The Effect of Circumcision on the Mental Health of Children Running Head: Circumcision and Mental Health

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Abstract

To investigate the effects of circumcision on children's behavioral characteristics, de-pression and anxiety levels. 35 boys, aged between 6-11, who were scheduled to be circumcised were included in the study. Child Depression Inventory and Stait Trait Anxiety Inventory for Children were administered to the children and Child Behaviour Checklist (4/18) was administered to their parents one week before the circumcision and one month and six months after the circumcision. The data were evaluated by SPSS 18 program. Total, internalization and externalization problem scores, anxiety/depression, delinquent behavior, attention problems subscale scores, one month and six months after circumcision were signifi-cantly lower when compared to the scores before the circumcision. Withdrawal, somatic com-plaints and aggressive behavior subscale scores six months after circumcision were significantly lower when compared to the period before circumcision. Although state anxiety and depression scores one month after circumcision were improved significantly, by the end of six months, there was no significant difference in terms of depression, state and trait anxiety scores. When evaluating the psychological consequences of a procedure which has historical, religious and cultural significance such as circumcision, social factors should also be taken into consideration. The positive meanings attributed to the circumcision in Turkey may reduce the negative effects of the operation on children's mental health. The results show that the circumcision does not increase depression and anxiety levels and behavioral problems of the children in Turkey.

Keywords: *Circumcision, child, behavioral problems, depression, anxiety*

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Sünnet Operasyonunun Çocuklar Üzerinde Ruhsal Etkileri

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Öz

Sünnetin çocuklarda davranış özellikleri, depresyon ve kaygı belirtileri üzerinde etkilerini incelemektir. 6 ile 11 yaşları arasında sünnet olması planlanan 35 erkek çocuk çalışmaya dahil edilmiştir. Çocuklar için depresyon ölçeği ve çocuklar için durumluk sürekli kaygı envanteri, çocuklar için davranış değerlendirme ölçeği (4/18) ise aileler tarafından sünnetten bir hafta önce, bir ay ve altı ay sonra yanıtlanmıştır. Veriler SPSS 18 programı ile analiz edilmiştir. Top-lam sorun puanları, içselleştirme, dışsallaştırma problemleri; kaygı/depresyon, suça yönelik davranışlar ve dikkat sorun puanları sünnetten bir ay ve altı ay sonra, sünnet öncesi döneme göre anlamlı oranda düşük bulunmuştur. Sosyal içe dönüklük, somatik yakınmalar ve saldırgan davranış sorun puanları sünnetten altı ay sonra sünnet öncesi döneme göre anlamlı oranda düşük bulunmuştur. Sürekli kaygı ve depresyon puanları sünnetten bir ay sonra anlamlı iyileşme gösterse de, altı ay sonunda depresyon, durumluk ve sürekli kaygı puanlarında anlam-lı bir fark bulunmamıştır. Sünnet gibi tarihsel, dini ve kültürel anlamları olan bir operasyonun ruhsal sonuçlarını değerlendirirken sosyal faktörler de dikkate alınmalıdır. Türkiye'de sünnete verilen olumlu anlamlar, operasyonun çocukların ruh sağlığı üzerindeki olumsuz etkilerini azaltabilir. Sonuçlar sünnetin, Türkiye'de çocukların davranış problemlerini, depresyon ve kaygı seviyelerini arttırmadığını göstermektedir.

***Anahtar Kelimeler*:** *Sünnet, çocuk, davranış problemleri, depresyon, kaygı*

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Introduction

Male circumcision consists of the surgical removal of some, or all, of the foreskin from the penis. It is one of the most common procedures in the World (AAP, 2012). It is suggested that 30% of males aged 15 and over have been circumcised and almost 70% of those are Muslim (Oy, 1991). WHO estimates that the prevalence of circumcision in United States and Canada are 75% and 20% respectively, while the prevalence in Europe is lower than 20% (WHO, 2006).

