

## **EFFECT OF HEALTH CARE PROGRAM FOR MOTHERS HAVING CHILDREN WITH STOMA**

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### **ABSTRACT**

**Background:** Mothers are the primary caregiver for children with stoma. **Aim:** Determine the effect of health care program for mothers having children with stoma. **Subjects and method:** Aquasi-experimental design is used. **Setting:** The study was carried out for three months in the inpatient of the pediatric surgery department at El-Mansoura University Pediatric Hospital. **Subjects:** A convenience sample of 52 mothers with stoma-affected children. **Tools:** Data was collected using three tools: (1) a structured interview questionnaire sheet that illustrated the personal characteristics of children with stomas and their mothers (II): Knowledge sheet of mothers about stoma, (III): Observational checklist form to examine mothers' practices about stoma care. **Results:** The mothers' knowledge and practices about stoma improved to 94.2%, 73.1 % respectively after program implementation with a high statistical significance difference p value < 0.001. **Conclusion:** The health-care program improved mothers' knowledge and practices of stoma care significantly. **Recommendations:** Implementation of periodic health care programs for mothers of children with stomas to improve their knowledge and practices on stoma care

**Keywords:** Health care program , Children with stoma

## **INTRODUCTION**

Stoma is a surgical operation used to divert faeces production in the event of abnormalities or other issues (Ball, Bindler, Cowen, & Shaw, 2016). Depending on which portion of the colon is used to create the stoma, it will be on the abdomen; some colostomies are huge, while others are little; some are on the right side of the abdomen, while others are in the middle; the appearance of the stoma is determined by the type of ostomy performed by the surgeon (*United Ostomy Associations of American, 2018*)

A stoma may be indicated for child suffering from other diseases including inflammatory bowel disease "Crohn's disease", trauma, diverticular disease, and malignancy as Necrotizing Enterocolitis, Anorectal malformations, Hirschsprung disease, other intestinal polyposis syndromes as typhlitis, intestinal pseudo-obstruction Also stoma is pivotal for treatment of many diseases frontally it has many complications (Steinhagen, Colwell & Cannon, 2017).

The primary goal of stoma management is to avoid consequences like hemorrhage, ischemia, necrosis, intestinal protrusion, tightness, peristomal hernia, intestinal obstruction, ulceration, bleeding, and peristomal skin fragmentation, as well as abrasion. Protrusions, discomfort, fossa, and ulceration, as well as stoma wounds are some of the skin problems. (Mengensatzproduktion & Stückle, 2016). Maintaining positive self-esteem and body image in older children is a major concern, thus self-care is essential and a primary objective. (Smith, Cokkinides & Brooks, Saslow, Shah & Brawley, 2011). Mothers are the primary caregivers for high-risk newborns and chronically ill children (Brooks, Rowley, Broadbent & Petrie, 2012). An additional component that will improve the conditions and prevent numerous stomas issues is education and public awareness of the maintenance of stomas by mothers (Colwell, Goldberg & Carmel, 2012).

In addition to provide care through, emptying, and replacing pouching systems, the pediatric nurse plays a vital role in stoma care including pre and postoperative education, counseling, training, and emotional support, establishing dietary and fluid guidelines, recognizing potential problems, carefully monitoring medications, and managing gas and odor, instructing the

patient to seek help if they are having changes in output, skin problems, or stoma problems (Pillitteri, 2010). Discharge planning, outpatient follow-up, and continuous rehabilitation care for children and their families are all responsibilities of pediatric nurses.

Furthermore, the nurse can assist the children and their mothers in developing coping skills to cope with the stoma. As a result, children's stoma care must always aim to boost the mothers' and children's confidence in their ability to cope with the circumstance, allowing the child to live as normal a life as possible (Smith, Cheater & Bekker, 2015).

### **Significance of the study:**

The number of stomas may rise in the future. Stoma is estimated to occur 600 times per year at Egypt's National Cancer Institute (Abd El-Fatah, Fahmy & Abd Alfatah, 2015). According to hospital's statistics, roughly 100-120 children were hospitalized to a specialized children's hospital in El-Mansoura city in 2016-2017. By increasing the number of training sessions and meetings with mothers of children with stomas, the quality of secondary and tertiary treatment can be enhanced. Many mothers are unsure of how to care for their children. Mothers should be able to deal with stomas, connect with their children, and deal with everyday concerns. Motivation, reasoning, and the ability to learn and transfer information are all important qualities in moms.

