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IMPACT OF CIRCUMCISION EXPERIENCES ON SURGICAL ANXIETY IN ADULTHOOD: A COMPREHENSIVE STUDY

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Abstract. Objective: Our purpose was to investigate whether patients who had previously undergone circumcision (considering the timing and method of the procedure) experienced altered levels of anxiety when facing other surgeries later in life.

Materials and methods: It was investigated to what extent circumcision affects surgical anxiety. Patients who applied to our clinic to undergo surgery due to any disease in adulthood were included. The surgery anxiety scale was used for collection of the data. Results: This study involved 54 men, with an average age of 46.7 years, assessing their surgical anxiety scores in relation to various factors. While 59.3% had one surgery, significant minorities underwent multiple procedures. Regarding anesthesia during surgeries, 61.1% received local, 24.1% spinal, and 14.8% general anesthesia. Notably, 63% of participants were smokers. Previous hospitalization was reported by 51.9%, and 37% had other surgeries. Interestingly, 59.3% had contracted COVID-19. Age of circumcision showed no significant effect on anxiety scores. However, those who underwent forced circumcision (11.1%) had notably higher anxiety scores (p=0.04). Most circumcisions (96.3%) occurred in hospitals, with doctors conducting 81.48% of them. No correlation was found between patients' age during circumcision and current anxiety. Significantly, forced circumcisions led to increased surgical anxiety. Conclusions: Our study suggests that while circumcision's method, location, and performer significantly influence the individual's surgical anxiety in adulthood, the age of circumcision does not play a determining role.

Key words. Cirumcision, Surgery, Anxiety, Trauma.

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Introduction

While surgeries can be a methodical or urgent step towards a patient's healing, they often represent a personal trauma. The impact of surgical procedures is vast, affecting a person's physical, mental, and financial well-being, making it a paramount experience in one's life. Individuals undergoing surgery often grapple with fears of pain, possible physical changes, reliance on others, the looming possibility of death, and the effects of anesthesia. These fears stir emotions like anxiety, distress, and apprehension[1,2].

Modern surgical techniques, despite their advancements and improved safety, still find many patients viewing them with trepidation throughout all stages of the surgical process. Learning about an impending surgical procedure can be a significant stress trigger, challenging the individual's long-developed coping skills[3]. Even emotionally resilient individuals can find the prospect of surgery daunting, given the potential for pain, loss, and even life-threatening risks. The mere act of hospitalization or the physical repercussions of an ailment can be anxiety-inducing for many. Processes like anesthesia and other invasive measures often exacerbate these fears. The thought of surgery can evoke worries about enduring pain, potential impairment, loss of autonomy, and cosmetic concerns, with each element seen as a potential hazard, causing individuals to feel heightened anxiety[4,5].

Most discussions surrounding penile circumcision predominantly revolve around its medical implications, such as disease prevention, dysfunction, or altered sensation. However, there has been a significant oversight in understanding the psychological, psychosocial, and psychosexual ramifications. The procedure, especially when considering the removal of the foreskin, might lead to qualitative shifts in an individual's perception of sexual experiences due to changes in penile anatomy and related sexual mechanics. It's essential to highlight the distinct psychological effects of circumcisions undertaken during infancy, childhood, and adulthood. Moreover, the psychosocial impact on parents making circumcision decisions for their children deserves attention[6–8]. In this study, we aimed to investigate whether patients who had previously undergone circumcision (considering the timing and method of the procedure) experienced altered levels of anxiety when facing other surgeries later in life.

Materials and methods

This study was carried out at Artuklu University Urology Clinic after the ethics committee was approved (2023/9-12). In this study, it was investigated to what extent circumcision affects surgical anxiety. Patients who applied to our clinic to undergo surgery due to any disease in adulthood were included. The following data of previously circumcised patients were noted: By whom it was circumcised (doctori nurse, traditional public health workers, etc.), where it was circumcised (at home, in the hospital, at school, somewhere else.), and how old was he when he was circumcised?. In addition, the patients were administered the Surgical Anxiety Scale published by Burton et al. in 2018. The results obtained were recorded one by one. Then, the level of surgical anxiety that occurred according to the characteristics of the patients who had been circumcised before was measured using a scale and a comparison was made between the patients.

