Effect of Discharge Instructions for Mothers on Post-Operative Recovery of their Children with Abdominal Surgeries

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Abstract

Background: Surgery is a stressful experience for children and their parents, affecting the way their social, psychological, environmental, and physical systems operate. Raising Mother's knowledge of post-operative care can help to avoid or lessen issues and encourage a speedy recovery. **Aim of the study was**: To evaluate the effect of discharge instructions for mothers on the post-operative recovery of their children with abdominal surgery. **Research design**: A quasi-experimental research design was used in the current study. **Sample**: A purposive sample of 70 mothers had children undergoing abdominal surgery and was divided equally into study and control groups. **Setting**: Minia University, Hospital for Pediatric Surgery's, pediatric surgery department was the site of the present investigation. **Tools**: Three tools were used: a structured interview questionnaire (I), a questionnaire to test mothers' knowledge (II), and a sheet to assess post-operative problems (III). **Results**: After the discharge program was put into place, there was a statistically significant change in the levels of knowledge held by mothers in the study group compared to the control group (P =0.001). At one week and one month after program implementation, the study group had substantially fewer postoperative complications than the control group (P =0.043). **Conclusion**: Results showed that, in comparison to the control group, mothers whose children were part of the research group knew enough to be discharged safely. Complications after surgery were less common in the children's study group compared to the control group. **Recommendations**: Periodic education sessions and guidelines for mothers whose children are undergoing abdominal surgery. Sessions aimed at increasing nurses' knowledge of the advantages of discharge planning for children. Using telenursing to provide follow-up care

Keywords: Abdominal surgery, Children, Discharge instructions, Mothers, Postoperative recovery

Introduction

For instance, even following a successful abdominal procedure, complications can sometimes lead to poor postoperative outcomes, such as death or severe sickness **(Kumba, 2021),** which is a major cause for concern when it comes to pediatric operations. The World Health Organization reports that millions of youngsters undergo surgeries and diagnostic treatments daily. The pediatric surgical unit of Cairo University Specialized Pediatric Hospital (CUSPH) welcomed 1,244 patients in 2019, with 26.8% of those patients receiving abdominal procedures, according to the Statistics Department of CUSPH **(Mohamed et al., 2022).**

Common abdominal surgeries include appendectomy, gallbladder removal, and treatment of abdominal aortic aneurysms. Open surgery may still be necessary in certain cases, despite the growing popularity of less invasive procedures **(Tobias et al., 2023).** Trauma from surgery can impact children and their parents in many ways, including physically, socially, emotionally, and environmentally. Preoperative preparation is key for postoperative care and home health. Common adverse effects include: nausea, vomiting, bleeding, wound infection, hematoma, dehiscence, constipation, UTI, urine retention, low blood pressure, and neurological problems. To help families adjust to life away from the hospital, postoperative discharge education is provided **(Mwafie and Abduallah, 2020).**

Fostering understanding between parents and nursing staff is an essential part of family-centered care in pediatric nursing. This, in turn, improves medical outcomes. The most effective routines for caring for children include open lines of communication and an awareness of each child's unique background, goals, and experiences **(Pansier and Zheng, 2022).** Reduce postoperative stress and facilitate the patient's return to baseline activities with the use of scientific evidence, multidisciplinary work, communication, and auditing processes through the ERASS program. Issues, morbidity, and healthcare costs have all decreased significantly **(Hidayah et al. 2023)** as reported by healthcare providers.

Pediatric discharge guidelines are intricate and encompass several areas of care, such as medication management, dietary restrictions, activity limitations, wound care, infection prevention, constipation, and follow-up appointments **(Kang et al., 2020).** If the surgical site ruptures, the doctor will advise the mother to take new and resume medications, as well as prescribe antibiotics. During the first week, pain medication can be required. If a medication causes discomfort, mothers should adhere to the directions on the label and see a doctor **(Taha and El-Sayed, 2021; Mohamed and Mahmoud, 2021).** Mothers provide light, bland meals gradually and clear beverages like water, ginger ale, apple juice, and popsicles. Promote the intake of fluids to stay hydrated. The youngster can feel queasy in the stomach and throw up, but in 24 to 48 hours, things should get better (**Hasanah and Deiniatur, 2020; Winnicott, 2021).**

A child's sleep patterns may be disturbed by post-operative activity, resulting in more sleep over the first 24 to 48 hours. Following the method, minimize physically demanding activities, establish a calm atmosphere, promote naps, and refrain from overburdening the youngster with visitors. Children's balance problems may result from

anesthesia and painkillers **(Mohamed and Mahmoud, 2021).** For the first twenty-four hours, the child should be closely watched over and supported, with progressively more activity and less rest. In one to three weeks, the youngster may resume activities or school **(Zegers and Reynolds, 2022).**

In addition to constantly monitoring her child's health and having surgical staples removed after seven to ten days, the mother should contact the doctor if her child exhibits symptoms of infection, such as increasing discomfort, swelling, or redness, or if they develop a blood clot in the leg **(Perry et al., 2022).** A youngster may have an incision with packing if the surgical site bursts. As required, replace the packing, and soak the dressing in warm water if it sticks. In accordance with the size of the incision, rinse, pat dry, and apply gauze **(Williams et al., 2021).** Soon after surgery, the mother can see a change in her child's bowel habits. This is typical. Call the doctor if, after a few days, the youngster has not had a bowel movement **(Winnicott, 2021).**