### **AIM OF THE STUDY**

To determine the effect of health care program for mothers having children with stoma

#### **Objectives:**

1. Assess mothers' knowledge related to stoma care for their children
2. Assess mothers practices related to stoma care for their children.
3. Design health care program for mothers related to stoma care for their children.
4. Implement health care program for mothers related to stoma care for their children.
5. Evaluate the effect of health care program out comes on mothers related to stoma care for their children.

**Research hypothesis:**

1. Mothers' knowledge will be increased significantly after health care program implementation about stoma care.
2. Mothers' practice will be improved significantly after health care program implementation about stoma care.

**SUBJECTS AND METHOD**

**Research Design:**

The study was conducted using a quasi-experimental research design in order to assess the effect of the health-care program on mothers related to stoma care for their children.

**Setting:**

The current study was conducted at El-Mansoura University Pediatric Hospital in the inpatient pediatric surgery department.

**Subjects:**

A convenience sample of total number of mothers with children having stomas (52). that were admitted to El-Mansoura University Pediatric Hospital and met inclusion criteria was

**Inclusion criteria:**

- Mothers having children with stoma
- Children age ranged from neonatal period up to 18 years old (adolescence).
- Children of both genders.

**TOOLS OF DATA COLLECTION:**

The study's data was collected using three different tools.

**TOOL (I): Structured interview questionnaire sheet:**

The researcher developed this tool to collect information from the mothers of the children with stomas. It consisted of three sections.

**Part (1):**

Personal characteristics of children with stomas were illustrated in this section, which included age, gender, and birth order..

**Part (2):**

This included age, occupation, degree of education, residence for mothers of children with stomas..

**Part (3):**

This section dealt with the medical history of children with stomas, which included information on diagnosis, past hospitalization, hospital admission causes, and stoma forms..

**TOOL (II): mothers' knowledge sheet about the stoma**

This was designed to assess mothers' knowledge about stoma, This part consists of 19 questions, all of which are multiple choice questions (MCQ) including stoma' definitions, types, and causes of, indications, complications, diets, clothing to wear, and recommended and disallowed foods.....etc.

**Scoring System:**

A correct and full answer received a score of two for each question. A score of (one) was provided for an incomplete correct answer, while a zero was awarded when the answer was unknown or erroneous. The scores of the items were added together for each area of knowledge, and the total was divided by the number of items, yielding a mean score for the area. The averages and standard deviations of these scores were calculated, and they were transformed into a percentage score. Knowledge was considered as follows:

- If the percentage score was less than 50%, it was considered poor knowledge.
- If the percentage score was 50%, it was considered good knowledge.

**TOOL (III): Observation checklist sheet to assess mothers' practices about stoma care**

This tool was used to evaluate the mother's stoma-care practices. It was adopted from (Wilkinson & Van Leuven, 2007). It contains 25 elements about stoma care stages and was used twice, before and after the health care program was implemented..

**Scoring System:**

Completed steps were given a score of (2), partially completed steps were given a score of (1), and zero for not done. The items' scores were added together, and the total was divided by the number of items, yielding a mean score for the area. The averages and standard deviations of these scores were calculated, and they were transformed into a percentage score. If the current score was greater than 75 percent, the reported practice was judged satisfactory, and if it was less than 75 percent, it was regarded unsatisfactory.

**Preparatory phase:**

During this phase, the researcher reviewed local and international related literatures using internet searches, textbooks and scientific journals. This helped in increasing acquaintance with the study subjects and in the preparation of the data collection tools

**Validity of tools:**

The tools were presented to a panel of seven experts in nursing, surgery, and medical pediatrics Specialists for face and content validation once they were developed in their preliminary version. The tools were then adjusted based upon the recommendations of those experts.

**Reliability of the tools:**

On two occasions, the same sample of patients was given a test-retest, and the results were compared. The Cronbach's coefficient alpha for tool II was 0.902 and for tool III it was 0.873..

**Pilot study**

Before beginning the data collecting, a pilot research was conducted. It was carried out on 10% of the study sample (5 mothers) who had children with stomas and who attended the pediatric surgery department at El-Mansoura university pediatric hospital. The primary goal of the pilot study was to evaluate the study instruments' applicability, clarity, and feasibility. It also acted as a tool for estimating how long it would take to complete out the tools. It also assisted in identifying any potential roadblocks or issues that could obstruct data collecting. Modifications were made in accordance with the outcomes of the pilot research. The mothers who took part in the pilot trial were not included in the main study.

