Journal Pre-proof

Effect of Tele-Nursing on Parental Anxiety and Care Satisfaction After Circumcision: A Quasi-Experimental Study

Asiye BALKI, MSc, RN, Atiye ERBAŞ, PhD, Assist.Prof., Selin Keskin KIZILTEPE, PhD, Assist.Prof.

PII: S1477-5131(25)00699-0

DOI: https://doi.org/10.1016/j.jpurol.2025.105708

Reference: JPUROL 105708

To appear in: *Journal of Pediatric Urology*

Received Date: 17 August 2025

Revised Date: 14 December 2025

Accepted Date: 19 December 2025

Please cite this article as: BALKI A, ERBAŞ A, KIZILTEPE SK, Effect of Tele-Nursing on Parental Anxiety and Care Satisfaction After Circumcision: A Quasi-Experimental Study, *Journal of Pediatric Urology*, https://doi.org/10.1016/j.jpurol.2025.105708.

Effect of Tele-Nursing on Parental Anxiety and Care Satisfaction After Circumcision: A Quasi-Experimental Study

Asiye BALKI [1], Atiye ERBAŞ [2], Selin KESKİN KIZILTEPE [3]

[1]MSc, RN, Bursa Kestel Public Hospital, Bursa, Turkey
Phone: 05423931535
E-mail: asiyebalkii@gmail.com
ORCID: 0009-0001-9220-7417

[2]PhD, Assist. Prof., Düzce University, Health Science Faculty, Duzce, Turkey
Phone: (+90) 5057285837
Fax: (+90 380) 542 11 40
E-mail: atiyeerbas@duzce.edu.tr
ORCID: 0000-0002-3969-3452

[3]PhD, Assist. Prof., Düzce University, Health Science Faculty, Duzce, Turkey
Phone: (+90 380) 542 11 03/3512
Fax: (+90 380) 542 11 40
E-mail: selinkeskin@duzce.edu.tr/
ORCID:0000-0001-8848-6575

Acknowledge: Conceptualization: The First, Second and Third Authors, Methodology: The First, Second and Third Authors, Validation: The First, Second and Third Authors, Formal Analysis and Interpretation of Data: The First, Second and Third Authors, Investigation: The First, Second and Third Authors, Writing: The First,and Second Authors, Draft and Critical Revision of the Manuscript: The First and Second Authors.
Declaration of İnterest: None

Effect of tele-nursing on parental anxiety and care satisfaction after circumcision: A quasi-experimental study

SUMMARY

Introduction: Circumcision has been practised in almost every region of the world throughout human history for cultural, social, religious, and medical reasons. Although it is generally considered a simple procedure, studies have shown that parents of circumcised children often experience high levels of fear, anxiety, and worry during the process.

Objective: This study aimed to determine the effect of tele-nursing services provided to parents of circumcised children after discharge on their anxiety levels and satisfaction with care.

Materials and Methods: This parallel-design, quasi-experimental study was conducted between November 2022 and July 2023 with 108 parents (54 in the intervention group and 54 in the control group) whose children had undergone circumcision. Participants were assigned to groups using the block randomisation method. The intervention group received tele-nursing follow-up after discharge, while the control group received routine discharge information only. Data collection tools included the participant information form, Beck Anxiety Scale, PedsQL Health Care Parental Satisfaction Scale, tele-nursing education content, and telephone counselling follow-up form. Data were analysed using non-parametric tests such as the chi-square, Mann–Whitney U, and Wilcoxon tests, with statistical significance set at $p < 0.05$.

Results: The final measurement of anxiety scores indicated that parents in the intervention group had significantly lower anxiety than those in the control group ($Z = -5.206$, $p = 0.000$). Similarly, the final parental care satisfaction scores were significantly higher in the intervention group than in the control group ($Z = -4.957$, $p = 0.000$).

Conclusion: These findings demonstrate that tele-nursing services provided to parents of circumcised children after discharge effectively reduced parental anxiety and increased satisfaction with care. It is recommended that clinical nurses be supported and encouraged to provide tele-nursing services to maintain continuity of postoperative care, particularly for follow-up and education after surgical procedures.

Keywords: Anxiety, Child, Male circumcision, Parental care satisfaction, Telenursing

INTRODUCTION

Circumcision has been practised in almost every region of the world throughout human history for cultural, social, religious, and medical reasons. Male circumcision is often preferred for medical purposes such as preventing sexually transmitted infections, reducing urinary tract infections, and treating conditions like phimosis; it is also performed for cosmetic, religious, traditional, and socio-cultural reasons [1,2].