In order to evaluate his progress and health, the pediatric nurse recommends regular checkups **(Selman et al., 2023).** Pediatric nurses are crucial in helping parents cope with their children's illness and making sure they get the care they need before, during, and after their child's illness **(Sabaq et al., 2020).** They must use caution while describing the procedure to the youngsters and their families. The family should get accurate, consistent, relevant, and scientifically-written information that is tailored to the patient understands **(Basuony et al., 2022).**

Significance of the study:

In pediatric surgery, postoperative complications are crucial problems. Although the surgical treatments were successful, complications can occasionally result in death, morbidity, and poor postoperative outcomes, particularly following abdominal surgery **(Kumba, 2021).** According to **(Buchanan and Tuma, 2022)**, children who have abdominal surgery typically have a temporary decrease in their gastrointestinal motility. However, a prolonged disability can result in a number of significant challenges, such as longer hospital stays, higher medical expenses, slower wound healing, and pain for the kid.

The World Health Organization reports that daily, millions of children are treated medically, including through surgery, for a wide range of surgical and diagnostic requirements **(WHO, 2019).** Caring for children going through surgery is an often-overlooked part of child health that can be vital in preventing harm and death. According to the worldwide sickness burden, surgical disorders account for around 6-12% of pediatric hospital admissions **(Firomsa et al., 2018 & Concepcion et al., 2020).**

In light of firsthand observations, children having abdominal surgery were shown to be very susceptible to problems stemming from inadequate postoperative care provided by their mothers. A few studies were done in Egypt to inform mothers about the aftercare of their children who have had gastrointestinal surgery. The goal of the present study is to better inform and educate mothers on how to care for a child after surgery in order to reduce or avoid postoperative problems and enhance the chances of a child being adopted.

Aim of the Study:

This study aimed to evaluate the effect of discharge instructions for mothers on post-operative recovery of their children with abdominal surgeries.

Research Hypotheses:

The current study results tested the following research hypotheses:

- Mothers of children in the study group will have a satisfactory level of knowledge regarding discharge instructions than the mothers in the control group.
- Children included in the study group will have lower postoperative complications compared to those in the control group.

Research Design:

A quasi-experimental research design was used to achieve the aim of the current study.

Sample:

Children receiving abdominal surgery were included in a purposive sample of 70 mothers. In the first group, 35 mothers and their children were given standard care (control group); in the second group, 35 mothers and their children were given instructions before discharge (study group). The following formula for calculating samples is used to determine the sample size: (http://www.ifad.org/gender/tools/hfs/anthropometry).

$$N = \frac{t^2 \times p(1-p)}{m^2}$$

Description:

N=required sample size

t= confidence level at 95 % (standard value of 1.960)

p=estimated prevalence of children admitted with abdominal at Pediatric surgery units in Minia University Hospital's Pediatric Surgery in 2022 (0.05)

m=margin of error at 5 % (standard value of 0.05)

Inclusion Criteria: -

- Children had their first abdominal operation between the ages of 6 and 12.
- The child's mother was the main caretaker who accompanied them to the hospital.

Exclusion Criteria: -

- Mothers who had children undergoing abdominal surgery for more than one time.
- Children had chronic illnesses**.**
- Children had congenital anomalies.
-

Setting:

The current study was taken place at Pediatric Surgery Units at Minia University Hospital's Pediatric Surgery.

Tools for data collection:

The following three tools of data collecting were employed in this study:

- **Tool (I): A Structured Interviewing Questionnaire**:

The researcher developed the tool, which was divided into three sections: The mother's age, education level, profession, and residence were among the demographic details

gathered in Part 1. Section 2 collected the child's demographic information, which included their age, gender, birth order, and level of schooling. The child's medical history, including their diagnosis, operation type, and previous hospitalizations, was the subject of Part 3.

- **Tool (II) Knowledge Assessment Questionnaire:**

The researcher developed it, based on relevant literature such as **Dewit et al. (2017) and Sharma et al. (2018),** to evaluate mothers' awareness of several parts of discharge protocols for children who had abdominal surgery. It was divided into two sections; the **1st section** involved two questions about the mother had any knowledge about her child's condition, if yes, what source of this knowledge? **The 2nd section** consisted of 27 closed-ended questions in the form of multiple-choice questions comprising eight dimensions related to mothers' knowledge regarding postoperative movement (3), postoperative feeding (3), wound care (6), pain relief (2), danger signs (3), return bowel and urinary function (4), postoperative medications (3), follow up sheet post-operative guideline post-operative (3).

Scoring system: For each accurate answer, two degrees were awarded; for each incomplete response, one degree; and for wrong or don't know answers, zero degrees were deducted. A total of 54 points were deducted. The level of knowledge was considered good for those who scored between 33 and 54 out of a possible 60, while it was deemed inadequate for those who scored between 0 and 32.