The Surgical Anxiety Scale developed by Burton et al.[9] consists of 17 items scored on a five-point Likert scale: «none-0,» «very little-1,» «moderate-2,» «much-3,» and «extreme-4.» The application of the scale is straightforward, with patients marking each item preoperatively based on how well it reflects their feelings. The scale has three sub-dimensions: anxiety related to health (items 7, 8, 9, 10, 12, and 13), anxiety related to recovery (items 2, 14, 16, and 17), and anxiety related to the procedure (items 1, 3, 4, and 5). The scores from the sub-dimensions, combined with the scores of the three items not included in any sub-dimension, give the total score for the Surgical Anxiety Scale. The potential score range is from 0 (lowest) to 68 (highest), with higher scores indicating greater surgical anxiety. There is no established cut-off point for the scale. In the original study, the overall Cronbach's alpha value for the Surgical Anxiety Scale was 0.91; for the health-related anxiety sub-dimension, it was 0.87; for the recovery-related anxiety sub-dimension, it was 0.78; and for the procedure-related anxiety sub-dimension, it was 0.75 (Table-1).

Table-1

Surgery anxiety scale

	Not at all (0)	A little bit (1)	Mode-rately (2)	Very (3)	Extre-mely (4)
1.Not knowing what is going to happen					
2.My current health complicating mysurgery or recovery					
3.Having an injection or receiving an IVline (a drip)					
4.Not having any control over myanaesthesia or surgery					
5.An incision in my tissues					
6.Being awake or conscious during mysurgery					
7.The medical staff making a mistakeduring my surgery					
8.Not waking up from the anaesthetic					
9.Other health problems the doctors mightfind during my surgery					
10.Feeling sick or vomiting after mysurgery					
11.Experiencing pain or discomfort aftermy surgery					
12.Being discharged before I haverecovered properly					
13.Contracting an infection or getting sickfrom the hospital environment					
14.Having to take time off school or work					
15.How long it will take to return to mynormal daily activities or hobbies					
16.Not having enough social support aftermy surgery					
17.Costs associated with my surgery					

Patients who did not agree to participate in the study, patients between the ages of 0-18, female patients, and extremely elderly patients who were unable to answer the

questions were excluded from the study.

Patient data underwent statistical evaluation, encompassing descriptive statistics, frequencies, and various attributes for each item. Continuous data were presented as mean ± standard deviation, while non-continuous data were denoted as median (IQR). To ascertain if the data followed a normal distribution, the Shapiro-Wilk and Kolmogorov-Smirnov tests were applied to continuous variables. The Student's T-test was employed for continuous variables with a normal distribution. In cases where data did not conform to a normal distribution, non-parametric tests were used. When required, categorical variables were assessed using the chi-square test, and in certain instances, the Fisher exact test was applied. For correlation, the person correlation test was used. All analyses were conducted utilizing SPSS Statistics for Windows, Version 26.0 (IBM Corp., Armonk, NY, USA).

