

ORIGINAL ARTICLE

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Pre- and post-treatment comparison of the anxiety, depression and stress conditions of fathers with children with developmental dysplasia of the hip in early childhood

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Abstract

To compare the pre-and post-treatment depression, anxiety, and stress scores of fathers with children who were diagnosed with Developmental Dysplasia of the Hip (DDH) during early childhood screening and to investigate the effect of socio-demographic differences. We included the parents of children diagnosed with DDH during the screening program in early childhood in the study, and their emotional states before and after treatment were evaluated in our clinic between April 2020 and January 2021 using the Turkish version of the Depression, Anxiety, Stress Scale-21 (DASS-21). The effects of socio-demographic changes on emotional status before or after treatment were analyzed from the data obtained. The emotional states of the parents before and after the treatment were compared. A total of 40 men with a mean age of 26.32 ± 4.40 years were included in the study. The participants' pre-treatment depression, anxiety, stress, and total scores were significantly higher when compared with the post-treatment scores ($p = 0.001$, $p = 0.001$, $p = 0.001$, $p = 0.001$, respectively). It was observed that socio-demographic variables did not affect depression, anxiety, and stress scores before or after treatment. It was observed that only the stress scores of the participants above the age of 30 before treatment were higher than the participants aged 20–24 ($p = 0.020$). In the fathers of children with DDH in early childhood, the increased levels of anxiety, depression, and stress before treatment create a temporary emotional state that regresses with treatment.

Keywords: Developmental dysplasia of the hip, DASS-21, anxiety, parent, father

Introduction

Developmental dysplasia of the hip (DDH) is a common musculoskeletal disorder in newborns and involves many diseases related to the abnormal development of the acetabulum and femoral head [1]. DDH is seen in 1%–7% of newborns in different populations [2–4]. DDH assessment is a routine part of the newborn examination because failure to detect neonatal hip instability or inappropriate response to the abnormal examination may cause long-term disability for the child [5].

The usefulness of DDH screening programs is controversial. However, delayed admission and/or diagnosis are associated with high healthcare costs, which can be minimized by screening

programs [6]. The diagnosis and management of DDH vary with the age at the time of diagnosis and management. When DDH is diagnosed in the early months after birth, treatment is typically simple and successful [7]. Generally, cases detected in the first six months are treated with a Pavlik bandage.

Anxiety and depression are among the compelling disorders that are common in the population and associated with decreased functionality. Although there are clinical situations that often occur together, they are conceptually different. Its association is a strong determinant of chronicity [8]. The concept of stress creates additional problems in the formation of negative emotional situations. Stressful life events are thought to lead to a characteristic stress response that generally includes chronic arousal and dysfunction, in addition to increasing the frequency of anxiety attacks and depressive episodes [9].

Coping with the prognosis of congenital malformations depends

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on factors, such as professional care and specialized healthcare services, in addition to the emotional structure of the family and the couple [10]. For the family, especially the mother, dealing with this situation may trigger anxiety [11]. Anxiety is a common disorder during pregnancy and puerperium when psychological and social adaptation is difficult in a women's life. It has been shown that in 11% of mothers who gave birth to healthy children, anxiety symptoms may occur within the first 72 hours and even 6 weeks after birth [12, 13].

However, the kind of emotional response the father of the child diagnosed with the developmental disorder has to this situation and how this reaction changes after the treatment are not stated in the literature.

This study aims to compare pre-and post-treatment depression, anxiety, and stress scores of fathers with children diagnosed with DDH in early childhood and treated with a Pavlik bandage, and to evaluate how socio-demographic variables affect the scores.

Materials and Methods

This quantitative and cross-sectional study comprised parents of 1- to 3-month-old children diagnosed with DDH during screening in outpatient clinic conditions between April 2020 and January 2021. The study was approved by the local ethics committee on 18/03/2020, 2020 \ 06 sessions with decision no 03.

Exclusion criteria: 1- Parents of children with chronic disease or different congenital malformations, 2- Parents of children with cerebral palsy or any neurological disorder, 3- Parents whose child was hospitalized for three days and a more long time after birth, 4- Parents with an important psychological antecedent (panic attack, obsessive disorder), 5- Parents with a chronic illness that requires regular medication, 6- Parents living separately, 7- Parents of children diagnosed with DDH after six months, 8- All mothers.

To standardize the parents included in the study, only fathers of children diagnosed in the first three months after birth, with Graf type 2b and 2c dysplastic hip and treated with Pavlik bandage were included in the study.

