



Effects of Parental Health Education Program on Complications of Circumcision among Children in a Tertiary Care Hospital

Nirupama Saha^{*1}, Md Sajedul Haque², Md. Abdullah Al Faisal³,
Sakib Bin Shahabuddin⁴, Mirza Kamrul Zahid⁵

Abstract

Introduction: Circumcision in male children, however, is a commonly practiced surgical procedure, but still, remains a matter of great concern for parents/caregivers particularly regarding complications and caring for their children only because of their lack of knowledge. Parental health education programs might be an effective means to minimize the complications while enhancing better outcomes. **Methods:** This prospective type of educational interventional study was carried out among a total of 140 participants (parents/ caregivers- the mean age of whom was 35.34(SD±5.445 years) whose children (only male) were of 1-14 years old, eligible for circumcision selected employing purposive sampling technique. A specifically designed data collection sheet based on a set of questionnaires including both closed (yes/no) and open-ended questions before and after the program was used for data collection and data was analyzed with SPSS version 23. **Results:** Before the health education program, out of a total of 140 parents, 111(79.3%) did not have any idea about the health education program on circumcision. 95(67.9%) were almost unaware of solving any post-operative problem/complication. 67(47.5%) & 93(66.4%) respectively had no idea & lack of knowledge in caring of their children. Contrary to this, after the health education program, (51.4%), (45.7%), (47.1%), (48.6%) & (54.4%) respectively out of 140(100%) participants, strongly acknowledged the effectiveness of the education program in perspective of care of their children, in the easy handle of their children, in the identification of child problem easily, in coping up with their children along with anxiety reduction and appreciation in child care. 90(64.3%), & 80(57.1%) expressed a high level of benefits & satisfaction. Besides, 96(68.6%) needed follow-up visits after 7 days, and 100(71.4%) required only single-time visits. Altogether, around 63.7% of caregivers strongly recommend establishing a parental health education system before circumcision of the children. **Conclusions:** Parental health education program before circumcision has tremendous success in augmenting the knowledge, awareness, and confidence level of parents regarding caring for their children and thus reducing complications along with minimizing the burden of hospitals after circumcision.

Keywords: Health Education, Circumcision, Children & Tertiary Level Hospital.

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- *1. Corresponding Author:**
Dr. Nirupama Saha
Associate Professor
Department of Pediatric Surgery
Shaheed Suhrawardy Medical College
Dhaka, Bangladesh.
Email: dr.nirupamasaha@yahoo.com
Mobile: 01715277697
- 2. Dr. Md. Sajedul Haque**
Associate Professor
Department of Pediatric Surgery
Shaheed Suhrawardy Medical College
Dhaka, Bangladesh.
- 3. Dr. Md. Abdullah Al Faisal**
Resident Surgeon
Department of Pediatric Surgery
Shaheed Suhrawardy Medical College
Dhaka, Bangladesh.

- 4. Dr. Sakib Bin Shahabuddin**
Assistant Registrar
Department of Pediatric Surgery
Shaheed Suhrawardy Medical College
Dhaka, Bangladesh.
- 5. Prof. Dr. Mirza Kamrul Zahid**
Professor & Head
Department of Pediatric Surgery
Shaheed Suhrawardy Medical College
Dhaka, Bangladesh.

Introduction:

Circumcision in male children is very commonly performed surgical procedure may sometimes associated with potential operative or postoperative complications only because of lack of proper parental knowledge and skills on adequate postoperative care¹. Though infrequent, yet sometimes, complications like pain, bleeding, seroma, granuloma,