**Fieldwork:**

The data collecting for this study began on October 1st, 2020, and lasted for four months, from October 1st to January 2021. This research was carried out in four stages: assessment, planning, implementation, and evaluation.

Preparation of the research tools and evaluation of mothers' knowledge and practice about care of their children's stomas. The researcher conducted an individual interview with the mothers in the study setting after obtaining their consent, as per hospital regulation. Each interview questions took about 20-25 minutes to complete. The information gathered during the pre-test was utilized as assessment data for developing the health-care program and then evaluating the program's efficacy during the post-test..

Using the baseline data acquired during the evaluation phase, the researcher created a health-care program. As a result, the program was developed in response to identified requirements and requests of moms, as well as a recent literature evaluation. It was written in an easy-to-understand Arabic script.

The overall goal of the program was to improve mothers' knowledge and skills in providing stoma care to their children while also improving their health. The program featured materials to help mothers learn more about stomas, such as the definition of a stoma, causes of stomas, forms of stomas, stoma complications and indications, types of clothing to wear, and recommended and forbidden foods. The practice of stoma care was also incorporated in the training.

In the study context, the program was implemented in an inpatient setting. There were three sessions to the program. Each session can run anywhere between 45 and 60 minutes. The mothers were divided into ten groups, with five mothers in each session of the program. The program's aims, substance, and processes were explained to mothers at the start of the first session. Two days every week, the program was implemented.

The health program was delivered in a straightforward and comprehensive manner, adhering to mothers learning principles and emphasizing the need of interactive learning and active engagement. In fact, it was executed utilizing a variety of teaching approaches based on the age, education level, and needs of each mother, including short lectures, group discussions, demonstration with actual equipments on actual children and, and re-demonstration by making the mothers demonstrate firstly on child model. The mothers were given an illustrative colored booklet by the researcher to help them follow the program's content.

The program's success was determined by evaluating the mothers' knowledge and practice of stoma care. This was accomplished by contrasting the pre-test with the post-test conducted shortly after the program was implemented.

**Administrative Design:**

An official letters from Port Said University's nursing faculty were sent to the general director of Mansoura University's pediatric hospital. After presenting an explanation of the study aims, a permit was acquired to perform the study..

**Ethical Considerations:**

The research and ethical committee of the Faculty of Nursing accepted the study protocol. Every mother was given a clear and simple explanation of the study's goal and method in order to get their consent to participate in the study. The mothers were reassured by the researcher that the information would be used solely for the purpose of the study and would be kept totally confidential. Mothers were notified of their right to refuse or withdraw from the program at any time, without giving a reason, and without affecting their children's care..

**Statistical design:**

SPSS (statistical package of social sciences) version 22 was used to code, compute, and statistically analyze the data collected. The data was given as frequency and percentages (qualitative variables) and mean SD (mean and standard deviation) (quantitative continuous variables). When the expected value of any cell was less than 5, the Fisher exact test (FET) was employed to compare categorical variables instead of the Chi square (2). To compare continuous quantitative variables before and after intervention, a paired t test was performed. For comparison of continuous quantitative variables (two groups), the Student's t test was employed, and one way anova (F test) was used for comparison of continuous quantitative variables (more than two groups). P 0.05 was used to determine whether the difference was significant.

**RESULTS :**

**Table (1):** In this study, a total of 52 children with stomas were enrolled. In terms of sex and age, almost two-thirds of the children (63.5%) were females, and the biggest proportion of them (34.6%) were in the newborn age group, while the minority of them



was in adolescence age group. In terms of educational attainment, less than two-thirds of the children (61.5%) were under the age, and slightly more than one-third (46.2%) were the second child.

**Table (2):** Shows the total mothers' knowledge about stoma care in which, there were improvement in all areas of mothers' knowledge after program as compared with before program implementation for instance, the shape of the stoma, the types of artificial stoma, causes of the stoma, complications of the stoma, foods that reduce the constipation, foods that increase the amount of gases in the abdomen, times for changing on stoma per day and the special care when bathing improved to be 84.6%, 98.1%, 100 %, 100%, 94.2%, 94.2%, 100.0%, 96.2% respectively with a highly statistical significance difference between pre and post program implementation, p value <0.001

**Table (3):** compares the mothers' total knowledge level regarding stoma before and after the program. Before the program's commencement, the vast majority of the studied mothers 88.5% had poor knowledge of stoma. After the program's execution, more than three quarters (94%) of mothers had good knowledge about stomas, with a highly statistically significant difference in mother level of knowledge before and after the program at p 0.001.