Although circumcision is generally considered a simple procedure, studies have shown that parents of circumcised children experience high levels of fear, anxiety, and worry during the process [3,4]. Hospitalisation of the child, anaesthesia, pain, lack of information about the procedure, and inadequacies in home care are among the factors that heighten parental anxiety [3-5]. This anxiety can negatively affect parents' ability to learn and to fulfil their caregiving role. Elevated anxiety levels may lead to difficulties in adapting to the treatment process, inadequate child care, and dissatisfaction with nursing care [6]. Such circumstances can in turn reduce parents' satisfaction with the healthcare services they receive. Satisfaction with healthcare enables parents to take primary responsibility for their child's care and to adapt more effectively to treatment and recovery. Parental involvement in care helps to make the process less stressful and can shorten the healing period [7,8].

Tele-nursing and counselling services used in surgical settings ensure that the preoperative and postoperative education required by patients and their primary caregivers is delivered effectively and that nursing care services remain easily accessible [9,10]. Tele-nursing services are used for individuals with chronic illnesses, those requiring long-term care, patients living far from hospitals or health centres, adolescents, pregnant women, postoperative follow-up, and preventive health services [11,12]. Tele-nursing is applied in wound care, pain management, medication regulation, and monitoring for complications following surgery. Research has shown that tele-nursing reduces postoperative complications, lowers anxiety levels, and

enhances patients' ability to cope with stress [13,14].

Aim of this study

This study was performed to investigate the effect of tele-nursing services provided to parents of circumcised children after discharge on parental anxiety and care satisfaction.

MATERIALS AND METHODS

Study design

This was a parallel design, quasi-experimental study.

Study hypotheses

H1 – The tele-nursing service provided to parents of circumcised children after discharge significantly reduces parental anxiety levels.

H2 – The tele-nursing service provided to parents of circumcised children after discharge significantly increases parental care satisfaction.

Participants and setting

The study involved parents of children hospitalised for circumcision in the surgical department of a state hospital. Circumcision procedures were performed on an outpatient basis in the urology clinic. In this clinic, parents receive standard verbal discharge instructions from the nurse; however, there is no follow-up after discharge. The study population comprised parents who attended the urology outpatient clinic of the state hospital for circumcision. The sample size was determined by power analysis (using G*Power v3.1.9.6) based on the findings of a similar study [15]. The analysis indicated that with a 95% confidence interval ($1 - \alpha$), 95% test power ($1 - \beta$), and an effect size of $d = 0.833$, a total of 70 parents (35 in each group) would be sufficient for a two-tailed hypothesis (Figure 1). Allowing for a 20% potential attrition rate, the

planned sample size was increased to 84 parents (42 per group). Ultimately, 108 parents (54 in the intervention group and 54 in the control group) who agreed to participate between November 2022 and July 2023 formed the study sample. Parents were eligible for inclusion if they had a circumcised child, no communication difficulties, and a mobile phone. Parents of children who had undergone an additional surgical procedure besides circumcision, or whose child had a condition that might impair understanding or perception, were excluded.

Randomisation

Participants were allocated to groups using the block randomisation method via https://www.randomizer.org/. For each block, six sequences were created using the letters A and B (e.g. ABABAB, ABBABA, BBAABA, etc.). An independent individual assigned the intervention and control groups using a lottery method.

Outcome variables and measures

Data collection tools

The participant information form, Beck Anxiety Scale (BAS), PedsQL Health Care Parental Satisfaction Scale (PedsQL-PS), tele-nursing training content, and telephone counselling follow-up form were used as data collection instruments. Expert opinions were obtained from three nursing specialists and one urologist to ensure content validity. Completing the data collection forms took approximately 10–15 minutes. Data were gathered through face-to-face and telephone interviews.

Participant information form

This form, developed by the researcher, consists of 15 questions divided into 2 sections. The first section includes eight items on sociodemographic characteristics. The second section contains seven questions related to the circumcision procedure, such as the child's age at

circumcision, previous hospitalisation experiences, the family's previous experience with circumcision, and parents' knowledge about the procedure.

BAS

The BAS is a 4-point Likert-type scale consisting of 21 items and was developed by Beck et al. The Turkish adaptation was conducted by Ulusoy et al. [16], with a Cronbach's alpha value of 0.93. The scale has 2 sub-dimensions: the first includes 13 items measuring subjective anxiety, and the second includes 8 items assessing somatic symptoms. The total score is the sum of all items, ranging from 0 to 63. Scores are rated as follows: Never = 0 points, Mildly ('it did not affect me much') = 1 point, Moderately ('it was unpleasant but I could endure it') = 2 points, and Severely ('I had great difficulty enduring it') = 3 points. In the present study, the Cronbach's alpha value of the scale was 0.82.