wound infection, post circumcision phimosis, meatal stenosis, acquired uretho-cutaneous fistula, buried/concealed penis might be a great reason of parental concern^{2,3}. Besides, complications may require costly and emotionally upsetting surgical revisions for parents and hospitals^{4,5,6,7,8}. When child undergone in a surgical procedure, obviously, this is a chaotic period for its' parents which may render to parental negative psychological outcomes with difficulties in future parenting. Studies revealed that providing a systematic, well-established health education program before surgery can significantly reduce many of these complications and parental anxiety by increasing their knowledge and awareness about parenting^{9,10,11,12,13}. Video, written, verbal communication or social media could be an easy portal to provide such an education program^{14,15,16}. Worldwide, though, health education program is well established for a long time¹⁷. Bangladesh is lack behind for such well-developed educations program particularly through audio-visual & this is quite new here. Hence, the study is aimed to bring a new dimension in perspective of post-operative care of child circumcision of Bangladesh by establishing an organized parental health education program through both pictorial and audio-visual aids.

Methods:

This prospective type of educational interventional study was carried out, from December 2020 to May 2021 (for Six months) among 140 patients/ guardians of male children (1-14 years) who brought their children at circumcision clinic of the department of pediatric surgery of Shaheed Suhrawardy Medical College Hospital Dhaka, for circumcision of their children. Children who were eligible for circumcision by details history, clinical examination and investigations and fit for general anesthesia, their guardians were scrutinized. Parents/guardians whose children were needed redo-circumcision because of previous incomplete circumcision from an unauthorized institution/unregistered doctor/quacks or hazam were also included. Individuals who was confused to include him or herself in the study or whose children's age were less than one year or children's having history of any bleeding or coagulation disorder in their own or their family history particularly history from maternal side nor having history of severe congenital urogenital abnormalities like any form of hypospadias, epispadias or exstrophy-epispadias complex, history of any other major congenital abnormality or any acquired condition for which general anesthesia were not be suitable were excluded. Every participant was informed and explained in details about the study purpose, merits, demerits & ultimate outcomes. Purposive sampling technique for sampling was used. For sample size estimation, following formula ($n = \frac{Z^2 \times p \times (1-p)}{d^2}$) was used where, 'n' is the desired sample size, 'Z' is the standard normal deviate usually set at 1.96, which corresponds to 95% confidence level. 'P' is the assumed proportion in the target population estimated to have some particular characteristics. 'd' is allowable maximum error in estimating population proportion. The known prevalence of male circumcision in Bangladesh is 93.2%¹⁸. Considering $p=0.93$ and $d=0.04$, the estimated sample size is 156. Considerable 10% drop out and then to sample size was $156 \times 10\% =$

172. But this was because of repeated lockdown for increase trend of COVID-19 situation in the country, the expected sample size had not been possible to collect and total 140 samples were collected for analysis. Patients' registrar was the source of available data. Data was collected both before and after health education program by a designed structured data collection sheet based on Kuppaswamy's Socioeconomic Status Scale¹⁹, where both close (yes/no) questions, and open-ended questions were included. All patients were monitored according to the designated monitoring schedule after operation. The filled in questionnaires were edited and the responses were coded following the designed code list. The test statistics used to analysis the data by using SPSS version 23. For all analytical tests level of significant was set at 5% and $p < 0.05$ was considered significant. Both multimedia CD (audio-visual) & pictorial presentation were used for demonstration of education program to participants.

Results:

The results of sociodemographic distribution (Table I, II and III), showed that, among total sample ($n = 140$), the mean age of the patients was $6.35(SD \pm 2.569)$ and participating parental/caregivers' age was $35.34(SD \pm 5.445)$ years. Comparing with living status and other factors (occupation, education, and religion), more than 72% (102) participants came from urban areas whereas around 27% (38) were from rural areas and whatever from urban and rural, majority of participants were service holder (50) & the education level was up to high school level (45) mostly (91.42%) from Muslim community. Regarding the purposes of hospital-based operation statistics showed (Table-IV) that, 18.6% parents were afraid of post-operative any complications and its management at home or in local hospital, 17.1% talked about their children's medical problems for which circumcision was not possible in locally, another 17.1% parents choose for better setup. Significant percentages (13.6%, 12.9% respectively) stated about having previous bitter experience from traditional or local hospitals and complications from traditional healers/hazams. 60.0% circumcision was noted for ritual, 33.57% for health-related problem (where 32% were of surgical causes), 2.9% & 3.5% for cultural and other reasons respectively. On evaluation of knowledge status before health education this was noted that among 140 participants, 111(79.3%) did not have any idea about such a program on circumcision, 95(67.9%) had no knowledge about how to solve any problem if arise after circumcision. However, 89(63.6%) knew that there may arise complications during or after the operation, 93(66.4%) were ignorant of caring of the children. 73(52.1%), though had realization on the necessity of take care of child after circumcision but 67(47.5%) did not have any idea about it. The statistics of assessment of parental awareness status showed that (Table-V), majority (51.4%) of parents had an optimistic consideration to be benefited from the health education program regarding post-operative care, (53.6%) to detect any problem easily in reducing the post-operative complications (50.0%) to lessen their worry in handling of children after operation (50.7%). On the contrary, a significant proportion of participants, 37(26.4%), 33(23.6%), 38(27.1%), 33(24.6%) respectively, did not put any comment in regards to the

above-mentioned assessment variables and a good proportion of participants 26(18.6%), 28(20.0%), 29(27.1%), 30(21.4%) respectively had confusion about effectiveness of the program. About caregiver's anxiousness status prior to health education there was found that (Table-VI), 136(97.1%) were worried for any post-surgical complication and its management, 126(90.0%) for the surgery of their children, 125(89.3%) for post-surgical care. On evaluation of caregiver's understanding after categorizing in different scale within various perspectives, the results showed that about half of the participants (50.0%) among 140 strongly consider for child circumcision in a well-equipped hospital settings, (51.4%), (45.7%), (47.1%), (48.6%) and (54.4%) respectively strongly acknowledged that the education program was helpful in perspective of care of their children, in facilitating them with easy handle of their children, supportive in identification of child problem easily, helpful in easing them and their family members to reduce anxiety, appreciation in child care respectively. Out of total 140 participants, 90(64.3%), and 80(57.1%) individually expressed a high level of beneficiaries and satisfaction of prior Health Education of circumcision on post circumcision. Only 1(1.4%) caregiver mentioned about no appreciation on care of their children, 1(0.7%) commented about without getting any benefit, 7(5%) parents showed their disappointment. On evaluation of problems/difficulties the results (Table-VII) illustrated that prior to health education, 95(67.85%) participants out of 140 had to face problems in various aspects whereas after health education this was only 38(27.14%). Among the problems, before health education 37(39%) out of 95 were related to post-operative wound complications but after health education this was only 21(60%) out of 38. Again, 30(31%) of parents complained about difficulties in would care before health education but that was only 6(17%) after health education. Regarding difficulties to cope with children 16(17%) and 7(20%) parents complained before and after Health Education respectively. Comparing of parental panic status, 12(13%) mentioned about panic to child care prior to the program, however, this was reduced to 4(3%) after health education. Regarding monitoring schedule and required number of visits showed that (Table-VIII and Table-IX) after health education program, among total 140 patients, most of the patients 96(68.6%) needed to visit follow up clinic after 7days and 100(71.4%) required only single time visit. 21(15.0%) needed after 24 hours and 27(19.3%), 11(7.9%) and only 2(1.4%) required two-times, thrice and four visits respectively. About the parental opinion on enhancement of confidence level from the given education program, the result illustrated that (Figure-1), 91.4% parents addressed about raising of their confidence level for doing circumcision of their children whereas only 9.4% mentioned not get any confidence. The findings (figure-2) of parental /Caregivers' recommendation to establish such a parental health education system in each hospital prior to circumcision of their children, 63.7% participants out of 140 strongly recommend in favor of the program, only 2.1% did not find any reason of mandatory lunching of the program & the same proportion of parents had no comment. 23.6% though commented in favor of the program to a some extends however, 4.3% stated as they do not know.