- **Tool (III): Post-operative Complications Assessment Sheet:**

Based on **Pawar (2016),** the researchers created the method to evaluate post-discharge surgical complications in children. It measured disorders linked to the gastrointestinal tract, the respiratory system, the kidneys, the heart, the nervous system, and sleep, and it had seven subscales measuring wound complications, each with twenty-three items.

The scoring system assigned one point for each "present" response and zero points for "not present.

Tool's Validity and Reliability:

Three faculty members from Minia University's pediatric nursing program and two faculty members from Minia University's pediatric surgery program evaluated the data collecting instrument for content validity. The experts' evaluations of the items' sequence, suitability of subject matter, and clarity of expression inform the tool modifications.

In order to ensure that the tools were consistent, reliability testing was carried out. In order to determine how well the instruments measured the same notion and how they correlated with each other, we used Cronbach's alpha to evaluate internal consistency. The results showed that the tools had excellent internal dependability and were distributed as follows:

The study Tool	α
• Structured Interviewing Questionnaire	0.638
• Knowledge Assessment Questionnaire	0.757
• Post-Operative Complications Assessment Sheet	0.728

Pilot Study:

A pilot study was conducted with seven mothers, representing 10% of the total, to assess the clarity, relevance, and completion time of the data collecting instruments. required changes based on the results were made, the results of pilot study were included in the study.

Ethical considerations:

Before anything else, the study received clearance from the director of Minia University Hospital for Obstetrics and Pediatrics, the chief of pediatric emergency units, and the study ethics committee at the Faculty of Nursing. In order to move on with the study, we received the mothers' informed consent after giving them a detailed explanation of its aims and methods. We assured the mothers and their children that their participation was entirely voluntary and that they may withdraw at any time without penalty or explanation. The privacy of the mothers and their children is of the utmost importance.

Data Collection Procedure:

- The researcher briefed mothers and children on the study's aim to gather baseline data.
- After assigning mothers unique serial numbers, the researcher divided them into two groups: the study group and the control group.
- We started collecting postoperative data the second the surgery was over. Pretest papers were distributed in order to get baseline data.
- The discharge directions booklet was created by the researcher in basic Arabic,
- The following topics are covered in the directions booklet on postoperative recovery of their children with abdominal surgery:
  - Definition of abdominal surgery in children,
  - Causes of abdominal surgery in children,
  - Complications of abdominal surgery in children,
  - Discharge instructions on postoperative recovery of their children with abdominal surgery included: care of wound, pain relief, activity, diet, follow up, medications, danger signs.
- Three meetings led by the researcher within three days of the patients' release from the hospital resulted in program intervention.
- The mothers and children were divided into seven groups, with five members in each, according to the kind of procedure. There were many groups that underwent the same thirty-minute sessions.

For both study and control groups:

- The evaluation of mothers' knowledge was carried out immediately following the implementation of the discharge guideline, as opposed to one week and one month later, when the effect scale on abdominal surgery had already been assessed.
- One week and one month after patients were discharged; two assessments of postoperative problems were carried out. The review took into account every single follow-up appointment, whether it was at an outpatient clinic or over the phone.

Statistical Analysis:

The Social Science Statistics Package (SPSS 25) was used for coding, categorizing, tabulating, and analyzing the acquired data. Data visualization was accomplished through the use of Microsoft Excel graphs. For qualitative attributes, descriptive statistics relied on percentages and frequencies, whereas for quantitative data, they employed means and standard deviations. A P-value of less than or equal to 0.01 was considered extremely significant according to the recognized standard of significance. The mother's knowledge

and the postoperative complications sheet were compared using the Fisher exact test/chi test, which is based on their socio-demographic characteristics.

Correlation is a statistical tool for determining the kind and degree of the link between a mother's awareness and the postoperative problems sheet. Coefficients range from 0.25 to 0.499, from 0.5 to 0.739, and from 0.740-0.99, with the sign of the coefficient indicating the type of association (positive or negative) and the value indicating the strength of the link.

Results

Table 1: Comparison between the Study and Control Groups of Mothers Regarding Their Socio-Demographic Characteristics (n=70):

Socio-demographic characteristics	Study group (n=35)		Control group (n=35)		X^2 or Fisher test	P-value
	N	%	N	%		
Mother's age/years:						
≤ 20 years	0	0.0	0	0.0	4.351	**0.256** (NS)
21-30 years	**18**	**51.4**	**22**	**62.9**		
31-35 years	9	25.7	10	28.5		
More than 35 years	8	22.9	3	8.6		
Age (mean±SD)	**32.74±7.85**		**29.31±6.96**		t-test 2.7135	0.319 (NS)
Mother's education:						
Read and write	4	11.4	5	14.2	5.060	**0.281** (NS)
Primary	4	11.4	0	0.0		
Preparatory	2	5.7	1	2.9		
Secondary	**14**	**40.0**	**14**	**40.0**		
University or higher	11	31.5	15	42.9		
Occupation:						
Working	12	34.3	17	48.6	1.472	**0.332** (NS)
Housewife	**23**	**65.7**	**18**	**51.4**		

Chi-Square Test

NS= Non statistically significant * =Statistically significant difference ** =A highly statistically significant difference

Table 1 shows that, in the study group, 51.4% of the mothers were in the 21–30 age bracket, whereas in the control group, 62.9% were in the same bracket. The mean age for the study group was 32.74±7.85, while for the control group it was 29.31±6.96. When looking at the mothers' educational attainment, we find that 40% in both groups had completed secondary school. Furthermore, 65.7% of the mothers in the research group and 51.4% in the control group were staying at home to raise their children. When comparing the study and control groups on these measures, p-values larger than 0.05 did not indicate any statistically significant changes.