Results

A total of 54 men were included to our study. The demographic and clinical characteristics of the patients are presented in this section. The average age of the participants was 46.7 years. A significant majority of the patients (59.30%) had undergone surgery once with a mean score of 20.1±4.1, 29.60% had twice undergone surgeries with an average score of 15.3±9.8 and 7.40% reported having had three surgeries, scoring 18.50±5.9. A minority, 3.70%, indicated they had undergone surgery six times with a score of 6.5±0.7 (p<0.001). Seventy-seven percent of participants were married with a score of 19.2±6.83 (p=0.06). Amoung 54 patients, 14.80% underwent general anesthesia with an average score of 21±7.5. The majority, 61.10%, were administered local anesthesia and scored 17±5.4, and 24.10% received spinal anesthesia with a score of 18.8±9.6 (p=0.367). Sixty-three percent of the participants were smokers, with an average score of 18.6±8.1. The non-smokers, making up 37% of the participants, had a score of 17±4.6 (p=0.343). Over half of the participants, 51.90%, had been hospitalized before. The remaining 48.10% had not been previously hospitalized. The surgery anxiety score was significantly different (p=0.009). Thirty-seven percent of the participants had undergone other surgeries. The remaining 63% did not report any other surgeries. The surgery anxiety scores were 13.3±7.1 and 20.9±5.12, respectively (p<0.001). A significant percentage, 59.30% of the participants had been infected with COVID-19 and the other 40.70% were not infected with the virus (**Table-2**).

Table-2

Descriptive analysis of general data and relationship levels with surgery anxiety score

Just before current operation	N or mean	%	Surgery Anxiety Score	p-value
Age	46.7			
How many times have you had surgery?				<0.001
Once	32	59.30%	20.1±4.1	
Twice	16	29.60%	15.3±9.8	
Three times	4	7.40%	18.50±5.9	
Six times	2	3.70%	6,5±0.7	
Marital status				0.06
Married	42	77.80%	19.2±6.83	
Single	12	22.20%	21.6±6.7	
Type of performed anesthesia				0.367
General	8	14.80%	21±7.5	
Local	33	61.10%	17±5.4	
Spinal	13	24.10%	18.8±9.6	
Level of education				0.947
Below university	40	74.10%	18.1±6.1	
University	14	25.90%	17.9±9.3	
Chronic dissease				0.059

Yes	10	18.50%	21.8±6.3	
No	44	81.50%	17.2±6.8	
Smoking				0.343
Yes	34	63%	18.6±8.1	
No	20	37%	17±4.6	
Have you been hospitalized before?				0.009
Yes	28	51.90%	15.7±8.2	
No	26	48.10%	20.5±4.2	
Have you had any other surgeries?				<0.001
Yes	20	37.00%	13.3±7.1	
No	34	63.00%	20.9±5.12	
Have you been infected with COVID-19?				<0.001
Yes	22	59.30%	13.7±6.7	
No	32	40.70%	21±5.4	

The age at which circumcision was performed varied among participants, but no significant trend with scores was identified (p>0.05). Only 11.10% of participants underwent forced circumcision, with a notably higher mean score of 23.3±8.3. The majority, 88.90%, were not subjected to forced circumcision and had a score of 17.4±6.5 (p=0.04). A very small fraction, 3.70%, had their circumcision performed at home. The overwhelming majority, 96.30%, underwent the procedure at a hospital. Only 7.40% underwent the procedure under general anesthesia. A significant 92.60% were administered local anesthesia during the procedure. A significant difference in scores was observed based on who performed the circumcision (p<0.001). Doctors performed the majority of circumcisions, 81.48% and others (which include nurses or traditional practitioners) performed circumcision on 18.52% of participants (**Table-3**).

