

Fear of Circumcision in Boys Considerably Vanishes within Ten Days of Procedure

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Purpose: To compare fear of circumcision, before, immediately after, and ten days after the operation.

Materials and Methods: This was a case-control study in which participants in the operation group consisted of children admitted for circumcision at the outpatient clinics of a hospital. The Children's Fear Scale and the Venham Picture Test were administered by face-to-face interviews.

Results: The sample consisted of 100 boys who were circumcised and 99 who have not been circumcised yet. Children's Fear Scale scores measured before ($P = .000$) and immediately after the operation ($P = .000$) were significantly different from scores obtained on the 10th day after the operation. Total fear scores of the Venham Picture Test of boys whose families were in the higher economic level were higher than those of boys from low-income families ($P < .05$). The primary reason for admission for circumcision was religious, and the reason for the remaining boys was a combination of religious and hygienic factors. The boys who came to have circumcision solely because of religious reasons were found to be less fearful compared with the boys who were brought to surgery for both religious and medical reasons ($P < .05$). The lowest fear scores were obtained for boys who were six years of age or older. Boys who knew what the circumcision meant were less afraid of circumcision compared with those who were unaware of the procedure.

Conclusion: Fear from circumcision does not persist; it considerably vanishes within ten days. It seems reasonable to recommend circumcision for boys six years of age or older. Pre-operative education may help boys to overcome fear originated from circumcision.

Keywords: circumcision; male; psychology; health education; health knowledge; attitudes; practice; case-control studies; socioeconomic factors; child behavior.

INTRODUCTION

Circumcision in boys is most common in Muslim countries and Israel. However, it has been also widely performed in predominantly non-Muslim populations such as the United States and the United Kingdom. The estimated rate of circumcision in the United States was 80.5%.⁽¹⁾ In recent years, however, there has been a worldwide decline in the rate of circumcision.^(2,3) The decision regarding circumcision has been discussed for a long time. Some authors have insisted that circumcision is beneficial, but some have opposed this idea.⁽⁴⁻⁸⁾ The former group stressed that circumcision is protective against sexually transmitted diseases and, thus, some kinds of cancer (e.g., penile and cervical

malignancies) can also be prevented because their causative etiologies have been shown to be associated with these infections.⁽⁹⁻¹²⁾

There is substantial uncertainty about the psychological effects of circumcision on boys. The procedure has been blamed for causing psychological trauma that persists for a long time.^(8,13,14) Research evaluating fear of circumcision has not been tested yet. Fear is a negative emotion. Since it is a subjective complaint, it is hard to document the degree of fear accurately. However, there are two instruments validated to assess the degree of fear in children; these are the Children's Fear Scale (CFS) and the Venham Picture Test (VPT).^(15,16)

In this study our aim was to measure fear of circumci-

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Received June 2015 & Accepted November 2015

Table 1. Age distribution of participants.

Age (years)	Boys Circumcised		Controls	
	no.	%	no.	%
3	3	3.0	3	3.0
4	5	5.0	5	5.1
5	6	6.0	6	6.1
6	19	19.0	19	19.2
7	24	24.0	24	24.2
8	19	19.0	19	19.2
9	13	13.0	13	13.1
10	8	8.0	8	8.1
11	3	3.0	2	2.0
Total	100	100.0	99	100.0

sion in boys aged 3–11 years just before, immediately after, and the 10th day after the operation. We studied to find out if the fear disappeared within ten days.

MATERIALS AND METHODS

Study Population

The study was designed as a case-control study. Study participants in the operation group consisted of children who were admitted for circumcision at outpatient clinics of a hospital between June 2013 and September 2013. The control group was composed of children who were interviewed in places other than a hospital. None of the control patients has been circumcised. The CFS and the VPT were administered by face-to-face interviews.

The CFS is a modified version of a test used in adults.⁽¹⁵⁾ The test consists of 5 images of faces. The first image is normal, followed by images of fearful faces of increasing intensity. The children were asked to choose the face that show how scared they were. Children pointing to the first image were given 0 points, and the other images were scored in order as 1, 2, 3 and 4 points.

The VPT is another instrument developed to assess anxiety in children.⁽¹⁶⁾ The test consists of eight pairs of pictures, in which one child is afraid, and one child is not afraid. Children choosing the fearful image were given 1 point. Otherwise, no point was given. All eight pictures were shown to each child. The total scores obtained for the eight pictured were used in the analysis. The boys' height and weight were measured when they were wearing light clothes. Body mass index (BMI) values were calculated using these data (BMI = weight/height²). Data on parental education and self-reported economic status were obtained. Any plan of celebration

related to circumcision is noted. The main reason 'why the child was admitted for circumcision' was classified as religious, hygienic or both. At the end of the interviews, the boys were asked (a) if they had been told why they had been taken to hospital, and (b) 'what circumcision meant?'