PedsQL-PS

Developed by James W. Varni in 1999, this scale was adapted into Turkish by Ulus and Kublay [17] in 2012; these authors reported a Cronbach's alpha value of 0.93. The scale comprises 25 items across 6 sub-dimensions: information, family involvement, technical skills, communication, emotional needs, and general satisfaction. The total score is the sum of all items. Responses are rated as follows: Never satisfied = 0, Sometimes satisfied = 25, Most of the time satisfied = 75, and Always satisfied = 100 points. In this study, the Cronbach's alpha value was 0.84.

Tele-nursing training content

The training content was developed by the researcher based on issues reported in the literature as commonly experienced by parents after circumcision. The education plan covered topics such as medication use, pain management, dressing, sleep and rest, nutrition, excretion, hygiene and bathing, activity, mood, precautions, and emergency actions. Education was provided by

telephone on the first postoperative day, when parents typically required the most support. Each call lasted about 20 minutes, depending on individual learning needs, and the training content was repeated when necessary.

Telephone counselling follow-up form

Based on the literature, 10 questions were developed related to the educational topics addressing common parental concerns during the postoperative period. A telephone counselling follow-up form was created accordingly. Follow-up calls were conducted with parents on postoperative days 2, 3, and 4, when parental support needs were highest.

Intervention and procedure

After admission to the ward and again at discharge, both groups completed the participant information form, BAS, and PedsQL-PS through face-to-face interviews. Children without complications were discharged approximately 4 hours after the procedure. Discharge education was provided by the nurse in accordance with the standard ward protocol. This education was delivered verbally and accompanied by a written document containing four key points: instructions on the use of prescribed antibiotics and creams, the absence of dressings, the importance of avoiding nappies for the first 2 days, the possibility of showering 48 hours after surgery, and information about signs of infection, with advice to contact the outpatient clinic if such signs appeared. On the first postoperative day, parents in the intervention group received additional training based on the tele-nursing education content. On the second, third, and fourth postoperative days, these parents were followed up using the telephone counselling follow-up form. On the fourth postoperative day, anxiety levels and parental satisfaction with care were reassessed in both groups through telephone interviews. Parents in the control group received only standard nursing care and routine discharge education, with no further post-discharge contact from the researcher (Figure 1). Additionally, the sex of the interviewed parent was

recorded in the data table, and the same parent participated in all follow-up interviews as in the initial one (Table 1).

Ethical aspects of the research

Ethical approval for the study was granted on 03 September 2022 (2011-KAEK-25 2022/09-03), and written authorisation was obtained from the relevant institutional bodies (E-11997179-449-3194). Data collection was conducted on a voluntary basis, and both verbal and written consent were obtained from all participants. The study was carried out in accordance with the principles of the Declaration of Helsinki. Approval for the research was also obtained from the Clinical Trials Protocol Registration System (XXXXXX).

Data analysis

Data obtained from the study were analysed using the Statistical Package for the Social Sciences (SPSS), version 26 (IBM Corp., Armonk, NY, USA). Descriptive statistics were presented as frequency, percentage, mean, standard deviation, median, minimum, and maximum values. Non-parametric statistical methods were employed, including the chi-square test, Fisher's exact test, the Mann–Whitney U test, the Wilcoxon test, Friedman's analysis, and Spearman's correlation coefficient. Statistical significance was set at $p < 0.05$.

RESULTS

In the intervention and control groups, 20.4% and 25.9% of parents, respectively, preferred circumcision between the ages of 0–3 years. In both groups, 87% of parents reported religious reasons as their primary motivation for circumcision (Table 1). Although not shown in the table, no postoperative complications were observed in the intervention group. By contrast, five

children in the control group were hospitalised with bleeding, and one child was admitted to the emergency department or urology clinic with bleeding and anuria.

There was no significant difference between the intervention and control groups in the first and second BAS measurements ($p > 0.05$), whereas a significant difference was observed in the final measurement ($p < 0.05$). Within the intervention group, final BAS scores were significantly lower than both the first and second measurements ($p < 0.05$), and second scores were also significantly lower than the first. In the control group, both the final and second measurement BAS scores were significantly lower than the first ($p < 0.05$) (Table 2). The most frequently reported concern during follow-up calls was difficulty with bathing after the operation.

