.

### *The Instruments*

#### *Faces version of the Modified Child Dental Anxiety Scale [MCDAS (f)] Questionnaire*

This questionnaire is used to evaluate state anxiety in a wide age range in children during dental procedures (31). This index is self-reported and consists of 8 questions with 5 pictorial answers for each question. Scores on the MCDAS(f) scale may range from 8 to 40, with scores <19 indicating the absence of state anxiety, scores >19 indicating the presence of state anxiety, and scores >31 indicating severe phobic disorder (**Figure 1**) (32). The Persian version of this questionnaire had also been used in previous studies

#### *Preschool Anxiety Scale (PAS)*

According to the list of anxiety disorders, the fourth diagnostic and statistical system of mental disorders has 28 articles that assess the symptoms of separation anxiety disorder, generalized anxiety disorder, social phobia, fear of physical harm, and obsessive-compulsive disorder in children. The sum of these six subscales calculates the overall score of anxiety. After 28 items, there are unanswered questions about the child's experience of traumatic events to which he/she assigns no scores. However, if the child has experienced such an event, 5 other items indicating the post-traumatic stress disorder scores are followed. The score of these 5 items is not calculated in the total score and is given only for clinical attention to this disorder. The validity and reliability of this questionnaire in the Persian version have been established in various studies (20).

#### *Statistical analysis*

The study results were reported using descriptive statistical methods (mean  $\pm$  standard deviation, mean, minimum, maximum, frequency, and percentage). To compare the results of anxiety between the two groups, when the data distribution was normal, the independent-samples t-test was used, and when it was non-parametric, the Mann-Whitney U test was used. The normality of the data was analyzed with the Kolmogorov-Smirnov test. Statistical analyses were performed using SPSS 22. The significance level was set at  $P < 0.05$ .

## **RESULTS AND DISCUSSION**

Of the eligible 127 PT children, 120 agreed to participate in the study. We included the same number of full-term children in the study. **Table 1** provides the characteristics of the study population.



**Table 1.** Characteristics of gender, age, gestational age at birth, weight, and Apgar score in all the participating children (preterm and full-term controls)

		Preterm		Term		P-value
		Count	%	Count	%	
Gender	Male	48	40%	54	45%	0.500*
	Female	72	60%	66	55%	
Age	4 years	30	25%	30	25%	0.500
	5 years	60	50%	60	50%	
	6 years	30	25%	30	25%	
		Mean	SD	Mean	SD	
Gestational age at birth		26.80	0.83	39.45	1.19	<0.001**
Apgar score <sup>29</sup>	First min	5.90	1.21	8.70	0.80	<0.001**
	5 min	7.10	1.92	9.8	3.28	<0.001**
weight		1000.43	184.176	3289.21	402.272	<0.001**

\*Fisher's exact test

\*\*Independent t-test

In the preterm group, 40% of children were boys, and 60% were girls. In the full-term group, 45% were boys, and 55% were girls. There was no significant difference in gender between the two groups (P=0.5).

The mean gestational age in the preterm group was 26.80 weeks (range: 25-28 w), and the mean age of full-term children was 39.45 weeks (38-42 w), with a significant difference between the two groups (P≤0.001).

The mean weight was 1001.43±184.17 gr in preterm children and 3289.21±402.27 gr in full-term children, with a significant difference between the two groups (P=0.001).

The mean Apgar score at 1 minute in preterm children was 5.90, with 8.70 in full-term children. There was a significant difference between the two groups in Apgar score at 1 minute (P≤0.001). The mean Apgar score at 5 minutes in preterm children was 7.10, with 9 in term children. There was a significant difference between the two groups in Apgar score at 5 minutes (P≤0.001).

All the 'extremely preterm' infants were hospitalized in the intensive care unit. The infants who survived had complications. Respiratory distress was seen in 110 cases (92%), hyperbilirubinemia in 70 infants (58%), retinopathy of prematurity in 47 (38%), neonatal sepsis in 48 (40%), patent ductus arteriosus in 45 (37%), BPD (supplementary oxygen at 36 w) in 45 (37%), necrotizing enterocolitis in 10 (8%), and intraventricular hemorrhage (IVH) in 17 (14%).

Long-term complications included visual impairment in 18 children, bilateral hearing deficit requiring amplification in 19, and behavioral and psychological problems in 5.

Children with cerebral palsy and severe cognitive impairment were excluded from this study. Only 1% of full-term children had neonatal complications. Neonatal complications in the preterm group were significantly different from those in the full-term group ( $P \leq 0.001$ ). The age of children at the time of referral in the preterm and term groups were matched; 25% were 4 years old, 50% were 5 years old, and 25% were 6 years old.