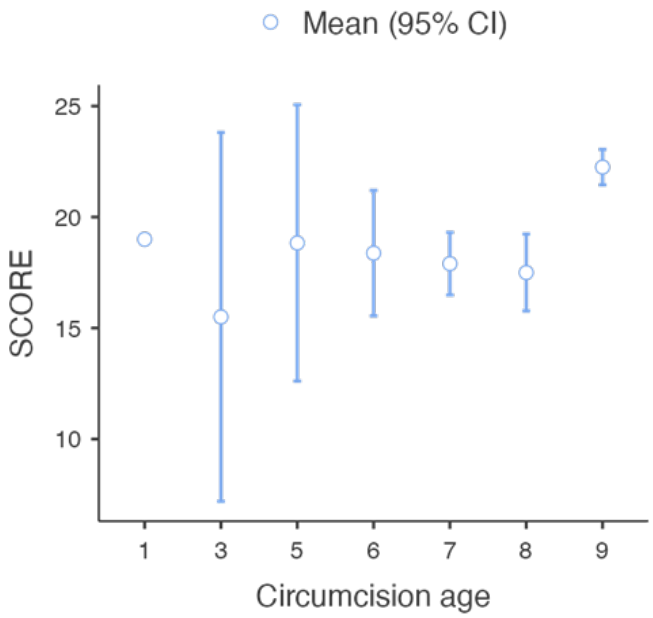
Table-3

Information about the circumcision and its releationship with surgery anxiety score

Information about the circumcision	N	%	Surgery Anxiety Score	p-value
Circumcision age				>0.05
1	2	3,70%	19±0	
3	10	18,50%	15.5±11.6	
5	12	22,20%	18.8±9.7	
6	8	14,80%	18.4±3.3	
7	10	18,50%	17.9±1.9	
8	8	14,80%	17.5±2.1	
9	4	7,40%	22.3±0.5	
Forced circumcision?				0.04
Yes	6	11,10%	23.3±8.3	
No	48	88,90%	17.4±6.5	
Where circumcision was performed?				0.844
At home	2	3,70%	19±0	
At hospital	52	96,30%	18±7.1	
Type of anesthesia during circumcision				0.834
General	4	7,40%	18.8±0.5	
Local	50	92,60%	18±7.2	
Who performed circumcision?				<0.001
Doctor	44		16.6±6.1	
Other (Nurse or traditional)	10		28.2±7.6	

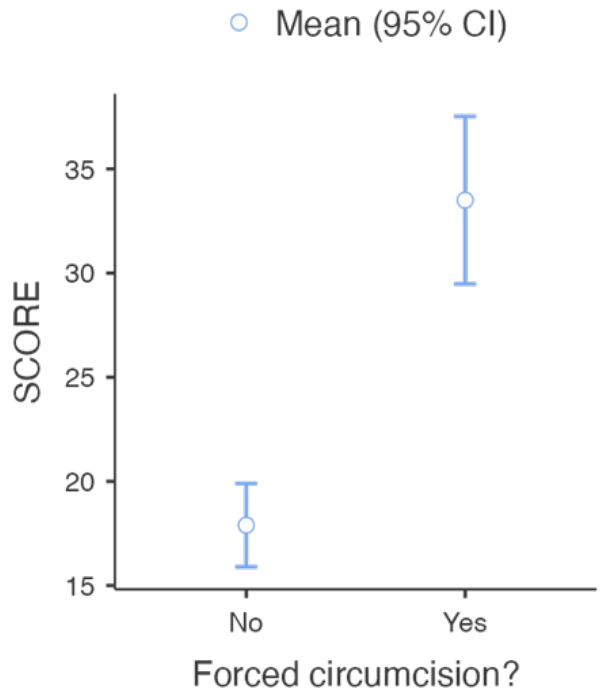
There was no significant relationship between the patients' age at the time of circumcision and their current surgical anxiety score (p>0.05) (**Figure-1**)

Figure-1
Releation between the patients' age at the time of circumcision and their current surgical anxiety score



A significant difference was found between the surgical anxiety score between the patients who were forcibly detained and circumcised and the patients who were circumcised voluntarily and given compassion and training. Surgical anxiety was found to be higher in patients who were forcibly detained and circumcised (p=0.04) (**Figure-2**).

Figure-2
Relation between surgical anxiety score and forced circumcision



Discussion

This study provides a thorough analysis of the relationship between penile circumcision and subsequent anxiety toward other surgeries in adulthood. The evaluation was based on variables like the age of circumcision, who performed it, where and how it was done, and the anesthesia method applied during the circumcision.