Table-I: Distribution of the respondents according to the age

Age of the child in Years	Frequency	Percent
1-5	60	42.9
6-10	70	50.0
11-15	10	7.1
Total	140	100.0

Mean age, 6.35 and SD±2.569.

Table-II: Distribution of the parents according to their age:

Category of the age in years	Frequency	Percent
25-34	56	40.0
35-44	83	59.3
≥45	1	.7
Total	140	100.0

Mean age, 35.34 Years and SD±5.445.

Table-III: Background information in compare with Living status and other factors (occupation, education, head of family, monthly income and religion) of the participants (n= 140):

Background information	Living area of the participants		Total
	Rural	Urban	
Occupation of the parents			
Service	6	44	50
Business	4	27	31
Agriculture	17	1	18
Self-employed	7	25	32
unemployed	4	5	9
Total	38	102	140
Education level of the participants			
Illiterate	12	5	17
Elementary School	9	6	15
Middle School	8	19	27
High school	5	40	45
College/university	4	32	36
Total	38	102	140
Religion of the participants			
Muslim	34	94	128
Hindu	1	2	3
Buddhism	0	1	1
Christian	0	3	3
Others	3	2	5
Total	38	102	140

Table- IV: Choice of Hospital Based Circumcision and relevant reasons:

Relevant reasons & choice	Frequency	Percent
Choice of Hospital Based Circumcision		
Close to resident	13	9.3
Locally there is no pediatric setup	16	11.4
Child has medical or problem that is not possible in locally	24	17.1
Better setup and care	24	17.1
Afraid of post-operative any complications and its management at home or in local hospital	26	18.6
Have any previous bitter experience from traditional or local hospital	19	13.6
Have heard of complications arise from Traditional healer or hazam	18	12.9
Total	140	100
Reasons for circumcision		
Ritual	84	60.0
Cultural	4	2.9
Health related	47	33.57
Others	5	3.57
Total	140	100
If reason is health related (n=47)		
Medical	6	4.3
Surgical	32	22.9
others	9	6.4
Total	47	33.6

Table V: Parental awareness/ responsiveness status regarding health education prior to circumcision:

Variables related to Health Education	Status				
	Percent/ Frequency				
	Yes	No	In doubt	No comment	Total
Will be benefited from education regarding post-operative care	72(51.4%)	5(3.6%)	26(18.6%)	37(26.4%)	140(100%)
Education program will be helpful to detect any problem easily	75(53.6%)	4(2.9%)	28(20.0%)	33(23.6%)	140(100%)
Education is helpful for child in dropping the post-operative complications	70(50.0%)	3(2.1%)	29(20.7%)	38(27.1%)	140(100%)
Will be helpful to reduce anxiety regarding handle of child after operation	71 (50.7%)	6(4.3%)	30(21.4%)	33(24.6%)	140(100%)

Table VI: Parental/ caregivers' anxiousness status prior to health education:

Background variables regarding anxiousness and worriedness	Status		
	Percent/Frequency		
	Yes	NO	Total
Anxiousness about the surgery of child	126(90.0%)	14(10.0%)	140(100.0%)
Anxiousness about the surgical care of child	125(89.3%)	15(10.7%)	140(100.0%)
Worriedness for about any post-surgical complication and its management	136(97.1%)	4(2.9%)	140(100.0%)

Table VII: Status of Problems before and after Health education:

Types of problems	Status			
	Percent/Frequency			
	Prior to Health Education		After Health Education	
Related to post-operative wound complications	37(39%)		21(60%)	
Difficulties in wound care	30(31%)		6(17%)	
Difficulties to cope with child	16(17%)		7(20%)	
Become panic to child care because of fear	12(13%)		4(3%)	
Total	95 (100%) Yes=95(67.85%) No=45(32.14%)	140	38(100%) Yes=38(27.14%) No=102(72.85%)	140

Table- VIII: Follow-up schedule and parental visit numbers of attending:

Follow-up Interval	Frequency	Percent
Within 6 hours of operation	7	5.0
After 24 hours	21	15.0
After 7 days	96	68.6
After one month	11	7.9
After 3 months	5	3.6
Total	140	100.0

Table- IX: Number(s) of visit required:

Number of visits	Frequency	Percent
Single time	100	71.4
Twice	27	19.3
Three time	11	7.9
Four time	2	1.4
Total	140	100.0

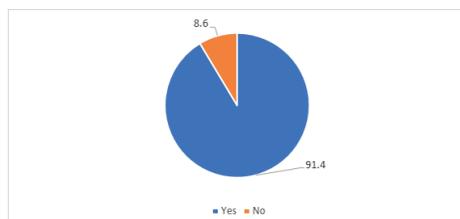


Figure 1: Parents opinion regarding improvement of the confidence level after receiving the education.

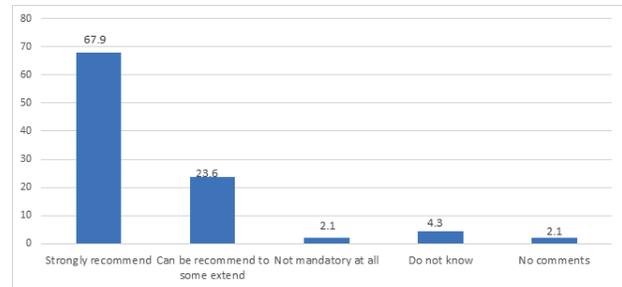


Fig. 2: Parents recommendation regarding establishment of a parental health education system in each hospital where child circumcision is performed.

Discussion:

Importance of parental/ caregivers' health education program prior to circumcision have been highlighted in several studies^{2,20,21,22}. The present study is also aimed to evaluate the effectiveness of the health education program among parents/ caregivers whose children had undergone for circumcision in a tertiary care hospital. In current study, regarding sociodemographic distribution among total 140 participants, the mean age of the patients (children) and their parents was 6.35(S-D±2.569) and 35.34(SD±5.445) years respectively. More than 72% (102) participants came from urban areas whereas around 27% (38) were from rural areas. Majority of the participants were service holder (50) with education level was up to high school level (45) & were mostly (91.42%) from Muslim community. This indicates that most of the participants of the study were literate with a good living standard & the study was carried out in a tertiary care hospital at the capital of a country where 90% populations are Muslim. Prior to health education program, evaluation of parents/caregivers view on the purposes of hospital-based operation, the recent study results shows that, 18.6% participants were afraid of post-operative complications and its management at home or in local hospital, 17.1% of the children had medical problem which were not possible to manage locally and another 17.1% parents choose for better setup and a significant percentage (13.6%, 12.9% respectively) of parents told about having previous bitter experience from local hospitals and complications by traditional healers/hazams. Around 60.0% circumcision were because of ritual purpose whereas 33.57% for health-related problems. Regarding parental knowledge status the study results denote that, 111(79.3%) among 140 parents did not have any idea about such a program for circumcision, 95(67.9%) had no knowledge about how to solve any problem if arise after circumcision. However, 89(63.6%) had idea on possibilities of complications during or after the operation & 73(52.1%), had understanding of importance of take care of child but 67(47.5%) did not have any idea about this & 93(66.4%) did not know how to take care of their children. Evaluation of parental awareness shows, majority (51.4%) of parents had a positive view to be benefited from the health education program in perspective of post-operative care, in detection of any problem easily (53.6%), in reduction of post-operative complications (50.0%) & to lessen the worry regarding handle of child (50.7%) after operation. Contrary to this, a significant proportion of participants did not put any