The reasons for circumcision may be classified as: medical-therapeutic, preventive-hygienic, religious and cultural. Males are usually circumcised for medical-therapeutic, preventive hygienic and religious reasons, while girls are circumcised for cultural reasons (Dekkers et al., 2005). In Western societies, circumcision is usually performed in infancy. In other communities, it may be performed at different periods of development (Zoske, 1998). In Turkey, circumcision is most frequently performed during childhood for religious reasons and under anesthesia either in hospitals, by urologists, general surgeons and pediatric surgeons, or as outpatient procedures by general practitioners (Karadag et al., 2015).

Specific benefits from male circumcision were identified for the prevention of urinary tract infections, acquisition of HIV, transmission of some sexually transmitted infections, and penile cancer, also male circumcision does not appear to adversely affect penile sexual function/ sensitivity or sexual satisfaction (AAP, 2012). There are reports suggesting that circumcision may cause post traumatic stress disorder (Menage, 1999; Ramos et al., 2001), violent behavior (Tractenberg, 1999) and may also interrupt the relationship between the child and the mother (Denniston, 1999). There are also previous reports which suggest that circumcision can lead to psychological, pain related, and sexual problems later in life (Goldman, 1999; Taddio et al., 1997; Frisch et al., 2013), on the other hand, population-based prospective studies of long-term psychological, sexual, and urological effects of circumcision are lacking.

According to the literature research, few systematic studies have been conducted on the psychological effects of male circumcision. The aim of this study is to determine the psychological and behavioral effects of the circumcision on male children.

Methods

This study was designed as a longitudinal study. The study was approved by the Ethics Committee of Cerrahpasa School of Medicine in Turkey. All the parents of the children who participated in the study gave a written informed consent before the study. 35 boys who were planned to be circumcised, and their parents were included in the study. The ages of the boys were between 6 and 11 years. All the operations were performed at hospitals by pediatric surgeons and urologists using local anesthesia.

All the operations were performed due to religious and cultural factors. Participants were interviewed 1 week before the operation, 1 month after the operation and 6 months after the operation. All of the children had been informed by their parents about their planned circumsion operation before the first interview. Children who have urologic or chronic medical problems were excluded. The circumcision was the first surgical operation of the participants.

Parents completed Child Behavior Checklist (CBCL) (4/18) and children completed Child Depression Inventory (CDI), State-Trait Anxiety Inventory for Children (STAIC). Parents of the children who were under 8 years old and unable to complete the scales because of their ages, fulfilled the CBCL (4/18). All of the parents (n=35), and 82 % (n=29) of the children who could understand and fulfill instruments considering their development levels, completed all tests.

CBCL (4/18) consists of 118 problem items and 20 competence items. Problem items are scored from 0 to 2 (0=not true, 1=somewhat or sometimes true, and 2=very true or often true, on the basis of the preceding 6 months). A syndrome score is the sum of scores on all items included in the syndrome scale, as defined by Achenbach (Achenbach, 1991). The following syndromes were analyzed: withdrawn, somatic complaints, and anxious/depressed, which form the internalizing group; social problems, thought problems, and attention problems, which are not part of either

the internalizing or externalizing grouping; and delinquent behavior and aggressive behavior, which form the externalizing group. Validity and reliability of the Turkish version of this scale were established by Dumenci, Erol, Achenbach and SimSek (Dumenci et al., 2004). In the present study, researchers did not use the competence items part of the CBCL 4/18.

The CDI consists of 27 self-report items that cover the symptoms of depression (Kovacs, 1985). Each item of the scale contains 3 sentences; which are scored as 0, 1 or 2 depending on the severity of the symptoms. The total scores of the scale can range between 0 and 54 with higher scores indicating more depressive symptoms. The reliability and validity of the CDI for the Turkish population has been verified for children between 6 and 17 years of age and cut-off point for the diagnosis of depression was recommended as 19 (Oy, 1991).

STAIC is a self reported questionnaire that is widely used for measuring anxiety in children. It consists of two seperate 20-question rating scales, one for state anxiety (acute, transitory), and the other for trait anxiety (chronic, pervasive). It is developed by Spielberger (Spielberger, 1973). Each item of the scales is scored as 0, 1 or 2 depending on the severity of the symptom. The validity and reliability of the Turkish version were done by Ozusta (Ozusta, 1995).