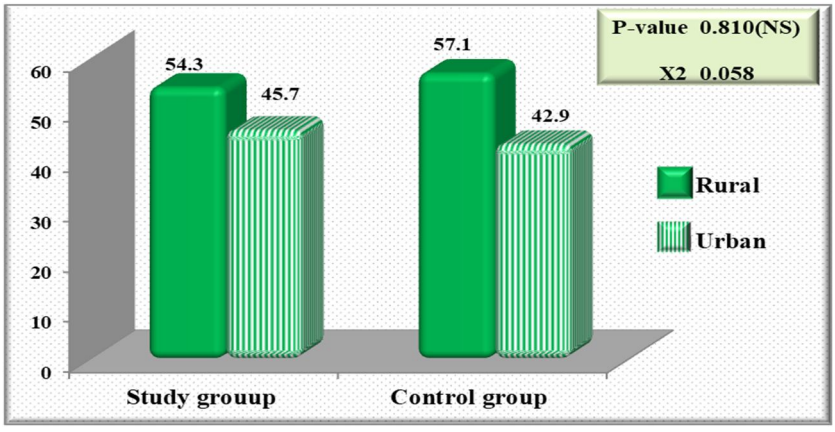

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Figure 1 Percentage Distribution of the Studied Mothers According to Their Residence in the Study and Control Groups (n=70):

Figure 1 illustrates that with a p-value of 0.810, it is evident that there is no statistically significant difference between the two groups, even though 54.3% of mothers in the study group and 57.1% in the control group live in rural regions.

Table 2: Comparison between the study and control groups of children according to their demographic characteristics (n=70)

Demographic characteristics	Study group (n=35)		Control group (n=35)		X^2 or Fisher test	P-value
	N	%	N	%		
Child's age:						
6 < 8 years	**14**	**40.0**	**21**	**60.0**	4.738	**0.227** (NS)
8<10 years	9	25.7	7	20.0		
10≤12 years	12	34.3	7	20.0		
Age (mean ± SD)	**8.54±2.03**		**8.0±2.00**		1.030	0.901 (NS)
Child ranking in the family:						

Demographic characteristics	Study group (n=35)		Control group (n=35)		X^2 or Fisher test	P-value
	N	%	N	%		
First	**16**	**45.7**	**16**	**45.7**	3.287	**0.349** (NS)
Second	9	25.7	14	40.0		
Third	6	17.1	4	11.4		
Fourth or more	4	11.4	1	2.9		
Child's education: -					9.752	**0.135** (NS)
Not enrolled in school	5	14.3	1	2.8		
First grade	5	14.3	9	25.7		
Second grade	**8**	**22.9**	**12**	**34.3**		
Third grade	7	20.0	3	8.6		
Fourth grade	4	11.4	3	8.6		
Fifth grade	0	0.0	3	8.6		
Sixth grade	6	17.1	4	11.4		

- **Chi-Square Test**

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Table (2) indicates that the control group had mean age of 8.0±2.00 years old, whereas the study group included 40% children aged 6 to 8, and the control group had 60% children aged 6 to 8. The percentage of firstborns in both categories was also 45.7%. The percentage of students in the study group enrolled in second grade was 22.9%, whereas the percentage in the control group was 34.3%. When comparing the study and control groups on these measures, p-values larger than 0.05 did not indicate any statistically significant changes.

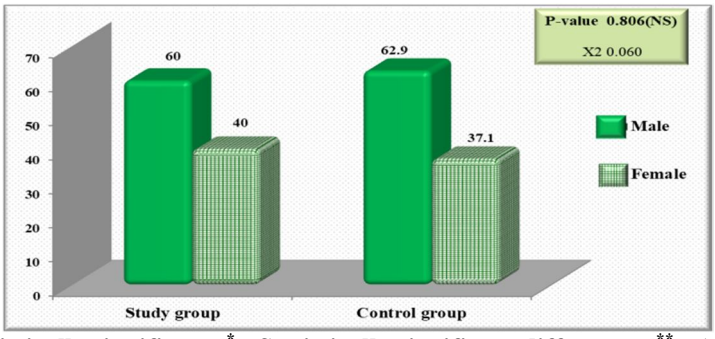

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Figure 2: Comparison between the study and control groups of children according to their gender (n=70)

Figure 2 shows that males made up 60% of the study group and 62.9% of the control group, with a p-value of 0.806 indicating that there was no statistically significant difference between the two groups.