Examination of demographic characteristics showed that the two groups did not differ significantly in any of the areas related to the job, educational status, monthly income, house and household items, assets, and cost-related healthcare variables of the parents or guardians.

Demographic characteristics related to the job and educational status, monthly income, house and household items, assets, and cost-related healthcare variables, were not significantly different between the two groups (**Table 2**).

**Table 2.** Distribution of the parents and guardians' jobs, in all the participating children (preterm and full-term controls)

			Manual worker	Housewife	Retired	Self-employed	Employee	Military	
Job	Preterm	No.	36	6	6	54	18		
		%	30.00	5.00	5.00	45.00	15.00		
	Full-term	No.	42		6	48	18	6	
		%	35.00	0.00	5.00	40.00	15.00	5.00	
	*P-value			0.755					
				Primary	High school	Associate's degree	Undergraduate degree	Postgraduate	
Educational	Preterm	No.	18	72	6	12	12		
		%	15.00	60.00	5.00	10.00	10.00		
	Full-term	No.	12	78	12	18			
		%	10.00	65.00	10.00	15.00			
	*P-value			.596					
				1	2	3	6		
Monthly income	Preterm	No.	60	24	36				
		%	50.00	20.00	30.00				
		No.	60	42	12	6			



	Full-term	%	50.00	35.00	10.00	5.00		
	*P-value						.282	
			1	2	3	4		
Home and home appliances	Preterm	No.	48	54	18			
		%	40.00	45.00	15.00			
	Full-term	No.	72	30	12	6		
		%	60.00	25.00	10.00	5.00		
	*P-value						.370	
				1	2	3	4	
Assets	Preterm	No.	30	36	36	18		
		%	25.00	30.00	30.00	15.00		
	Full-term	No.	42	48	24	6		
		%	35.00	40.00	20.00	5.00		
	*P-value						.568	
				1	2	3	4	5
Health-related costs	Preterm	No.	54	24	18	24		
		%	45.00	20.00	15.00	20.00		
	Full-term	No.	48	48		6	18	
		%	40.00	40.00	0.00	5.00	15.00	
	*P-value						0.056	

\*P-value: chi-squared test

Based on **Table 3**, Modified Child Dental Anxiety Scale (MCDAS) was compared between the two groups. There was no significant difference between the two groups ( $P=0.171$ ) regarding the first question of MCDS (how do you feel about going to a dentist generally).

There were no significant differences between the two groups ( $P=0.069$ ) regarding the second question, having your teeth look at.....?) (m2).

There were no significant differences between the two groups ( $P=0.402$ ) in the third question (...having your teeth scraped and polished?) (m3).

There were no significant differences between the two groups ( $P=0.445$ ) in the fourth question (...having an injection in the gum?) (m4).



There were no significant differences between the two groups ( $P=0.689$ ) in the fifth question (...having filling?) (m5).

Despite the lack of differences in the statistical analysis of each question of the Modified Child Dental Anxiety Scale, there were differences between the two groups in the total scores.

The overall mean in preterm children ( $16.45 \pm 5.083$ ) was significantly higher than full-term ( $13.40 \pm 3.23$ ) ( $P \leq 0.001$ ) (Figure 1).

**Table 3.** Frequency distribution of responses of Modified Child Dental Anxiety Scale (MCDAS) in the two groups (preterm and full-term controls)

			Not anxious	Slightly anxious	Fairly anxious	Very anxious	Extremely anxious	
M1	<b>Preterm</b>	No.	24	24	24	24	24	
		%	26.7%	50.0%	66.7%	66.7%	80.0%	
	<b>Full-term</b>	No.	66	24	12	12	6	
		%	73.3%	50.0%	33.3%	33.3%	20.0%	
	P-value							.171
	M2	<b>Preterm</b>	No.	24	30	12	48	6
%			40.0%	33.3%	40.0%	88.9%	100.0%	
<b>Full-term</b>		No.	36	60	18	6		
		%	60.0%	66.7%	60.0%	11.1%		
P-value							.069	
M3		<b>Preterm</b>	No.	12	12	42	18	36
	%		33.3%	28.6%	53.8%	50.0%	75.0%	
	<b>Full-term</b>	No.	24	30	36	18	12	
		%	66.7%	71.4%	46.2%	50.0%	25.0%	
	P-value							.402
	M4	<b>Preterm</b>	No.		18	42	60	
%				42.9%	50.0%	58.8%		
<b>Full-term</b>		No.	12	24	42	42	12	
		%	100.0%	57.1%	50.0%	41.2%	100.0%	
P-value							.445	
M5		<b>Preterm</b>	No.	18	30	42	6	24
	%		60.0%	55.6%	50.0%	20.0%	57.1%	