**Table (4): Presents** that, the minority of the studied mothers ( 5.8%) emptied the existing ostomy pouch into a bedpan, exposed the ostomy site and placed a clean towel across the child's abdomen under the existing pouch before program implementation, which improved after program implementation with a highly statistically significant difference with p value < 0.001 to be 38.5% . Furthermore one quarter of the studied mothers (25%) positioned the child without occurrence of the skin folds along the line of the stoma before program implementation, this percentage increased to more than three quarters of them after program implementation(78.8%) with a highly statistically significant difference in which p value < 0.001. Regarding mothers' performance about using of warm water to cleanse stoma and surrounding skin, the current results demonstrated that, the minority of the studied mothers (5.8%) cleaned stoma and surrounding skin by warm water before program implementation, which improved to be 76.9% after program implementation with a highly statistically significant difference with p value < 0.001. Moreover, the results pointed out that, slightly less than three quarters (73.1%) of the studied mothers measured the size of the stoma before program implementation, while

this percentage increased to include all the mothers (100%) measured stoma size after program implementation with a highly statistically significant difference in which  $p$  value  $< 0.001$ . Furthermore, the findings revealed that nearly three-quarters (73.1%) of the studied mothers measured the size of their stoma before the program was implemented, while this percentage increased to include all mothers (100%) who measured the size of their stoma after the program was implemented, with a highly statistically significant difference ( $p$  value 0.001).

**Table (5):** depicts percent distribution of mothers' practices levels of satisfaction in stoma care of their children before and after program intervention. The majority of the studied mothers (92.3%) had unsatisfactory practices before program implementation, this percentage decreased to 26.9% after program implementation with a highly statistically significant difference with  $p$  value  $< 0.001$

**Table (6):** shows the relations between medical history of the children, as well as the overall mothers' knowledge and practice scores following intervention. It was found a significant statistical relationship between previous hospitalization and total mothers' practices at  $P=0.050$ , as well as a significant positive relationship between predicted stoma closure duration and total mothers' knowledge score at  $P=0.003$  following intervention.

**Table (7):** illustrates the relation between the children mothers' demographic characteristics and total mothers' knowledge and practices scores after intervention. It was obvious that there was a significant relationship between mothers' education and total mothers' knowledge score at  $P0.001$ , after program intervention,

**Table (8):** reflects that; there was a correlation between total knowledge and practice scores pre and post program intervention; a statistically negative relationship between mother's total knowledge and practice prior to program intervention, as well as a highly statistically significant difference between the mother's total knowledge and practice score, with  $p$  value  $<0.001$  after implementation.

**Table (1):**Percent distribution of characteristics of the studied children:

<b>Demographic characteristics of child</b>	<b>Frequency (52)</b>	<b>Percent %</b>
<b>Age of child:</b>		
- Newborn (-4 weeks)	18	34.6
- Infant ( - 1year)	9	17.3
- Toddler ( -3 years)	7	13.5
- Preschool ( - 6 years)	10	19.2
- School age (- 12 years)	6	11.5
- Adolescents ( – 18 years)	2	3.8
<b>Sex of child:</b>		
- Males	19	36.5
- Females	33	63.5
<b>Child order:</b>		
- First	10	19.2
- 2 <sup>nd</sup>	24	46.2
- 3 <sup>rd</sup>	16	30.8
- 4 <sup>th</sup>	2	3.8
<b>Education of child:</b>		
- Under age.	32	61.5
- K.G.	10	19.2
- Primary	10	19.2

**Table (2):** Percent distribution of total mothers' knowledge about stoma care for their children before and after the program intervention