Table 3: Comparison between the Study and Control Groups of Children According to Medical Data (n=70)

Medical Data	Study group (n=35)		Control group (n=35)		X^2 or Fisher test	P-value
	N	%	N	%		
Diagnosis:					7.194	**0.066** (NS)
Cholecystitis	1	2.9	6	17.1		
Appendicitis	**22**	**62.8**	**23**	**65.8**		
Exploration	3	8.6	0	0.0		
Hernia	9	25.7	6	17.1		
Previous hospitalization:					1.061	**0.220** (NS)
Yes	**13**	**37.1**	**9**	**25.7**		
No	22	62.9	26	74.3		
If yes, the number of hospitalizations:					0.075	**0.963** (NS)
One	**9**	**69.2**	**6**	**66.7**		
Two	3	23.1	2	22.2		
Three	1	7.7	1	11.1		
Reason of hospitalization					6.947	**0.225** (NS)
Diarrhea	2	15.4	1	11.1		
Dehydration	1	7.7	3	33.3		
Fever	2	15.4	1	11.1		
Tonsillectomy	7	53.8	2	22.2		
Motor car accident	1	7.7	0	0.0		
Pneumonia	0	0.0	2	22.2		

Chi-Square Test

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Table 3 reveals that it is 65.8% in the control group and 62.8% in the study group for children who had appendicitis. Not only that, but about 37.1% of children in the study group and 25.7% in the control group had been to the hospital before. Of Individuals who had a prior hospitalization record, 69.2% in the study group and 66.7% in the comparison group had only been

hospitalized once. When comparing the study and control groups on these measures, *p*-values larger than 0.05 did not indicate any statistically significant changes.

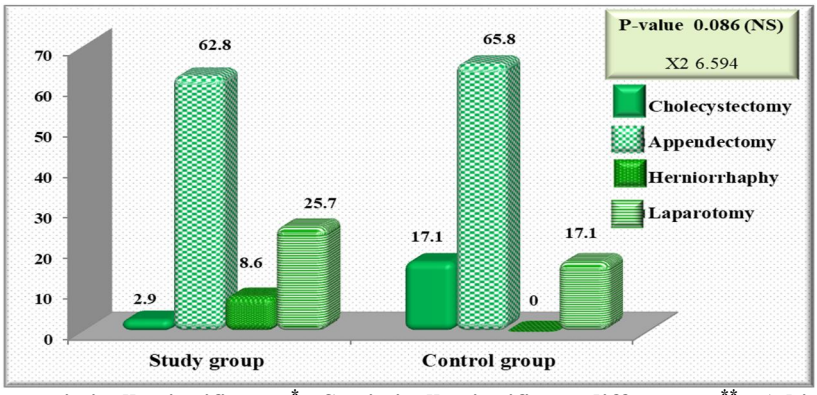

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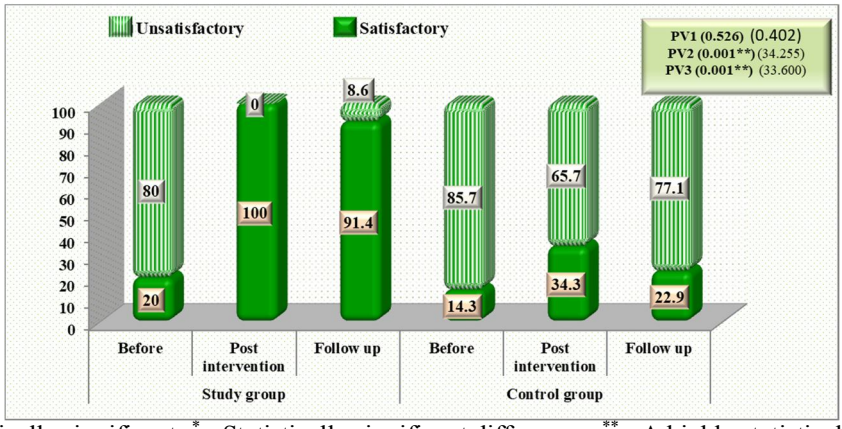
Figure 3: Comparison between the study and control groups of children based on the kind of operation (n = 70)

Figure 3: indicates that 62.8% of children in the study group and 65.8% in the control group underwent an appendectomy, with no statistically significant difference between the two groups, as shown by a *P*-value of 0.086.



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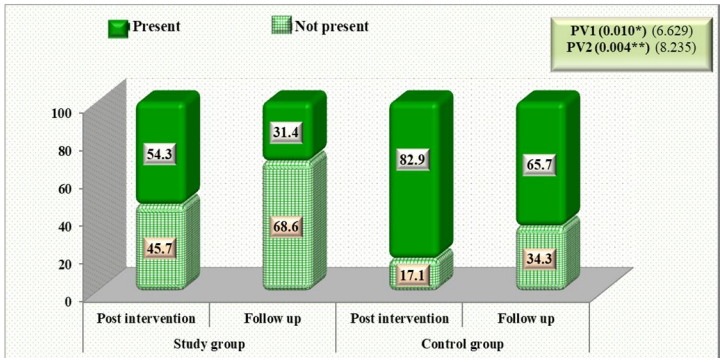
Pv1 (between the study group and the control group before intervention)

Pv**2** (between the study group and the control group in post-intervention)

Pv3 (between the study group and the control group during follow-up

Figure 4 Total score of mothers' knowledge about several components of the study and control groups' discharge criteria for kids who had abdominal operations (n=70).