Full-term	No.	12	24	42	24	18
	%	40.0%	44.4%	50.0%	80.0%	42.9%
P-value				.689		

P-value: chi-squared test

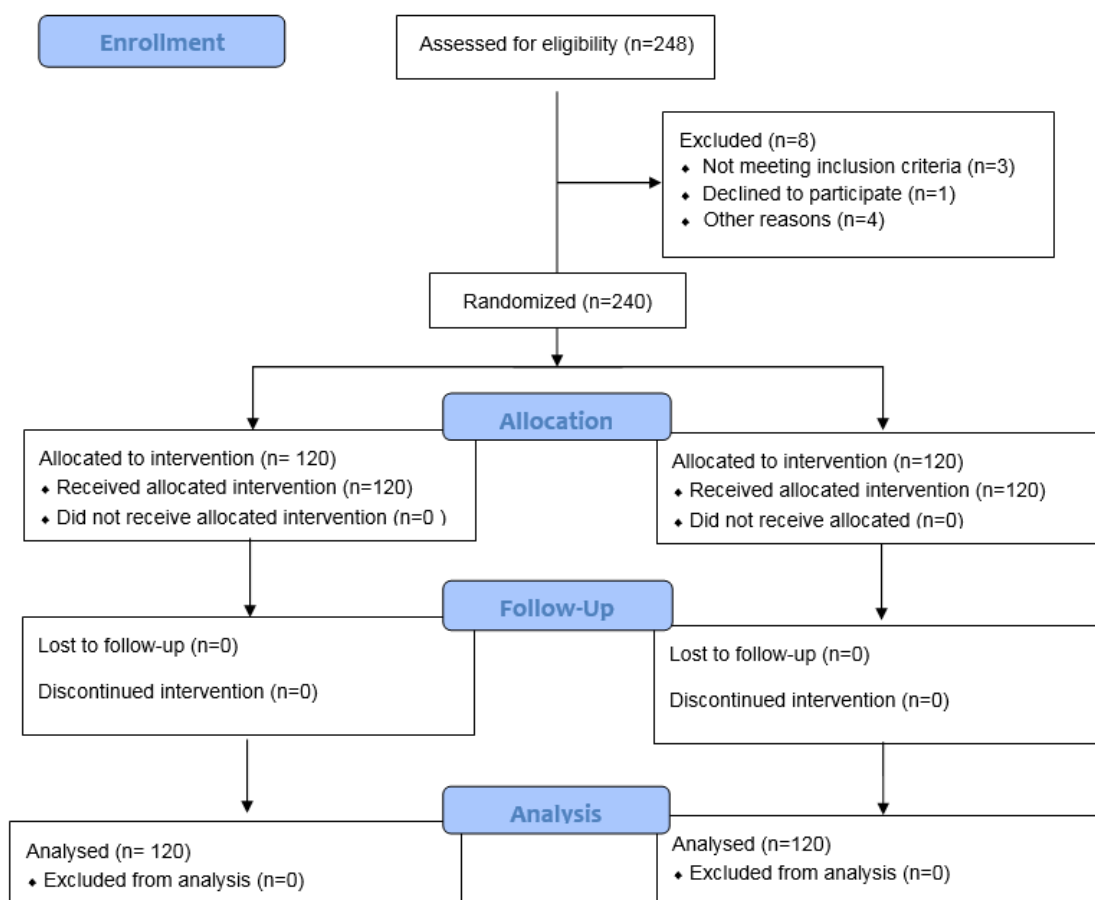
To evaluate general anxiety in children, we used the Preschool Anxiety Scale. Based on **Table 4**, the mean score of five behaviors on this scale was  $40.30 \pm 13.03$  in the preterm group, with  $34.05 \pm 11.44$  in the full-term group. (**Figure 3**) There were significant differences in obsessive-compulsive disorder between the two groups ( $P=0.016$ ), but in the overall mean, there were no significant differences between the two groups ( $P=0.115$ ) (**Figure 2**).