The parents of the children diagnosed with DDH were informed by the specialist in pediatric orthopedics about the development of the disease, the treatment method, and the complications that may develop in the future. After the parents consented to participate in the study voluntarily within 7 days after being informed, the physician introduced the Turkish version of the Depression, Anxiety, Stress Scale-21 (DASS-21) questionnaire form to the parents via face-to-face interview method in an outpatient clinic setting, and the parents were asked to answer the questionnaire. Turkish validity and reliability have been established in clinical and non-clinical groups [14]. The fathers of the children whose treatment was completed were interviewed within 7 days after the treatment and asked to answer the questions in the Turkish version of the DASS-21 questionnaire form.

DASS-21: It is a self-report scale that evaluates the dimensions of depression, anxiety, and stress. Each section consists of 7 questions, in total 21 questions, and each question (between 0 and 3 points) is measured with a 4-point scale [15].

Statistical Analysis

Before the study, the sample size was calculated as 38 by using the G-Power 3.1.9.7 program and accepting type 1 (α) error as 0.05 and type 2 (β) error as 0.20.

The data obtained in the study were analyzed using the SPSS (Statistical Package for Social Sciences) for Windows, version 25.0 (IBM Corp., Armonk, NY, USA) program. Descriptive statistical methods (number, percentage, min-max values, median, mean, and standard deviation) were used while evaluating the data. The suitability of the data used for normal distribution was evaluated with the Q-Q Plot.

The independent t-test was used for the difference between two independent groups in comparison of quantitative data with normal distribution, and one-way analysis of variance was used for comparing more than two groups. In cases where there was no normal distribution, Mann-Whitney U test was used to compare two independent groups, and Kruskal-Wallis's analysis was used when comparing more than two independent groups. $P < 0.05$ was considered statistically significant.

Results

The study included 40 men with a mean age of 26.32 ± 4.40 years. While 22 (55%) participants had only one child, it was found that 19 (47.5%) were high school graduates, whereas the others received secondary and primary education. It was observed that not all cases were diagnosed during pregnancy and the total household income level was less than twice the minimum wage.

The participants' pre-treatment depression, anxiety, stress, and total scores were significantly higher when compared with the post-treatment scores ($p = 0.001$, $p = 0.001$, $p = 0.001$, $p = 0.001$, respectively). The comparison of depression, anxiety, stress, and total scores of the participants before and after treatment is shown in Table 1. However, when depression, anxiety, and stress scores were compared before or after treatment, it was observed that no condition affected more than the others.

Table 1. Comparison of participants' pre-and post-treatment, anxiety, depression, stress, and total scores

		Mean $\pm$ SD	t value	p-value
Depression	Pre-treatment	14.77 $\pm$ 2.41 (9-20)	-5.406**	0.000*
	Post-treatment	5.82 $\pm$ 3.25 (2-16)		
Anxiety	Pre-treatment	14.52 $\pm$ 2.76 (8-20)	-5.350**	0.000*
	Post-treatment	5.95 $\pm$ 3.12 (0-16)		
Stress	Pre-treatment	14.85 $\pm$ 2.55 (8-19)	12.544**	0.000*
	Post-treatment	6.40 $\pm$ 3.83 (1-17)		
Total scores	Pre-treatment	44.15 $\pm$ 6.76 (30-59)	-5.396**	0.000*
	Post-treatment	18.17 $\pm$ 9.58 (4-47)		

* $p < 0.05$, **Wilcoxon test

When the effects of socio-demographic (number of children, age, educational status) variables on depression, anxiety, and stress scores were examined, it was observed that only the pre-treatment stress scores of the participants over the age of 30 were higher than the stress scores of those between the ages of 20–24. The difference

was statistically significant ($p = 0.020$). It was observed that all other socio-demographic variables did not affect depression, anxiety, and stress scores pre-treatment or post-treatment (Table 2, Table 3, Table 4).

Table 2. Comparison of depression scores according to socio-demographic characteristics of the participants

	Variables	Mean±SD	t value	p-value	
Pre-treatment	Age (year)	20-24	14.38±2.19	0.570****	0.570
		25-29	14.81±2.76		
		30 years and older	15.50±2.20		
	Number of children	First	14.18±2.67	-1.765**	0.086
		Other	15.50±1.89		
	Education Status	Secondary education and below	14.57±2.16	-0.556**	0.581
		High school	15.00±2.71		
Post-treatment	Age (year)	20-24	5.88±3.10	1.235*****	0.539
		25-29	6.38±3.95		
		30 years and older	4.63±1.69		
	Number of children	First	5.50±2.92	179.500***	0.619
		Other	6.22±3.67		
	Education Status	Secondary education and below	6.00±3.62	197.500***	0.957
		High school	5.63±2.89		

* $p < 0.05$, **Independent t-test, ***Mann Whitney U test, **** One-way ANOVA, *****Kruskal Wallis test