Figure 4: shows that with a P-value of 0.526, there was no statistically significant difference between the groups for the percentage of mothers who had sufficient knowledge on discharge guideline for children after abdominal surgery; 20% of study group mothers and 14.3% of control group mothers achieved this. Mothers in both the intervention and control groups gained adequate information after the session. After the intervention and during follow-up, there was a highly statistically significant difference between the groups. 91.4% of mothers in the study group and 22.9% in the control group had sufficient knowledge. The *P*-value for this difference was 0.001.



Pv1 (between the study group and the control group one week after discharge)

Pv2 (between the study group and the control group one month after discharge)

NS= Non statistical significant
*** =Statistical significant difference**
**** =A highly statistically significant difference**
(NA) =Not applicable

Figure 5: Occurrence of children's complications after abdominal surgeries in the study and control groups (n=70)

Figure 5 shows that complications in children undergoing abdominal surgery are detailed in the study, along with a statistically significant difference (P = 0.010) between the study and control groups at one-week post-discharge. Also, after one-month post-discharge, there was a statistically significant difference (P = 0.004) between the two groups.

Table 4: Correlations between mothers' knowledge and children's complications after abdominal surgery (n=70):

Mothers' knowledge		Children's complications			
		Study group (n=35)		Control group (n=35)	
		After one week	After one month	After one week	After one month
Study group					
Before	Pearson Correlation	-.522-**	-.427-*		
	Sig. (2-tailed)	.001	.010		
After:	Pearson Correlation	-.426-*	-.015-		
	Sig. (2-tailed)	.011	.931		
Follow up:	Pearson Correlation	-.608-**	-.365-*		
	Sig. (2-tailed)	.000	.031		
Control group					
Before	Pearson Correlation			-.344-*	-.147-
	Sig. (2-tailed)			.043	.401
After:	Pearson Correlation			-.288-	-.175-
	Sig. (2-tailed)			.094	.316
Follow up:	Pearson Correlation			-.213-	-.154-
	Sig. (2-tailed)			.220	.377

Pearson test NS= Non statistical significant * =Statistical significant difference ** =A highly statistically significant difference (NA) =Not applicable

Table (4): reveals that complications occurring one week following abdominal surgery were significantly correlated with the mothers' pre-intervention knowledge level in the study group. In contrast, a significant connection was noted in the control group between the occurrence of problems after one week and the amount of awareness of the mothers prior to the intervention (P = 0.043).

Discussion

The diagnosis, treatment, and surgical care of children with congenital and acquired diseases are the focus of the specialty of pediatric surgery. Children's physiology and functional reserve differ from adults'; hence, particular considerations must be made while treating this patient subgroup. This entails thorough planning, postoperative care, and meticulous observation **(El Rifai and Zaghal, 2021).**

Pediatric patients undergoing abdominal surgery may have a wide range of surgical diseases for which appropriate surgical intervention is the sole means of survival or reduction in impairment. Approximately 6–12% of pediatric hospital admissions are attributable to surgical diseases, according to the worldwide illness burden **(Mohamed et al., 2022).**

When it comes to assisting mothers in dealing with their children's illness and getting them ready for postoperative, follow-up, and proper care, the pediatric nurse plays a pivotal role. Many mothers are unprepared for this kind of care, which generates worry, increases problems, and delays children's recovery; nurses can help with this continuing preparation, especially throughout the discharge process **(Sabaq et al., 2020).**

More than half of the mothers in both the study and control groups were between the ages of 21 and 30, according to the present study's socio-demographic analysis. **El Mwafie and Abduallah's (2020)** Egyptian study, which examined the effects of 80 mothers' preset discharge instructions on their children's quality of life and recovery from abdominal surgery, found similar results. It was found that around half of the mothers surveyed were in the 20-to 30-something age bracket.

Mothers' educational attainment was compared in this study, and it was discovered that over half of the mothers in both the control and experimental groups did not complete high school. Examining the impact of a mother's care regimen on a handful of postoperative outcomes in children after abdominal surgery, **Mohamed et al. (2022)** came to similar conclusions. Among the mothers surveyed, 50% had completed high school. The study's author concluded that mothers with lower levels of education are less likely to know how to help their sick children benefit from play and are also less likely to know how to choose activities that are suitable for their children's ages and developmental stages.

More than half of the mothers in the research and control groups were staying at home to care for their children, according to the study's results. This result is in line with what **Mohamed et al. (2022)** found: that a large percentage of the mothers in both groups were housewives. Specifically, they found that around two-thirds of the mothers in the research group and half in the control group were housewives. The majority of mothers in both the control and experimental groups were housewives, which is in line with **Hassan's (2019)** findings that a planned play program as a nursing intervention reduced postoperative pain among children having abdominal surgery.

This contradicts the findings of **Esmail et al. (2020),** who investigated the impact of educational guidelines on mothers' performance in relation to postoperative gastrointestinal mobility for children having abdominal surgery. They discovered that less than two-thirds of the mothers were employed and less than two-fifths were unemployed. It was suggested by the researcher that discrepancies in sample selection may be the cause.