Statistical Analysis

Statistical analysis of the data was performed by the Statistical Package for the Social Science (SPSS Inc, Chicago, Illinois, USA) version 20. Statistical significance was defined as results with $P < .05$. The distribution of age, height and weight was similar to the normal distribution. The means and standard deviation were calculated, and analyzes of these measures were made by parametric tests: Student's t -test and Pearson correlation coefficient. Since the results of the CFS and the VPT were not normally distributed, analyzes of these scales were conducted by nonparametric tests: the Mann-Whitney U test for independent samples; and the Wilcoxon Sign Test for dependent variables. Pearson's correlation was used to examine a relationship between the variables. The χ^2 test was used to analyze categorical variables. Linear regression analysis was performed to determine the extent to which there is a linear relationship between variables.

Ethics

Ethical approval for the study was obtained from Sevket Yilmaz Education and Research Hospital. All the participants were informed about the study, and written permission was obtained from parents.

Exclusion Criteria

The exclusion criteria excluded boys who underwent another operation at the same time as circumcision. Boys who were not 3–11 years of age, and participants who did not come for the second visit (10th day) were also excluded from the study.

RESULTS

There were 100 boys in the circumcised group and 99 boys in the control group. Age ($Z = 1.229$, $P = .098$),

Table 2. Relationship between reasons for circumcision and pre-op children's fear scale scores.

Variables	Religious Reasons	Religious and Medical Reasons	Statistical Analysis
Children's Fear Scale Scores*	1.08 ± 1.35	1.82 ± 1.57	$\chi^2 = 4.71$ $P = .030$
Venham Picture Test Scores*	2.02 ± 2.43	2.19 ± 2.34	$\chi^2 = .26$ $P = .612$

*Arithmetic Mean ± SD.

Table 3. Effect of economic status on pre-op children's fear scale scores.

Variables	Self-Reported Income (Low)	Self-Reported Income (Moderate to High)	Statistical Analysis
Children's Fear Scale Scores*	0.77 ± 1.16	.93 ± 1.33	$\chi^2 = 3.04$ $P = .081$
Venham Picture Test Scores*	1.24 ± 1.63	1.92 ± 2.19	$\chi^2 = 4.80$ $P = .028$

*Arithmetic Mean ± SD.

height ($Z = .986$, $P = .285$) and weight ($Z = .787$, $P = .566$) values of two groups have normal distribution. Mean differences in the ages, heights, and weights were not statistically significant (Student's t -test, $P > .05$). Age distribution of the boys was shown in **Table 1**. The educational levels of parents were similar between boys in the operation and control groups ($\chi^2 = 2.110$, $SD = 4$, $P = .716$). Self-reported economic status was also similar in both groups. ($\chi^2 = 3.844$, $SD = 2$, $P = .146$). The difference between pre-operation and control group scores on the CFS was statistically significant ($P < .001$), according to the Mann-Whitney U test, with the boys in the operation group exhibiting more fear than the controls. However, pre-operation scores were not significantly different from scores obtained immediately after the operation (Wilcoxon, $Z = -1.34$, $P = .181$). Children's Fear Scale scores measured before (Wilcoxon Sign Test, $Z = -5.59$, $P = .000$) and immediately after the operation (Wilcoxon Sign Test, $Z = -5.31$, $P = .000$) were significantly different from scores obtained on the 10th day after the operation.

The relationship between the CFS scores and the boys' ages were examined using the Pearson correlation. Age was not correlated with the pre-operation scores of the operation group or the control group's scores ($P > .05$). CFS scores right after the operation were negatively correlated with age ($rs = -.241$, $P = .018$), with older boys being less afraid. A similar correlation, which is shown in **Figure**, was also found between age and fear when the boys were tested on the 10th day ($rs = -.249$, $P = .016$).

Children's Fear Scale scores and BMI were positively correlated ($rs = .638$, $P = .000$). This association was analyzed by regression analysis and the effect of BMI on fear scores was found to be dependent on age. The BMI alone was not significantly related to the fear scores ($R^2 = .107$, $t = 1.785$, $P = .080$).

Table 4. Relationship between pre-op fear scores and awareness about circumcision.