Table 3. Comparison of anxiety scores according to socio-demographic characteristics of the participants

		Variables	Median±SD	t value	p-value
Pre-treatment	Age (year)	20-24	14.38±2.60	1.035****	0.365
		25-29	14.06±2.77		
		30 years and older	15.75±3.06		
	Number of children	First	13.95±2.94	-1.464**	0.151
		Other	15.22±2.44		
	Education Status	Secondary education and below	14.48±2.44	-0.116**	0.908
		High school	14.58±3.15		
Post-treatment	Age (year)	20-24	6.25±3.04	4.682*****	0.096
		25-29	6.63±3.26		
		30 years and older	4.00±2.51		
	Number of children	First	6.23±2.79	160.500***	0.312
		Other	5.61±3.55		
	Education Status	Secondary education and below	6.14±3.28	173.500***	0.486
		High school	5.74±3.03		

* $p < 0.05$, **Independent t-test, ***Mann Whitney U test, ****One-way ANOVA, *****Kruskal Wallis test

Table 4. Comparison of stress scores according to socio-demographic characteristics of the participants

	Variables	Mean±SD	t value	p value	Bonferoni
Pre-treatment	Age (year)	20-24 (1)	13.63±2.58		3>1
		25-29 (2)	15.25±2.44	4.326***	0.020*
		30 years and older (3)	16.50±1.60		
	Number of children	First	14.36±2.84	-1.343**	0.187
		Other	15.44±2.09		
	Education Status	Secondary education and below	14.24±2.53	-1.624**	0.113
Post-treatment		High school	15.53±2.48		
	Age (year)	20-24	6.63±3.44		
		25-29	7.19±4.39	1.520***	0.232
		30 years and older	4.38±3.02		
	Number of children	First	6.55±3.65	0.262**	0.795
		Other	6.22±4.15		
	Education Status	Secondary education and below	6.62±3.96	0.376**	0.709
		High school	6.16±3.79		

*p<0.05, **Independent t-test, ***One-way ANOVA

Discussion

These psychosocial findings show that although anxiety, depression, and stress levels increase after the diagnosis in fathers of children diagnosed with DDH in early childhood, the increase decreases after treatment. In other words, this suggests that anxiety, depression, and stress levels that occur after diagnosis decrease with the treatment of the child for DDH and that this situation is a temporary reaction.

The emotional state of parents is potentially an important factor in the management of DDH treatment. Firstly, this situation is diagnosed in the early postnatal period and creates additional stress for parents, especially the mother. Although there is no study showing the psychosocial effects of DDH on parents, it has been observed that disorders in infants can increase maternal anxiety, postpartum depression, compatibility problems, and marital difficulties [16, 17]. In addition, it was reported that the symptoms of anxiety, depression, and traumatic stress increased in the parents of children who had a critical illness, and emotional symptoms decreased after six months [18]. Similarly, in our study, anxiety, depression, and stress levels increased in fathers of children diagnosed with DDH.

Gardner et al. stated that early splinting due to DDH is associated with maternal anxiety [19]. Although the anxiety level of fathers has increased, it was not possible in our study to distinguish whether this was due to the Pavlik bandage or the diagnosis.

It was found that the anxiety, depression, and stress levels of fathers were significantly reduced after treatment. This may be due to the perception of successful treatment outcome of bandage removal, or from the belief in the success of the Pavlik bandage during post-diagnosis briefing.

In our study, it was found that pre-treatment stress levels of fathers

over 30 years of age were higher than fathers of age range 20–24 years. With increasing age, fathers' attachment or concerns about their children might have increased.

These results show that no significant difference was found in the anxiety, depression, and stress levels of fathers before treatment, whether the child diagnosed with DDH was the first child or the children born after that. Similarly, pre-treatment emotional states of fathers with high school education and fathers with secondary education or less are similar. In other words, it can be thought that the parenting feeling is not affected by the education level and the birth priority of the child.

According to the results, it is seen that socio-demographic differences do not affect the emotional state after treatment. Treatment success affects all fathers in the same way.

The fact that the study is a cross-sectional study that includes only one region and the number of participants being low is seen as a limitation of the study.

Conclusion

In conclusion, in fathers of children with DDH in early childhood, the increased levels of anxiety, depression, and stress before treatment of the child create a temporary emotional state that regresses with treatment.

Conflict of interests

The authors declare that they have no competing interests.

Financial Disclosure

The authors declared that this study has received no financial support.

Ethical approval

This study was approved by Kahramanmaraş Sutcu Imam University Faculty of Medicine Clinical Research Ethics Committee. (Session: 2020/06, Date: 18.03.2020, Decision No: 03)

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