Total mothers' knowledge about stoma care for their children	Time				Significance test
	Before prog.		After prog.		
	No=5	%	No=	%	
	2		52		
1. Definition of the stoma	8	15.4	35	67.3	$\chi^2=30.28, P<0.001^{**}$
2. Shape of the stoma	16	30.8	44	84.6	$\chi^2=30.88, P<0.001^{**}$
3. Types of artificial stoma	33	63.5	51	98.1	$\chi^2=20.06, P<0.001^{**}$
4- Causes of the stoma	8	15.4	52	100.0	$\chi^2=76.27, P<0.001^{**}$
5. If there are complications for the stoma or not	37	71.2	52	100.0	$\chi^2=17.53, P<0.001^{**}$
6. The expected complications that can occur as a result of the stoma	9	17.3	38	73.1	$\chi^2=32.65, P<0.001^{**}$
7. Avoidance stoma complications	18	34.6	40	76.9	$\chi^2=18.87, P<0.001^{**}$
8. Forbidden foods for child with stoma	27	51.9	46	88.5	$\chi^2=16.59, P<0.001^{**}$
9. Foods that reduce the constipation	28	53.8	49	94.2	$\chi^2=22.06, P<0.001^{**}$
10. Foods that reduce or help control the odor of stool	6	11.5	43	82.7	$\chi^2=52.83, P<0.001^{**}$
11. Foods that help the defecation	7	13.5	47	90.4	$\chi^2=61.63, P<0.001^{**}$
12. Foods that block the existing opening	6	11.5	44	84.6	$\chi^2=55.62, P<0.001^{**}$
13. Foods that increase the amount of gases in the abdomen	16	30.8	49	94.2	$\chi^2=44.68, P<0.001^{**}$
14. Action taken when the child had diarrhea	5	9.6	36	69.2	$\chi^2=38.69, P<0.001^{**}$
15. Types of the clothes to be wearied	15	28.8	44	84.6	$\chi^2=32.94, P<0.001^{**}$
16. keeping the child calm	21	40.4	46	88.5	$\chi^2=26.22, P<0.001^{**}$
17. The need to consult the child's doctor	8	15.4	46	88.5	$\chi^2=55.62, P<0.001^{**}$
18. Times for changing on stoma per day	13	25.0	52	100.0	$\chi^2=62.40, P<0.001^{**}$
19. The special care when bathing	1	1.9	50	96.2	$\chi^2=92.38, P<0.001^{**}$

\*statistical significance when  $P=0.05$ \*\*High statistical significance when  $P<0.001$

**Table (3):** Percent distribution of total mothers’ knowledge level about stoma care for their children before and after program intervention

Knowledge level of mothers’ about stoma care	Beforeprog. Intervention		Afterprog. Intervention	
	No. (52)	%	No.(52)	%
Poor< 50.0%	46	88.5	3	5.8
Good ≥ 50.0%	6	11.5	49	94.2
Significance test	$\chi^2=71.35, P<0.001^{**}$			

\*statistical significance when P=0.05

\*\*High statistical significance when P<0.001

**Table (4):** Percent distribution of mothers' practices in stoma care of their children before and after program intervention

Mothers practices in stoma care of their children	Time												Significance test
	Before prog. Intervention						After prog. Intervention						
	Done complete		Done incomplete		Not done		Done complete		Done incomplete		Not done		
	No	%	No	%	No	%	No	%	No	%	No	%	
1-Washes hands and dons clean procedure gloves.	14	26.9	26	50.0	12	23.1	38	73.1	14	26.9	0	0.0	$\chi^2= 26.68, P<0.001^{**}$
2-Folds down the linens-Empties the existing ostomy pouch into a bedpan, to expose the stormy site; places a clean towel across the patient’s abdomen under the existing pouch.	3	<b>5.8</b>	15	28.8	34	65.4	20	<b>38.5</b>	7	13.5	25	48.1	$\chi^2= 16.85, P<0.001^{**}$
3. Positions the patient so that no skin folds occur along the line of the stoma.	13	25.0	31	59.6	8	15.4	41	78.8	11	21.2	0	0.0	$\chi^2= 32.04, P<0.001^{**}$
4. If the pouch is drainable, opens it by removing the clamp and unrolling it at the bottom.	10	19.2	2	3.8	40	76.9	12	23.1	1	1.9	39	75.0	$\chi^2= 0.53, P 0.768$
5. Empties the existing ostomy pouch into a bedpan.	10	19.2	2	3.8	40	76.9	12	23.1	1	1.9	39	75.0	$\chi^2= 0.53, P 0.768$
6.Saves the clamp for re-use	10	19.2	2	3.8	40	76.9	12	23.1	0	0.0	40	76.9	$\chi^2= 2.18, P 0.336$
7. With one hand, gently removes the old wafer from the skin, beginning at the top and proceeding in a downward direction. At the same time, uses the other hand to hold tension on the skin in the opposite direction of the pull.	18	34.6	17	32.7	17	32.7	36	69.2	10	19.2	6	11.5	$\chi^2= 13.08, P 0.001^{**}$
8. If resistance is encountered and the wafer is difficult to remove, uses adhesive remover or rubbing alcohol, according to facility protocol.	5	9.6	11	21.2	36	69.2	37	71.2	14	26.9	1	1.9	$\chi^2=57.85, P< 0.001^{**}$
9. Places the old pouch and wafer in a plastic bag for disposal. If the pouch is non-drainable, disposes of it according to agency protocol.	35	67.3	14	26.9	3	3.8	46	88.5	5	9.6	1	1.9	$\chi^2= 6.76, P 0.034^*$
10. Inspects stoma and peri-stomal skin	20	38.5	24	46.2	8	15.4	41	78.8	11	11.2	0	0.0	$\chi^2= 20.60, P< 0.001^{**}$
11. Uses warm water and mild soap to cleanse stoma and surrounding skin	3	5.8	48	92.3	1	1.9	40	76.9	12	23.1	0	0.0	$\chi^2= 54.44, P< 0.001^{**}$
12. Reports excess bleeding to the physician	18	34.6	24	46.2	10	19.2	45	86.5	7	13.5	0	0.0	$\chi^2= 30.89, P< 0.001^{**}$