While there was no statistically significant difference between the first measurement scores of the PedsQL-PS and its sub-dimensions in the intervention group ($p > 0.05$), significant differences were found in the second measurement scores ($p < 0.05$). The second measurement PedsQL-PS and sub-dimension scores in the intervention group were significantly higher than the first measurement scores ($p < 0.05$). Thus, in the intervention group, PedsQL-PS and its sub-dimension scores increased in the final measurements compared with the initial measurements (Table 3).

DISCUSSION

In the present study, most parents in both the intervention and control groups preferred to have their children circumcised before the age of 11. Similarly, Çelik et al. [18] reported that half of the parents considered the 1- to 12-month period the most appropriate for circumcision. Ferhatoğlu et al. [19] found the mean age of circumcision to be 94 months. In a recent meta-analysis by Yavuz and Kobya Bulut [20], trait anxiety scores were significantly higher in

children circumcised between the ages of 3–6 years than in those circumcised at 0–1, 1–3, or 6–12 years. The literature identifies the ages of 3–6 as the period during which the fear of castration emerges; circumcision performed at this stage may be perceived by the child as an assault on the penis, making the experience stressful for both the child and the family [21]. However, Yığman et al. [22] argue that the so-called phallic period does not influence children's sexual development. In the present study, most families preferred circumcision before the age of 11 years. In Türkiye, circumcision holds deep cultural and religious significance, and this age preference likely reflects an effort to affirm cultural identity and social belonging. Both groups of parents reported religious reasons as their primary motivation. Özen and Eroğlu [23] similarly found that parents' decisions were influenced by traditional, social, and religious factors. In Türkiye, where Islam is the predominant religion, circumcision is a widely practised and socially expected ritual. Regarding postoperative outcomes, Siroosbakht and Rezakhaniha [24] reported complication rates of 8.3% in neonates and 4.4% in children. In 2010, Weiss et al. found that post-circumcision complication rates ranged from 0% to 16%, with higher rates observed among infants and in procedures performed by untrained personnel [25]. In the current study, six children in the control group experienced bleeding complications following circumcision, whereas no complications occurred in the intervention group. Although circumcision is generally a safe procedure, these findings suggest that postoperative follow-up by healthcare professionals—as implemented in this study—may play an important role in preventing potential complications.

In the present study, the initial anxiety levels of parents in both groups were higher than those recorded in the second and third measurements. Previous research has shown that parental anxiety is often elevated before a child's surgery [26,27]. Agostini et al. [28] found that parents experienced high stress levels prior to surgery, with anxiety decreasing significantly after intervention. Similarly, in this study, parents' initial anxiety levels were high, likely reflecting

negative prior experiences and pre-existing information about circumcision. Aranha and Dsouza [29] reported that providing parents with preoperative information and an educational booklet effectively reduced their anxiety. Another study examining the effect of preoperative education on postoperative anxiety found that the mean anxiety score of parents in the intervention group was lower than that of the control group [30]. The findings of the present study indicate that tele-nursing services delivered to parents after surgery positively affected their anxiety levels. It is likely that receiving professional counselling during the post-circumcision period helped reduce parental anxiety.

In this study, the second PedsQL-PS scores in the intervention group—measured on the fourth postoperative day after receiving the tele-nursing service—were higher than the first measurement scores taken following standard discharge education. These results demonstrate that the tele-nursing service had a significant positive effect on parental satisfaction with care. The literature supports this finding: preoperative education for parents has been shown to significantly increase care satisfaction [9,29,31]. In a study by Dean et al. [32], parents whose children underwent surgery and received telehealth follow-up during the postoperative period reported higher satisfaction with care. In light of these findings, the increased satisfaction scores among parents in the intervention group in this study suggest that the tele-nursing service provided was effective and beneficial.

CONCLUSIONS AND RECOMMENDATIONS

Based on the study findings, tele-nursing services provided to parents of circumcised children after discharge were effective in reducing parental anxiety and enhancing satisfaction with care. These results suggest that integrating tele-nursing into routine postoperative follow-up can improve both parental wellbeing and the overall quality of care. It is therefore recommended

that public awareness regarding circumcision be increased and that the reliability of widely used information sources be strengthened. Furthermore, clinical nurses should be supported and encouraged to deliver tele-nursing services to ensure continuity of postoperative care, with particular emphasis on follow-up and parental education after surgical procedures.

Limitations

The main limitation of this study is that some participating parents had prior experience with circumcision, which may have influenced their anxiety levels and satisfaction scores.

Declaration of generative AI and AI-assisted technologies in the writing process

Generative AI and AI-assisted technologies were NOT used in the preparation of this work.

Conflict of interest

The authors have no conflicts of interest

Financial source

There was no funding for this project.

Acknowledgment

We thank the parents who participated in the study.