comment and a good proportion of participants had confusion about the education program. Again, before health education the study results regarding caregiver's anxiousness represent that, among 140 participants, almost 136(97.1%) were worried of any post-surgical complication and its management, 126(90.0%) for the surgery of their children, 125(89.3%) for post-surgical care. From above study results regarding parental knowledge, awareness and anxiety status this is clear that the caregivers/parents basically had shallow knowledge and awareness with a great anxiousness on their children circumcision. Before the health education program. On the other hand, after health education program, the participants' evaluation status in different categories shows that, among 140(100%) participants, 51.4%, 45.7%, 47, 1%, 48.6% and 54.4% respectively had strong understanding that this program was helpful in perspective of care of their children, in facilitating them with easy handle of their children, in identification of child problem easily, in reduction of their and other family members anxiety. Almost half (50.0%) of the participants strongly consider for child circumcision in a well-equipped hospital setting with an establish health education program. Around 90(64.3%), & 80(57.1%) out of 140 participants individually expressed a high level of satisfaction whereas only 1 (1.4%) mentioned about no appreciation on care of their children, 1(0.7%) commented no benefit & 7(5%) parents showed their disappointment. Comparing the results of problems (difficulties in care of the child and manageable/non-manageable complications at home) prior to health education and after the health education this was noted that, 95(67.85%) out of 140 caregivers had to face various problem before health education whereas after health education this was reduced to 38(27.14%). 16(17%) and 7(20%) participants complained about coping difficulties before and after health education respectively. 12(13%) mentioned parental panic to child care prior to the program which was reduced to 4(3%) after health education. A significant proportion (91.4%) of parents addressed about rising of their confidence level for doing circumcision of their children after health education. All these results illustrated that this program was tremendously helpful for the parents to enhance their knowledge, awareness and confidence level in regards to surgery, to solve the post circumcision difficulties and complications at home and to decrease their anxiety status. The present study results also agree with study of Nagat F. et al 2018, Gafer AE et al. 2015^{23,24}, which revealed that the parents or caregiver's knowledge and awareness improved after application of educational program (statistically significant difference (P 0.00 and 3.4 to 0.8) and p<001 respectively). Study of Chang SF et al. 2017, Adams, 2011; McEwen, Moorthy, Quantock, Rose, & Kavanagh, 2007^{17,25,26}. Moreover Lo, Wang, et al. 2010 study and Luck, Pearson, Maddern, and Hewett 1999^{9,27}, study also demonstrated about raised of knowledge and awareness level among caregivers along with reduction of parental anxiety after health education on circumcision. Again, during follow up, this is noted that, most of the patients 96(68.6%) among 140 patients needed to visit after 7 days whereas 21(15.0%) needed after 24 hours. Most of children 100(71.4%) required only single time visit contrary to this 27(19.3%) required two-time visits. Thrice and four visits needed for 11(7.9%) and

only 2(1.4%) respectively and 11(7.9%) and 5(3.6%) patients had to come at hospital with repeated visits according to the follow-up schedule. This result represents in favor of reduction of hospital visiting time with nursing hours and hospital burden. This result is consistent with those of Lo, Wang, et al. 2010 and Chang, SF et al. 2017^{9,17} studies; where importance of parental learning of educational program on circumcision in reducing nursing hours and hospital burden were also illustrated. Overall, the parental recommendation to establish such an education program in every circumcision clinic/hospital this was found that around 63.7% participants among 140, strongly recommended, only 2.1% did not find any reason of mandatory lurching of the program and the same proportion of parents had no comment. 23.6% though in favor of optional, 4.3% remarked as they do not know. In general, the study results corresponded to the study of Thorup J et al. 2013²⁸, where also parental health education program was highly recommended.

Conclusions:

Parental health education program before circumcision is potentially effective in enhancing parental knowledge, awareness, and confidence level with a high level of satisfaction regarding the care of their children and also to reduce their anxiety and thus help to lessen post-circumcision complications & hospitals and caregivers' burden & thus help for better outcome of circumcision. However, the current study was a single-centered prospective one with a relatively small sample size within a short duration (six months) and carried out during the period of the COVID-19 pandemic. So, the results were not enough for reflection of the total scenario of Bangladesh, and hence a further large-scale study throughout the country is recommended in a favorable situation.

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