When looking at the age, education level, and employment of the mothers in the study and control groups, there was no statistically significant difference (p-value > 0.05). These findings corroborated those of **Hassan (2019),** who found no statistically significant differences in the control and experimental groups with respect to the age, education level, and occupation of the mothers (P = 0.35, 0.173, and 0.614, respectively). The current research differed from the one referenced by Benha, which examined mothers'

knowledge and practice of postoperative care for infants after pyloromyotomy **(El Sayed et al., 2024).** Also found that the moms' ages, educational backgrounds, and professions were significantly different from one another.

The current study reveals that more than half of the mothers in both the study and control groups live in rural areas. This aligns with the findings of **El Mwafie and Abduallah (2020),** who reported that over two-thirds of the research group lived in rural areas, compared to more than half of the control group. In contrast, **Esmail et al. (2020)** found that fewer than 25% of mothers lived in rural areas, with nearly 75% residing in urban regions.

The current study found that in terms of demographic characteristics and clinical data of the children who were evaluated, over one-third of the children in the study group and almost two-thirds in the control group were between the ages of 6 and 8, inclusive. According to **Esmail et al. (2020),** over 50% of children between the ages of 6 and 9 had this outcome. On the other hand, this study's findings ran counter to those of Egyptian research by **El-Moazen et al. (2018)** that looked at how certain forms of play affected the anxiety and terror felt by children before abdominal procedures. This suggests that children aged 10–12 made up half of the study's participants. In addition, the results of this study disagree with those of **Firomsa et al. (2018),** who examined "trends and outcomes of emergency pediatric surgical admissions from a tertiary hospital in Ethiopia" and found that most of the children they studied were between the ages of three and five.

Regarding mean ± SD of children age, the current study illustrated a mean ± SD of children aged 8.54±2.03 and 8.0±2.00 for the study and control groups, this finding was in the same line with **Basuony et al., (2022),** whose study entitled Effect of Implementing Acupressure Technique on Gastrointestinal Problems and Pain Control for Children Post Abdominal Surgeries. Who found that the average age was 9.7±1.9 and 9.8±1.5. This conclusion was also in line with the findings of **Esmail et al. (2020),** who reported a mean age of 8.83 ± 1.51 years. **El Mwafie and Abduallah (2020)** reported that the mean age of the children in the study and control groups was 7.95±1.28 and 8.02±1.64 years, respectively, which contradicted this conclusion.

The study found that when looking at family status, over half of the children in both the study and control groups were the first in their families. The results of this study corroborated those of an Egyptian study by **Mahna et al. (2020)** that assessed the pain experienced by children after abdominal surgery. Research shows that half of the children surveyed are the first in their immediate family to reach adulthood. This contradicts the results of **Hassan (2019),** who said that around one-third of the control group's children had an equal number of first- and second-siblings living in their home.

The current study verified the findings of **Mahna et al. (2020)** on the educational level of the children, showing that around 25% of the study group and 1/3 of the control group were at the second-grade educational level. Most of them had only completed elementary school, according to the study (84%). According to **Basuony et al. (2022),** the acupressure treatment did not alleviate gastrointestinal issues or discomfort in youngsters following abdominal surgery. The majority of the experimental group consisted of fifth and sixth graders, whereas around half of the control group was of the same age.

The current study indicated no statistically significant difference between the study and control groups regarding children's age, ranking in the family, and education level variables at p-value > 0.05. These results were compatible with **Hassan, (2019**), who found that, when it came to children' age, gender, school grade, and birth order, there were no statistically significant differences between the control and experimental groups (P = 0.329, 0.434, 0.027, and 0.922).

More than half of the children in the control group were girls, while more than two-thirds of the children in the research group were boys. This finding was consistent with **El Mwafie and Abduallah (2020),** which found that nearly two-thirds of the children in both the study group and the control group were male. Over two-thirds of the youngsters were males, which is in agreement with the results of **Firomsa et al. (2018).** The results of **Hills-Dunlap et al. (2019),** who examined the gender distribution of children, contradicted this finding. The purpose of this study was to examine the correlation between socio-demographic factors and adherence to age-appropriate protocols in children who had umbilical hernia surgery without experiencing any symptoms.

Regarding the comparison between the study and control groups of children according to medical data, based on the results of the current study showed that nearer than two-thirds of the studied children in both the study group and in the control group were diagnosed with appendicitis, These findings were consistent with the Indian study done in Kempegowda Institute, by **Sreekantamurthy and Chinmayee, (2020),** about " Laparoscopic versus open appendectomy in children with complicated appendicitis in a tertiary teaching hospital.", they declared that among the most frequent surgical emergencies throughout children was acute appendicitis.

Mahna et al. (2020) found that appendicitis was the most common diagnosis among the children studied; however, our data contradict that finding. The researcher also claims that these data contradict **Muhammad et al. (2022),** who found that appendicitis was diagnosed second after hernias in most of the study's youngsters. This was due to the fact that surgical complications in pediatric patients often occurred around the same age as the global peak.