References

[1] World Health Organization (WHO). Male circumcision: Global trends and determinants of prevalence, safety and acceptability. Geneva: WHO; 2007. UNAIDS/07.29E/JC1320E, p. 1-29.

[2] Ventura F, Caputo F, Licata M, Bonsignore A, Ciliberti R. Male circumcision: Ritual, science and responsibility. Ann Ist Super Sanità 2020;56(3):351-8. https://doi.org/10.4415/ANN_20_03_13.

[3] Andsoy II, Alsawi SOM. Determining the knowledge and anxiety levels of fathers of children undergoing surgical intervention. J Contemp Med2018;8(3);264-70. https://doi.org/10.16899/gopctd.404261.

[4] Chang SF, Hung CG, Hsu YY, Liu Y, Wang NT. The effectiveness of health education on maternal anxiety, circumcision knowledge, and nursing hours: A quasi-experimental study. J Nurs Res 2017;25(4):296-303.
https://doi.org/10.1097/JNR.0000000000000177.

[5] Rabbitts JA, Aaron RV, Fisher E, Lang EA, Bridgwater C, Tai GG, et al. Long-term pain and recovery after major pediatric surgery: A qualitative study with teens, parents, and perioperative care providers. J Pain 2017;18(7):778-86.
https://doi.org/10.1016/j.jpain.2017.02.423.

[6] Hung Y. Chang DC, Westfal ML, Marks IH, Masiakos PT, Kelleher CM. A longitudinal population analysis of cumulative risks of circumcision 2018. Journal Of Surgical Research 2019;111-117. doi: 10.1016/j.jss.2018.07.069.

[7] Coleman LN, Wathen K, Waldron M, Mason J, Houston S, Wang Y, Hinds PS. The child's voice in satisfaction with hospital care. Journal of Pediatric Nursing 2020;113–120.doi: 10.1016/j.pedn.2019.11.007.

[8] Flanagan J. Postoperative Telephone Calls: Timing Is Everything. AORN J 2009.

[9] Bikmoradi A, Masmouei B, Ghomeisi M, Roshanaei G. Impact of Tele-nursing on adherence to treatment plan in discharged patients after coronary artery bypass graft surgery: A quasi-experimental study in Iran", International Journal of Medical Informatics 2016;43–48. doi: 10.1016/j.ijmedinf.2015.12.001.

[10] Ramelet AS, Fonjallaz B, Rio L, Zoni S, Ballebi P, Rapin J, Gueniat C, Hofer MImpact of a nurse led telephone intervention on satisfaction and health outcomes of children with inflammatory rheumatic diseases and their families: a crossover randomized clinical trial", BMC Pediatrics 2017 doi: 10.1186/s12887-017-0926-5.

[11] Doğan BA, Gül E. Covid-19, Tele-Health and Tele-Nursing. Journal of Health Sciences 2021; 342-345. DOI: 10.34108/eujhs.1040467.

[12] Balenton N, Chiappelli F, Balenton N, Chiappelli F. Telenursing: Bioinformation cornerstone in healthcare for the 21st Century. Bioinformation 2017; (13)12, 412-414. doi: 10.6026/97320630013412.

[13] Dadgari F, Hoseini S, Aliyari S. The effect of sustained nursing consulting via telephone (Tele Nursing) on the quality of life in hypertensive patients. Applied Nursing Research 2017. doi: 10.1016/j.apnr.2017.02.023.

[14] Alcazar B, Ambrosio L. Tele-nursing in patients with chronic illness: a systematic review. In Anales Del Sistema Sanitario De Navarra 2019;(42)2,187-197. https://doi.org/10.23938/ASSN.0645

[15] Pazarcikci F, Efe E. Effects of comfort-oriented nursing care based on the comfort theory on perioperative anxiety and fear in children undergoing surgical circumcision: RCT. Journal of Perianesthesia Nursing 2023; *38*(2), 236-245. https://doi.org/10.1016/j.jopan.2022.04.016

[16] Ulusoy M, Şahin N, Erkmen H. Turkish Version of the Beck Anxiety Inventory: Psychometric Properties i. Journal of Cognitive Psychotherapy 1998;163-172.

[17] Ulus B, Kublay G. PedsQL Sağlık Bakımı Ebeveyn Memnuniyet Ölçeğinin Türkçe'ye Uyarlanması. Acıbadem Üniversitesi Sağlık Bilimleri Dergisi 2012; (3) 1.