**Table 4.** Comparison of mean Preschool Anxiety Scale (PAS) between preterm and full-term children

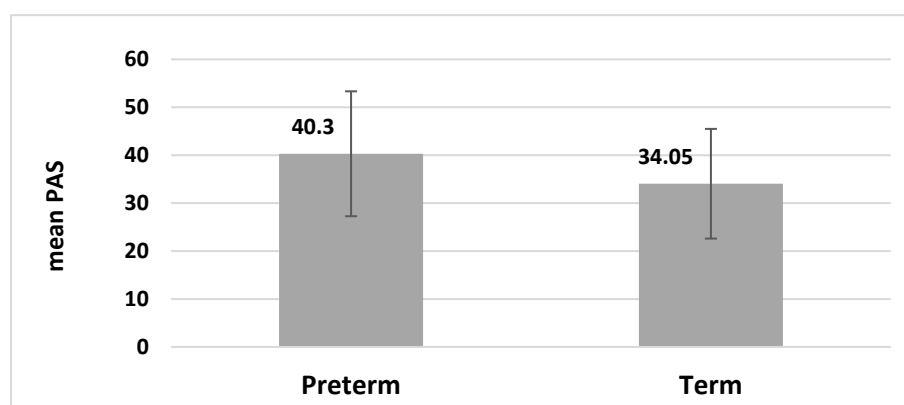
Subscale scoring	Preterm		Full-term		P-value
	Mean	SD	Mean	SD	
Generalized anxiety	7.35	3.45	5.95	3.24	.194
Social anxiety	8.15	6.02	5.20	4.02	.076
Obsessive-compulsive disorder	8.35	4.13	5.55	2.74	.016
Physical injury fears	8.00	5.59	9.60	3.87	.299
Separation anxiety	8.45	3.95	7.75	4.28	.594
PAS	40.30	13.03	34.05	11.44	.115

P-value: Independent T-test





**Figure 2.** Comparison of mean MCDAS anxiety between preterm and full-term children.



**Figure 3.** Comparison of mean PAS anxiety between preterm and full-term children.

Based on **Table 5**, there was a significant positive relationship between anxiety during dental treatments and anxious mood in the preterm group. In other words, with increasing anxiety during dental treatments, the anxious mood also increased. However, there was no significant relationship between anxiety during dental treatments and anxious mood in the full-term group.

Prematurity is defined as a birth that occurs before 37 weeks of gestational age. It is associated with a considerable risk of morbidity and mortality, particularly among ‘extremely preterm’ infants (gestational age <28 weeks). Thus, ‘extremely preterm’ infants have the highest mortality rate (approximately 50%) and, if they survive, they are at the greatest risk for severe impairment.<sup>22</sup>

**Table 5.** the relationship between Modified Child Dental Anxiety Scale and Preschool Anxiety Scale in two groups (preterm and full-term children)

		PAS		
		Preterm	Full-term	Total
MCDAS	Correlation	0.588**	-0.173	0.370*
	P-value	0.006	0.467	0.019
	N	120	120	240

P-value: Pearson’s correlation

In order to better differentiate between full-term and preterm children, in this study, we included ‘extremely preterm’ children.

Socioeconomic status has a great impact on children’s development. Charkaluk et al<sup>23</sup> concluded that ‘very preterm’ children who were free of severe disabilities had mild delays in multiple areas of development. Their results underline the need for improved support of socioeconomically disadvantaged parents after preterm birth.

In this study, there was no statistically significant difference between the two groups regarding gender, economic status, social status, and age at the time of referral. Therefore, the effect of economic and social factors was not considered a confounding factor between the two groups.

There was a significant difference between the two groups in birth weight, Apgar score, and complications at birth.

In the present study, the mean baseline and 5-minute Apgar scores in EPT were significantly lower than in full-term children (P=0.000).

Cnattingius et al concluded that the risk of mortality and morbidity increased with decreasing 5- and 10-minute Apgar scores for each GA category.<sup>24</sup>

Fischer et al<sup>25</sup> reported that, particularly for EPT infants, the risk of mortality and morbidity for patients who required cardiopulmonary resuscitation (CPR) in the delivery room (based on Apgar score) was almost twice as high compared to infants not requiring CPR.

In this study, neonatal complications included respiratory distress, retinopathy of prematurity, neonatal sepsis, patent ductus arteriosus, BPD, necrotizing enterocolitis, and intraventricular hemorrhage (IVH) in the preterm group, significantly different from the full-term group.

Early survivors, especially children with low Apgar scores, those needing resuscitation, and those with neonatal complications, have a high rate of neuroplastic problems and general health.