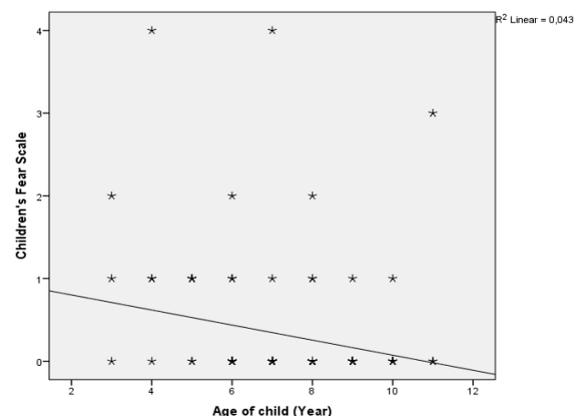
Variables	Aware	Unaware	Statistical Analysis
Children's Fear Scale	0.96 ± 1.34	1.83 ± 1.53	$U = 717.0$ $P = .003$
Venham Picture test	1.47 ± 2.19	2.90 ± 2.42	$U = 709.5$ $P = .002$

When the answers about the reasons for circumcision were analyzed, the boys who came to have circumcision solely because of religious reasons were found to be less fearful compared with the boys who were brought to surgery for both religious and medical reasons ($P < .05$) (**Table 2**). The celebration program for circumcision was not associated with fear of the child ($P > .05$). Paternal education also was not associated with the boys' fear ($P > .05$).

Total fear scores of the VPT of boys whose families were in the higher economic level were higher than those of boys from low-income families ($P < .05$) (**Table 3**).

There was no significant difference between the operated group and the control group on the VPT ($P > .05$). A comparison of fear before the operation and right after the operation revealed a statistical significance difference, as measured by the VPT (Wilcoxon Sign Test, $Z = -2.35$, $P = .019$). Fear on the 10th day after circumcision was significantly lower than it was before the operation (Wilcoxon Sign Test, $Z = -5.76$, $P = .000$) or immediately after the operation (Wilcoxon Sign Test, $Z = -5.30$, $P = .000$), as measured by the VPT. The VPT scores were not associated with the BMI values of the boys ($rs = -.044$, $P = .735$).

The fear scores of boys who knew the reason were not different from the scores of boys who did not know the reason ($P > .05$). Boys who knew what circumcision were less afraid of the operation compared with those

**Figure.** The relationship of 10th day fear scores and age of boys.

who did not know anything about the procedure (**Table 4**).

DISCUSSION

We have found that fear of circumcision vanished in ten days. Boys who were circumcised had similar fear scores on the 10th day as the controls, who were interviewed outside of hospital settings and were not circumcised. These results indicate that circumcision does not cause a long-lasting fear for the children. Children who knew ‘what the circumcision meant’ were less fearful compared with the rest of the study group. This result supports the idea that pre-operative educational information helps to overcome patients’ anxiety.⁽¹⁷⁻¹⁹⁾ The information on circumcision can be provided by families, doctors or other educated healthcare staff. Obesity has been shown to be related to psychological problems such as anxiety and depression.⁽²⁰⁻²²⁾ In the present study, we have shown that there was a link between fear and BMI. But, this relation was found to be age dependent. Further investigations are needed to evaluate if there were a relationship between obesity and frightfulness in children.

In Western countries, circumcision is performed mainly for hygienic reasons. Sahin and colleagues have shown that circumcision in Turkey was mainly preferred because of religious and traditional beliefs.⁽²³⁾ In our study, the primary reason for admission for circumcision was also religious, and the reason for the remaining boys was a combination of religious and hygienic factors; no admissions were made solely for medical reasons among the participants. Boys admitted for circumcision partially for medical reasons had higher fear scores, which could be associated with previous medical treatments. For example, boys suffering from phimosis might have experienced painful treatments such as forcing the foreskin to retract.

The fear scores of boys ≥ 6 years of age were the lowest compared with other age groups. Thus, a recommendation to perform circumcision at ages six years of age or older seems more reasonable. Circumcision at earlier ages is preferred in most of the countries like the United States, but boys may be more fearful if the procedure is performed at these earlier ages. Even in the absence of crying, body signals show that neonates experience pain during circumcision.⁽²⁴⁾ Hence, it may be better to delay circumcision until the school-age years.

CONCLUSIONS

In conclusion, fear of circumcision is not a persistent problem, and it decreases significantly within ten days.

Pre-operative educational information about the procedure may help children to be less afraid of circumcision.

CONFLICT OF INTEREST

None declared.

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