[18] Çelik İ, Kömeağaç A, İşsever O, Bektaş M. Evaluation of Parents' Knowledge Levels and Behaviors About Circumcision. Journal of Anatolia Nursing and Health Sciences. 2021. doi:10.17049/ataunihem.774630

[19] Ferhatoglu MF, Kartal A, Gurkan A. Evaluation of male circumcision: Retrospective analysis of one hundred and ninety-eight patients. Cureus 2019;11(4).Doi: 10.7759/cureus.4555

[20] Yavuz F, Kobya Bulut H. The effect of circumcision age on anxiety and self-perception in boys. ComprehensiveChildandAdolescentNursing2024;47(3),214-223. https://doi.org/10.1080/24694193.2024.2389420

[21] Boyle GJ. Circumcision of infants and children: Short-term trauma and long-term psychosexual harm. Advances in Sexual Medicine 2015; (5)2, 22-38.

[22] Yıgman M, Üntan İ, Yığman F, Gül H. Avoidance of Circumcision during the Phallic Stage: Myth or Reality?. Archivos espanoles de urologia 2025;*78*(4),385-391. https://doi.org/10.56434/j.arch.esp.urol.20257804.51

[23] Özen MA, Eroğlu. Evaluation of circumcision in terms of parental feedback and medical outcomes. Child Cer. Derg 2019; (33)2,65-71. doi:10.5222/JTAPS.2019.65982.

[24] Siroosbakht S, Rezekhania BA comprehensive comparison of the early and late complications of surgical circumcision in neonates and children: A cohort study. Health Sci Rep 2022;21;5(6):939. doi: 10.1002/hsr2.939.

[25] Weiss HA,Larke N,Halperin D,Schemker I.Complications of circumcision in male neonates,infants and children: a systematic review.BMC Urology 2010;10:2. http://www.biomedcentral.com/1471-2490/10/2

[26] Çiftçi EK, Aydın D, Karataş H. Determining the Causes of Concern and Anxiety States of Parents of Children Who Will Undergo Surgical Intervention. J Pediat Res 2016; (3)1,23-9. doi: 10.17049/atauni hem.774630.

[27] Ayenew NT, Endalew NS, Agegnehu AF, Bizuneh YB. Prevalence and factors associated with preoperative parental anxiety among parents of children undergoing anesthesia and surgery: A cross-sectional study. International Journal of Surgery 2020. doi: 10.1590/1518-8345.0723.2708

[28] Agostini F, Monti F, Neri E, Dallebartola S, Pascalis L, Bozicevic L. Parental anxiety and stress before pediatric anesthesia: A pilot study on the effectiveness of preoperative clown intervention",JournalofHealthPsychology2014;(19)5,587–601. dio:10.1177/1359105313475900.

[29] Aranha PR, Dsouza SN. Preoperative information needs of parents: a descriptive survey", Journal of Research in Nursing 2019*;*(24)5, 305–314. doi: 10.1177/1474987118821708.

[30] Coşkuntürk AE. The Effect of Interactive Therapeutic Game Training Program on the Anxiety Level of Children Who Will Have Heart Surgery and Their Mothers. Master's Thesis, Nursing, Institute of Health Sciences, Haliç University, Istanbul, Turkey.2015.

[31] Arıkan D, Saban F, Baş NG. Satisfaction levels of parents whose children are hospitalized towards the hospital and health care. Izmir Dr. Behçet Uz Children's Hospital. Magazine 2014; (4)2,109-116. doi:10.5222/buchd.2014.109

[32] Dean P, O'Donnell MÇ, Zhou L, Skarsgard ED. Improving value and access to specialty medical care for families: a pediatric surgery telehealth program. Can J 2019. doi: 10.1503/cjs.005918

Table 1. Comparison of Sociodemographic Characteristics of Intervention and Control Groups

	Intervention (n=54)		Control (n=54)		Ki Kare	p
	Number	Per cent	Number	Per cent		
Gender						
Woman	49	90.7	44	81.5	1.935	0.164
Male	5	9.3	10	18.5		
Age (years)						
22-40	41	75.9	42	77.8	0.052	0.820
41-55	13	24.1	12	22.2		
Education						
Reader-Writer	4	7.4	1	1.9	4.145	0.387
Primary School	20	37.0	26	48.1		
Middle School	6	11.1	7	13.0		
High School	18	33.3	12	22.2		
University	6	11.1	8	14.8		
Family Type						
Nuclear Family	48	88.9	46	85.2	0.328	0.567
Extended Family	6	11.1	8	14.8		
Employment Status						
Working	11	20.4	14	25.9	0.468	0.494
Not working	43	79.6	40	74.1		
Place of Residence						
Province	15	27.8	10	18.5	1.535[FE]	0.677
District	38	70.4	43	79.6		
Village	1	1.9	1	1.9		
Number of Children						
1-2	22	40.7	23	42.6	0.038	0.845
3-5	32	59.3	31	57.4		
Circumcision Age Range						
0-3	11	20.4	14	25.9	3.030[FE]	0.368
4-6	20	37.0	24	44.4		
7-11	21	38.9	16	29.6		
12 and above	2	3.7	0	0.0		
[+]Circumcision Preference Reason						
Religion	47	87.0	47	87.0	0.000	1.000
Cultural/Environmental	5	9.3	6	11.1	0.101	0.750
Health	27	50.0	29	53.7	0.148	0.700
Other	3	5.6	0	0.0	1.371[FE]	0.243
Previously in the family Circumcision Experience						
Yes	27	50.0	30	55.6	0.334	0.563
No.	27	50.0	24	44.4		