The data were evaluated by SPSS 13 (Statistical Package for Social Sciences) program. The frequency and mean values were calculated. Mean scores of the groups were compared by paired sample test and ANOVA with repeated measures analysis. Differences were considered significant when statistical value was $p<0.05$.

Results

The mean age of the children was 8.51±1.63 (between 6 and 11). 11.4 % (n=4) of the children attended sixth grade, 5.7 % (n=2) attended fifth grade, 17.1 % (n=6) attended fourth grade, 20 % (n=7) attended third grade, 22.9 % (n=8) attended second grade, and 5.7 % (n=2) attended first grade. 17.1 % (n=6) of the children were not age appropriate to start school. The monthly incomes of the parents were between 320-1932 Euros (Mean: 714± 378 Euros)

Internalizing and externalizing problem scores and total scores of CBCL were significantly lower one month and six months after the circumcision compared to the period before circumcision ($p<0.05$). There was no significant difference between first and sixth month scores after circumcision in terms of internalizing and externalizing problem scores of CBCL and total score of CBCL ($p>0.05$).

Anxiety/depression, delinquent behaviors, attention problem subscale scores of CBCL were significantly lower one month and six months after circumcision compared to the period before circumcision ($p<0.05$). Withdrawal and aggressive behavior scores did not differ significantly one month after circumcision ($p>0.05$) but improved significantly six months after circumcision compared to the period before circumcision ($p<0.05$). There were no significant differences between first and sixth month scores in terms of anxiety/depression, delinquent behaviors, attention problems, withdrawal and aggressive behavior subscales ($p>0.05$).

Somatic complaint scores six months after circumcision were significantly lower compared to the period before circumcision and one month after circumcision ($p<0.05$).

CBCL scale and subscale scores and statistical values are presented in table 1.

Table 1: *Comparison of the Paired Samples t Test Scores of the CBCL[1]*

CBCL[1]	Before Circumcision	1 month after Circumcision	6 months after Circumcision	p*	p**	p***
Internalizing Problems [2]	59.77±10.52	55.46±10.76	53.34±8.54	.008	<.001	.078
Anxiety/ depression	60.54±8.09	57.54±7.20	55.89±6.67	.011	<.001	.056
Withdrawn	57.57±7.43	55.60±6.06	54.63±5.90	.094	.018	.227
Somatic Complaints	58.03±8.50	55.80±7.15	52.71±4.28	.133	.001	.017
Externalizing Problems [3]	53.69±11.78	48.54±12.58	49.34±10.77	.002	.006	.517
Agressive Behaviors	57.26±8.76	55.43±8.34	54.57±6.83	.115	.025	.249
Delinquent Behavior	56.06±7.58	53.26±6.09	53.43±5.35	.005	.046	.833
Social Problems	55.29±6.19	53.77±5.26	54.09±5.07	.243	.274	.741
Thought Problems	58.09±8.29	57.09±8.27	55.57±5.94	.464	.079	.199
Attention Problems	58.54±8.28	55.51±6.37	55.37±6.26	.022	.011	.843
Sexual Problems	54.42±8.12	53.58±8.35	51.91±5.37	.641	.116	.268
Total Scores	57.51±11.57	50.97±13.11	51,34±10,07	.001	<.001	.774

[1] The Child Behavior Checklist (4/18); [2] Internalizing problems: include anxiety/ depression, withdrawal and somatic complaints; [3] Externalizing problems: include agressive behaviors and delinquent behavior

* before circumcision -1 month after circumcision; ** before circumcision - 6 months after circumcision;

*** 1 month after circumcision - 6 months after circumcision.

CDI scores were significantly lower one month after the circumcision when compared to the scores prior to circumcision ($p<0.05$), but did not differ six months after circumcision when compared to the scores prior to circumcision and one month after circumcision ($p>0.05$).

CDI scores and statistical values are presented in table 2.