Among the children surveyed for this study, one-third had a prior hospitalization, whereas one-quarter were in the control group. His study, published as Play treatments for pediatric hospital patients: a scoping review, found results that were in agreement with these findings **(Gjaerde et al., 2021).** Both the study and control groups found that more than a third of the children had a history of hospitalization. This result contradicted the findings of **El Mwafie and Abduallah (2020),** who found that 87.5% and 82.5% of the children in the study and control groups, respectively, had no history of hospitalization. The majority of school-age children (80%) did not have a prior hospitalization history, according to **El-Moazen et al. (2018).**

This study's findings that approximately two-thirds of the children in both the study and control groups required hospitalization at least once corroborated those of **Fattah and El-Rouby (2020),** who assessed the effectiveness of an improved recovery after surgery protocol in improving the results of pediatric emergency abdominal surgeries. Who showed that two-thirds of the experimental group's children and around a third of the control group's children required hospitalization at least once.

Based on the health records of the people who were part of the study. Regarding medical data, including diagnosis and previous hospitalization, there was no statistically significant difference discovered between the study and control groups of children. Total number of hospitalizations and the associated reasons for each. In their work about Enhanced recovery after surgery in children having abdominal surgery: meta-analysis, **Hidayah et al. (2023)** noted this conclusion, therefore it was consistent with their own. Who found no evidence of a correlation between the control group's children and the study's medical data.

The present investigation found that appendicitis was present in the majority of the children in both the study and control groups, regardless of the type of surgery they underwent. This finding was consistent with that of **Sumathi and Sreedevi (2017),** who looked at the "effectiveness of a pre-educational program on pain and respiratory status of children undergoing elective abdominal surgery." They found that both the study group and the control group underwent the same surgical procedures, and that most of the children in the study were having appendices removed. Consistent with this conclusion, **Esmail et al. (2020)** showed that appendix removal was performed on more than 50% of the children surveyed. The results are in agreement with those of **Mohamed et al. (2022),** who also discovered that most of the children in their research had their appendices removed.

The results of this study go counter to those of **Maneesh et al. (2022),** who discovered that most of the children they studied had hernia repair treatments. In addition, most of the newborns studied had conditions such as Hirschsprung disease, choledochal cysts, and intestinal duplication, which is consistent with the results of **Jin et al. (2023).** The purpose of this study was to provide data on the feasibility of using robots to help in abdominal surgeries in infants less than five months.

When comparing the different kinds of procedures done on the kids in the study group with those in the control group, the results showed that there was no statistically significant difference. This result concorded with that of **El Mwafie and Abduallah (2020),** which similarly discovered no statistically significant difference in the kind of operation between the study and control groups of children.

This study's findings are in line with those of **El Mwafie and Abdullah (2020),** who found that during the study periods (prior to instruction), more than three quarters of the mothers in both the study group and the control group had poor levels of knowledge in terms of overall level scores. The mothers in both groups had unsatisfactory knowledge about their son's condition before the intervention.

Results were consistent with those of **Esmail et al. (2020),** who found that mothers whose children were undergoing abdominal surgery may improve their minority knowledge score by following the pre-intervention instructions.

Consistent with **El Mwafie and Abduallah (2020),** who found no statistically significant difference in mothers' total knowledge before instruction during the research periods, the present study found no statistically significant difference between the study and control groups regarding knowledge about their son's condition before intervention.

Additionally, the current study revealed that there was a highly statistically significant difference between the study and control groups after one month of discharge at a p-value of 0.004 regarding the occurrence of children with postoperative complications after abdominal surgeries. This study's results were consistent with **El Mwafie and Abduallah (2020),** who found that, with regard to the incidence of children experiencing postoperative problems following abdominal procedures, there was a highly statistically significant difference between the study and control groups one month after discharge.

Additionally, **Emeka et al., (2019)** study, Pediatric Abdominal Surgical Emergencies in Enugu, South East Nigeria: Any Change in Pattern and Outcome, did not confirm the findings of this study. There was no statistically significant difference in the number of children experiencing postoperative complications in pediatric abdominal surgical Emergencies between the study group and control groups.

Conclusion

Mothers in the study group who took part in the teaching session about discharge instructions reported more informational satisfaction than those in the control group. Both groups showed statistically significant differences after the instructional program and during the follow-up. This result accepted the primary premise of the study: that mothers whose children were part of the research group had more knowledge regarding discharge instructions than those in the control group.

Children undergoing abdominal surgery from mothers in the study group who took part in a discharge instructions were much less likely to experience complications following the procedure than children from the control group.

Recommendations

In view of the above results of the current study, we suggest the following recommendations:

- Conducting seminars to educate nurses on the advantages of children's discharge planning for mothers. Pediatric nurses must get training on how to properly care for children undergoing abdominal surgery.
- Designing and implementing an educational programs for simple management strategies for mothers of children with abdominal surgery to reduce postoperative complications in children.
- Follow-up program of the children with abdominal surgery to improve gastrointestinal motility and prevent complications.
- Use telemarking, a cutting-edge practice, to follow up with mothers who have had children with abdominal surgery.
- To enhance postoperative outcomes among children undergoing abdominal surgery, suggestions need to be based on extensive prospective randomized research about discharge plane.
- In order to generalize the results, future research should be conducted on a broad sample of mothers in varied circumstances.

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