Previously development of Complications After Circumcision						
Yes	1	3.7	5	16.7	1.346[FE]	0.197
No.	26	96.3	25	83.3		
Getting Previous Information About Circumcision					2.598	0.107
Yes	39	72.2	31	57.4		
No.	15	27.8	23	42.6		
[+]**Source of Information on Circumcision**						
Physician	15	38.5	11	35.5	0.066	0.798
Nurse	8	20.5	9	29.0	0.682	0.409
Social Media	13	33.3	9	29.0	0.148	0.700
Friend/Relative	10	25.6	9	29.0	0.100	0.751

+:In these questions. participants gave multiple answers. FE:Fisher's Exact

Table 2.Investigation of Differences in Beck Anxiety Scale Scores Between and Within Groups

	Intervention (n=54)		**Control (n=54)**		**Z**	**p**
	Mean±SD	**Median (Min-Mak)**	**Mean±SD**	**Median (Min-Mak)**		
Beck Anxiety Scale (1)	19.24±16.05	17.0(0-60)	14.46±13.00	12.5(0-50)	-1.452	0.147
Beck Anxiety Scale (2)	9.91±9.20	9.5(0-39)	8.46±10.83	6.0(0-46)	-1.453	0.146
Beck Anxiety Scale (3)	1.69±3.99	0.0(0-27)	7.44±8.25	6.0(0-42)	-5.206	**0.000***
	Fr=72.642; p=**0.000***		Fr=15.134; p=**0.001***			
Difference (Bonferroni)	3<1.2 2<1		2<1 3<1			

Table 3. Investigation of Intergroup and In-Group Differences in PedsQL Health Care Satisfaction Scale and Subscale Scores

	Intervention (n=54)		**Control (n=54)**		**Z[a]**	**p**
	Mean±SD	**Median (Min-Mak)**	**Mean±SD**	**Median (Min-Mak)**		
PedsQL Scale (1)	73.25±18.30	70(30-100)	67.87±20.47	63.54(8.68-100)	-1.445	0.149
PedsQL Scale (2)	97.03±4.81	100(78.82-100)	67.49±20.21	63.13(8.68-100)	-7.644	**0.000***
	Z[b] =-6.018; p= **0.000***		0.348;0.728			
Information (1)	71.20±20.46	75(35-100)	66.02±21.96	62.5(25-100)	-1.011	0.312
Information (2)	98.70±4.97	100(75-100)	66.20±21.89	65(25-100)	-8.099	**0.000***
	Z[b] =-5.753; p=**0.000***		-0.011;0.991			
Family Involvement (1)	72.92±21.55	71.88(25-100)	69.68±24.92	75(6.25-100)	-0.425	0.671
Family Involvement (2)	97.80±6.78	100(75-100)	69.10±24.45	75(6.25-100)	-7.443	**0.000***
	Z[b] =-5.528; p= **0.000***		-0.089;0.929			
Contact (1)	72.59±22.02	75(25-100)	70.00±24.20	75(0-100)	-0.431	0.666
Contact (2)	99.44±3.46	100(75-100)	69.54±23.86	75(0-100)	-7.680	**0.000***
	Z[b] =-5.402; p= **0.000***		-0.052;0.959			
Technical Skills (1)	71.30±23.78	75(25-100)	66.44±25.42	68.75(0-100)	-0.917	0.359
Technical Skills (2)	96.18±8.71	100(68.75-100)	65.97±25.02	68.75(0-100)	-6.950	**0.000***
	Z[b] =-5.142; p= **0.000***		-0.445;0.656			
Emotional Requirements (1)	65.51±26.43	62.5(0-100)	59.61±24.69	50(0-100)	-1.386	0.166
Emotional Requirements (2)	96.99±7.36	100(68.75-100)	59.14±24.33	50(0-100)	-7.900	**0.000***
	Z[b] =-5.592; p= **0.000***		-0.241;0.810			
Overall Satisfaction (1)	85.96±18.80	100(25-100)	75.46±21.26	75(8.33-100)	-2.841	**0.004***
Overall Satisfaction (2)	93.09±11.35	100(66.67-100)	75.00±20.98	75(8.33-100)	-4.957	**0.000***
	Z[b] = 3.552; p= **0.000***		0.000;1.000			