A key finding of our study is the significant difference in anxiety levels based on who performed the circumcision. Those circumcised by traditional practitioners or nurses

exhibited a significantly higher surgery anxiety score than those circumcised by doctors. This is possibly due to the professional training and experience doctors have, ensuring a safer and less traumatic experience for the individual. In contrast, traditional practitioners might lack standardized methods, potentially leading to varied and sometimes harmful outcomes.

A prominent expert in trauma studies, believes that trauma can happen at any stage of a person's life, from infancy to their final years. Likewise, the DSM-IV mentions that trauma's impact can be felt at any age[10,11]. Medical professionals have observed that children are especially susceptible to traumatic experiences. Even minor traumatic events can leave a lasting imprint on children, regardless of their age at the time. Furthermore, the younger a child is when they experience trauma, the higher the likelihood of psychological issues arising. Trauma can cause a person to dissociate, distancing them from the traumatic memory and the related emotional distress. Neurological studies have shown that traumatic and painful experiences during childhood can lead to lasting changes in the brain's physiology and chemistry. Investigating the traumatic effects of circumcision on older children might be more feasible because they can more readily access memories and articulate their experiences[12]. Two studies focused on circumcisions performed on children in Turkey without the use of anesthesia. The first study, which examined children aged 4-7 years both before and after the procedure, determined that the children viewed circumcision as a violent act against their body that harmed, embarrassed, and in some instances, devastated them[13,14]. The findings suggest that circumcision increased feelings of aggression, weakened the ego, resulting in the child becoming more withdrawn, less active, and facing adjustment challenges.

The second study highlighted that children were extremely distressed during the circumcision procedure, to the extent that they felt compelled to check if their penis was still intact immediately after. Citing Bremner et al.[13], this study pointed out that one 8-year-old lost consciousness during the circumcision and subsequently began to stutter. In the weeks that followed, parents reported observing a surge in aggressive behaviors in their children and said their kids experienced nightmares. This anxiety around circumcision, possibly resembling castration fears, might be linked to the fact that trauma victims often fear the recurrence of the traumatic event. The psychological impacts of surgical procedures on children are well-documented. For instance, the psychiatric effects of childhood tonsillectomies were found to be profound and long-lasting in a study by Lipton et al.[15]. Psychiatrist David Levy analyzed 124 cases of children who faced psychological challenges after undergoing surgery. He found that younger children were more prone to adverse psychological reactions following surgical procedures[16]. Two particular cases stood out: one involving a boy who underwent a meatotomy at age four and another who had a circumcision at age six. Both these children displayed intense anxiety reactions, with alarming tendencies towards destructive actions and thoughts of self-harm. Interestingly, in our study, there was no significant relationship between the age of circumcision and subsequent surgical anxiety. This contradicts the widely held belief that younger age at circumcision would result in a more psychologically benign outcome due to reduced cognitive awareness and memory retention at an early age.

It was also noted that participants who underwent forced circumcision had a higher mean surgery anxiety score than those who were not subjected to it. This is consistent with literature indicating that non-consensual medical procedures, especially those of a personal and intimate nature, can lead to trauma and increased apprehension toward future medical interventions.

Patients with previous hospitalization exhibited a significantly lower surgery anxiety score than those without prior hospital experience. Familiarity with the hospital environment and experience with prior medical procedures might contribute to reduced anxiety, as patients know what to expect.

This study was limited by its sample size and a potential recall bias regarding the details of the circumcision procedure. Further studies with larger and more diverse populations are needed to validate these findings and delve deeper into the multifaceted psychological impacts of circumcision on individuals.

Conclusions

Our study suggests that while circumcision's method, location, and performer significantly influence the individual's surgical anxiety in adulthood, the age of circumcision does not play a determining role. This highlights the importance of a safe and consensual procedure, preferably by medical professionals in a hospital setting. Recognizing these

factors is crucial, not only for reducing surgical anxiety in patients but also for addressing the broader psychological and psychosocial implications of penile circumcision.

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