Table 2: *Comparison of the Paired Samples t Test Scores of the CDI[1]*

CDI[1]	Before Circumcision	1 month after Circumcision	6 months after Circumcision	p*	p**	p***
Total Scores	8.31±4.84	6.72±4.75	7.28±4.91	.032	.212	.570

[1] Child Depression Inventory

* before circumcision -1 month after circumcision; ** before circumcision - 6 months after circumcision;

*** 1 month after circumcision - 6 months after circumcision.

Stait anxiety scores were significantly lower one month after the circumcision ($p<0.05$), but did not differ six months after circumcision when compared to the scores of the period before circumcision ($p>0.05$). Trait anxiety scores did not differ significantly one month and six months after the operation when compared to the period before circumcision ($p>0.05$).

STAIC scale and subscale scores and statistical values are presented in table 3.

Table 3: *Comparison of the Paired Samples t Test Scores of the STAIC[1]*

STAIC[1]	Before Circumcision	1 month after Circumcision	6 months after Circumcision	p*	p**	p***
State Inventory	30.14±7.00	26.48±5.65	28.52±4,91	.003	.190	.062
Trait Inventory	33.28±8.71	31.34±6.45	32,07±7.95	.129	.391	.569

[1] State-Trait Anxiety Inventory for Children

* before circumcision -1 month after circumcision; ** before circumcision - 6 months after circumcision;

*** 1 month after circumcision - 6 months after circumcision.

The results of the ANOVA with repeated measures analysis indicated that there were no significant differences in terms of total internalizing and externalizing scores of the CBCL, and CDI, trait and state anxiety scores when sociodemographic variables such as parental income and ages of the children are controlled ($p>0.05$).

Discussion

This is the first follow up study which aims to evaluate the psychological consequences of circumcision. According to the previous data it might be expected that circumcision would increase anxiety and depression levels and behavioral problems of the children. However, present study showed that circumcision did not increase anxiety and depression levels and behavioral problems of the children.

There were significantly lower scores regarding anxiety, depression, delinquent behavior and attention problems and internalizing and externalizing problems one month and six months after the operation. The social withdrawal, somatic complaints and aggressive bahavior subscales scores were also significantly lower six months after the circumcision. The results of the mixed model analysis revealed that when sociodemographic

variables are involved, internalizing and externalizing problems, depression, trait and state anxiety scores did not differ significantly in both one month and six months after the circumcision scores compared to the scores before circumcision.

These results differ from the previous data. Previous research suggest that traditional/ritual circumcision leads to social withdrawal, agression, suicidal behaviour, and problems in adjusment and functioning (Tractenberg, 1999; Boyle et al., 2002). Under the highlight of this knowledge it was expected that emotional and behavioral problems would increase after the operation. However, the data showed the externalizing and internalizing problem scores were significantly lower after circumcision. In CBCL, internalizing problems include anxiety/depression, withdrawal and somatic complaints; externalizing problems include agressive behaviors and delinquent behavior. In addition to this, there was no significant difference in terms of sexual, thought and social problem subscales scores between the period prior to circumcision and after the circumcision.

According to the CDI, depression scores one month after the circumcision were significantly improved. On the other hand, depression scores six months after the circumcision did not differ significantly compared to the scores prior to the operation. According to the previous research, circumcision was defined as an amputating and mutilative operation and as a result of this, it was suggested that depression should be seen after the circumcision (Bensley & Boyle, 2001; Maguire & Parkes, 1998). However, present study showed that by the end of six months, there was no significant difference in terms of depression scores.

Trait anxiety is generally related with personality characteristics and refers to predisposition for anxiety. State anxiety differs from trait anxiety and is an emotion which usually generates from a perceived threat (Dumont & Quirion, 2014). State anxiety scores one month after the operation were significantly lower when compared to the scores prior to circumcision. However, state anxiety scores six months after the circumcision did not differ significantly compared to the scores prior to the operation and one month after the circumcision. Hovewer, more compatible with expectations, trait anxiety scores were stable one month and six months after the operation when compared to the scores prior to circumcision.