In the present study, long-term complications were seen, including visual impairment in 18 children, hearing impairment in 19 children, and behavioral and psychological problems in 5 children.

Children with cerebral palsy and severe cognitive impairment were excluded from this study. Due to the lack of a coherent file on neurodevelopmental problems, our source of information was questioning the parents.

Taylor et al<sup>26</sup> reported that learning problems in children with ‘extremely preterm’ birth are evident in kindergartens and are associated with neonatal and early childhood risk factors.

[Serenius](#) et al<sup>27</sup> concluded that of the 441 ‘extremely preterm’ infants who had received active perinatal care, 66.4% had no or mild disability at 6.5 years of age; of the 371 controls, 3.0% had moderate or severe disability. Disability rates at 6.5 years increased relative to the rates at 2.5 years, consistent with the present study.

According to previous studies, general and neurological health problems directly affect the child’s level of cooperation during treatment. Also, the level of general anxiety and the history of dental treatments are effective in this regard. Therefore, children with a history of any dental procedures were excluded from the study.

Also, the relevant medical record was used for the effect of general anxiety. The mean Modified Child Dental Anxiety Scale (MCDAS) in preterm children ( $16.45 \pm 5.083$ ) was significantly higher than full-term children ( $13.40 \pm 3.23$ ).

BROGA RDH-ROTH evaluated dental behavior management problems, reporting that DBMP was more common in preterm children aged 3-6 years than in full-term controls.<sup>2</sup>

Another study showed that parental reports of dental BMP were more common in PT children than in FT children during the preschool period. This difference decreased with age.<sup>7</sup>

According to another study, premature babies were three times more likely to be diagnosed with a psychiatric condition, including anxiety and depression.<sup>3</sup> These studies are consistent with the present study. There was a significant relationship between preterm birth and symptoms of dental anxiety in the present study, consistent with other studies.

BROGA RDH-ROTH et al<sup>5</sup> evaluated stress and anxiety in the preterm and control groups at 17-19 years of age and found no significant differences in CFSSDS scores between them.

The differences in the results between these studies and the present study could be attributed to the age difference between the subjects.

These findings support the idea that PT children are affected by cognitive and perceptual inabilities during the preschool years and that the child’s ability to cope with stressful situations improves with age, possibly reflecting a compensatory effect.<sup>1</sup>

The children who were moderately or severely anxious in daily routines were also tensed during dental evaluations and exhibited significant dental anxiety.<sup>20</sup> To assess the effect of the child’s general anxiety factors on the level of dental anxiety, we used the PAS questionnaire, which contains 29 questions filled out by the parents. The main advantage of this test was the real anxiety status provided by the parents who answered the questions based on their observation



of the child since birth. There were significant differences in obsessive-compulsive disorder between the two groups ( $P=0.016$ ), but the overall mean was not significantly different between the two groups ( $P=0.115$ ).

Nigam et al<sup>28</sup> evaluated the correlation between general anxiety and dental anxiety in children 3-5 years of age and concluded that 24% of children showed an association between high levels of dental anxiety and high levels of general anxiety; 56% of children also exhibited high levels of dental anxiety with moderate scores of general anxiety, and 20% of children exhibited a positive correlation between low levels of dental anxiety and fear.

Brown-Jacobsen et al<sup>29</sup> compared child and parent reports of child anxiety with clinical assessment by Children's Anxiety Scale (SCAS). The results indicated that both the child and parents provided unique information for the diagnostic process.

Briggs-Gowan et al evaluated the relationship between maternal reports of child symptoms and teacher and child reports through interviews. In general, mothers reported more child behavior problems than children and teachers. The findings were discussed as possible evidence of the role of maternal affective symptomatology in both actual increases in child symptomatology and maternal reporting distortions.<sup>30</sup>

We did not find a correlation between general and dental anxiety in these children. This finding may be attributed to insufficient education of the participating mothers or their unfamiliarity with anxiety symptoms. It could also be due to parents' reluctance to report their child's symptoms correctly for cultural reasons or their children's reluctance to accept the problem.

## CONCLUSION

Based on the results, it can be concluded that there was a significant difference between the anxiety of preterm and full-term children, with higher levels of general anxiety in these children. In addition, general health rates such as hearing loss and vision loss and neurological problems such as autism were higher in these children.

Due to the high level of anxiety problems in these patients, a separate program is for effective dental treatment in these children based on appropriate behavioral management methods. Also, due to the physical problems of these children, which directly or indirectly affect their relationship with the therapist, more time should be devoted to their treatment.

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**CONFLICT OF INTEREST:** None

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