Z[a] :Mann Whitney U Z[b] :Wilcoxon Analysis *: p<0.05

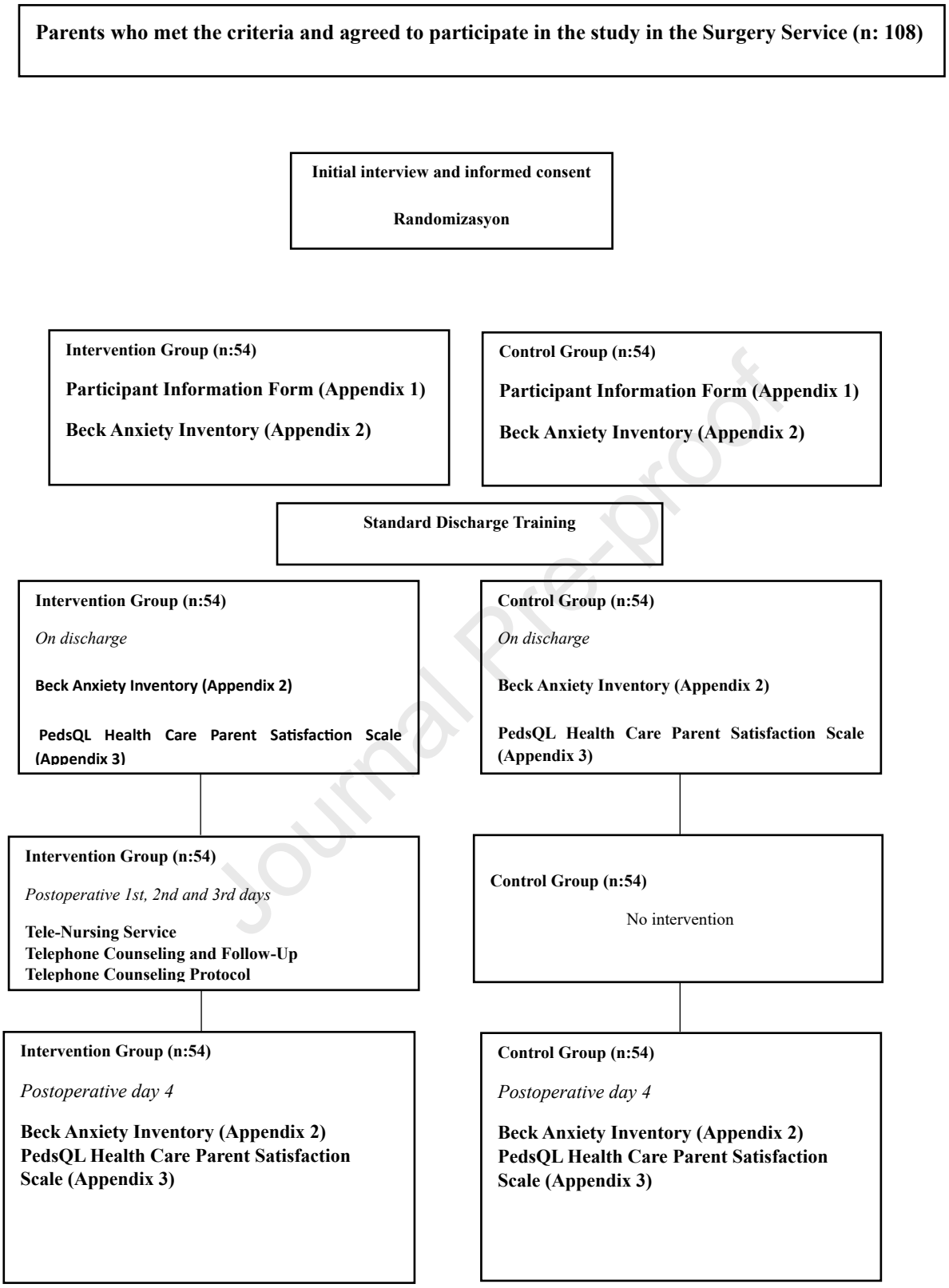

Figure 1. Implementation Scheme of the Research