Studies conducted in the adult groups showed that individuals felt pain, sadness, inferiority and shame about circumcision (Bensley & Boyle, 2001; Bigelow, 1995; Goldman, 1997). There are studies linking involuntary male circumcision with a range of negative emotions and even PTSD (Boyle et al., 2002). According to the reports, some adults described their current feelings by using words such as torture, mutilation and sexual assault about circumcision (Bigelow, 1995; Sahin et al., 2003). It was suggested that after the circumcision anxiety and depression should occur due to the loss of a body part (Ozturk, 1973). Cansever suggested that after circumcision, the capacity for coping efficiently with trauma and anxiety was reduced (Cansever, 1965). On the other hand, present study showed that circumcison did not cause negative effects on state and trait anxiety levels.

In Turkey, circumcision has quite positive meanings. Circumcision is usually carried out when the child enters latency and is interpreted as a passage from childhood to adulthood. It was stated that in Turkish society, being uncircumcised is unacceptable and boys feel ashamed of being uncircumcised and assume themselves defective (Cansever, 1965). In Turkey, children are informed about the procedure beforehand. Traditional factors like circumcision ceremony, and getting presents may limit negative effects of circumcision (Sari et al., 1996). Sahin, Beyazova and Akturk (Sahin et al., 2003) reported that circumcision brings a social pressure and children do not feel themselves as male until they are circumcised. Ritual circumcision also has important social meanings for Jewish society, because it is a part of both their religion and identity (Goodman, 1999). Considering ritual circumcision in Jewish population, Goodman (1999) suggested that circumcision is a painful and traumatic experience for the baby and Jewish society started to change their way of thinking about circumcision.

Price (1999) pointed out that circumcision is performed on children who could not make a decision for themselves, and therefore the procedure is unethical. According to the study carried out on 411 circumcised children,

the age of circumcison in Turkey varies between 2-11 (mean 7 years) (Sahin et al., 2003). In this study, the age of the participants ranged between 6 and 11 years and the children are informed about their circumcision weeks before and received information beforehand on the procedure that they will undergo. It can be said that as a result of this fact, negative consequences of circumcision that are seen in the Western countries and Jewish society which can be due to neonatal circumcision that is performed without child's will or knowledge, were not found in this study.

The strength of this study is that, it is the first longitudinal study that investigates the psychological and behavioral effects of circumcision. As described before, circumcision is an operation having significant connections with sociocultural factors. Hence, it should be considered that the researchers and clinicians must be carefull when generalizing the results of this study. Hypothetically, it should be suggested that the effect of the circumcision on the mental health of the children can be different in other countries or ethnic groups. While interpreting the results, it should also be considered that there is not any control group included in this study. Therefore, results can be related to other causes besides circumcision. For example, the improved anxiety level 1 month after the circumcision can be the consequence of the diminished pre-operative anxiety. This problem can be addressed with another study including another control group who will undergo an elective surgery such as "tonsillectomy". Although absence of a control group is a limitation, this study can still contribute to our knowledge about the psychological consequences of circumcision significantly. The authors suggest that if the results have indicated that circumcision can negatively influence the mental and behavioral status of the children, a comparison of the results with another surgical operation would be more essential since the negative effects could be the consequence of any surgical operation. However, the results revealed that behavioral problems and depression and anxiety levels of the children did not increase after the circumcision. Other limitations are the six month duration and small sample size. Considering the fact that traumatic experiences can

manifest their psychological and behavioral conseqeunces in the long term, future studies with longer duration, greater sample size, and different populations and ethnic groups are needed to better understand the effects of circumcision on the mental health of children.

The findings of this study may also help the pediatric urologists/surgeons and mental health professionals to better explain the psychological effects of circumcision to the parents and children, and relieve their anxiety about the operation. In brief, these results show that there are no negative effects of circumcision on anxiety and depression levels and behavioral problems of the children in Turkey. These findings differ from previous research. Cultural factors should not be understimated when evaluating the psychological effects of a procedure with religious and traditional meanings such as circumcision. In Turkish society, there is a positive attribution to the circumcision. Circumcision operation is usually performed in the latency stage and symbolizes a transition from childhood to adulthood. Moreover, positive attitude towards circumcision may decrease the anxiety related to the operation and may increase the desires of the children to be circumcised.

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