**Table 4(continue):** Percent distribution of mothers practices in stoma care of their children before and after program intervention:

Mothers practices in stoma care of their children	Time												Significance test
	Before Intervention						After Intervention						
	Done complete		Done incomplete		Not done		Done complete		Done incomplete		Not done		
	No	%	No	%	No	%	No	%	No	%	No	%	
13. Allows the area to dry	41	78.8	7	13.5	4	7.7	50	96.2	2	3.8	0	0.0	$\chi^2= 7.67$ , P 0.022*
14. Measures the size of the stoma in one of the following ways: a. Using a standard stoma measuring guide placed over the stoma. b. Re-using a previously cut template. c. Measuring the stoma from side to side (approximating the circumference).	38	73.1	13	25.0	1	1.9	52	100.	0	0.0	0	0.0	$\chi^2= 16.18$ , P< 0.001**
15-Places a clean 4×4 gauze pad over the stoma.	14	26.9	6	11.5	32	61.5	37	71.2	15	28.8	0	0.0	$\chi^2= 46.23$ , P<0.001* *
16-Removes gloves and washes hands.	11	21.2	27	51.9	14	26.9	37	71.2	15	28.8	0	0.0	$\chi^2= 31.51$ , P<0.001* *
17. Traces the size of the opening obtained in Step 14 onto the paper on the back of the new wafer; cuts the opening. Wafer opening is approximately 1/16 to 1/8 inch (1.5–3cm) larger than circumference of the stoma	3	5.8	43	82.7	6	11.5	35	67.3	15	28.8	2	3.8	$\chi^2= 42.46$ , P< 0.001**
18. Peels the paper off the wafer. Some resources suggest: first holding the wafer between the palms of the hands to warm the adhesive ring.	2	3.8	5	9.6	45	86.5	28	53.8	12	23.1	12	23.1	$\chi^2= 44.52$ , P<0.001* *
19. Dons clean procedure gloves.	11	21.2	15	28.8	26	50.0	40	76.9	12	23.1	0	0.0	$\chi^2= 42.82$ , P<0.001
20. If ostomy skin care products are to be used, applies them at this time (e.g., wipes around stoma with skin-prep, applies skin barrier powder or paste and applies extra adhesive paste).	33	63.5	13	25.0	6	11.5	43	82.7	9	17.3	0	0.0	$\chi^2= 8.04$ , P 0.018*
21 Removes the gauze. Centers the wafer opening around the stoma and gently presses down. a. If using a one-piece pouch, makes sure the bag is pointed toward the patient's feet	42	80.8	0	32.7	10	19.2	43	82.7	0	19.2	9	17.3	$\chi^2= 0.06$ , P 0.799
21b. If using a two-piece system, places the wafer on first. When the seal is complete, attaches the bag following	15	28.8	10	19.2	27	51.9	19	36.5	6	11.5	27	51.9	$\chi^2= 1.47$ ., P 0.479
21c. For an open-ended pouch, folds the end of the pouch over the clamp and closes the clamp, listening for a "click" to ensure it is secure.	13	25.0	7	13.5	32	61.5	13	25.0	5	9.6	34	65.4	$\chi^2= 0.39$ , P 0.821

**Table 4(continue):** Percent distribution of mothers practices in stoma care of their children before and after program intervention:

Mothers practices in stoma care of their children	Time												Significance test
	Before Intervention						After Intervention						
	Done complete		Done incomplete		Not done		Done complete		Done incomplete		Not done		
	No	%	No	%	No	%	No	%	No	%	No	%	
22. Asks the patient to place her hand over the newly applied wafer to warm the adhesive ring, making it adhere better. Some sources also suggest taping down the edges of the wafer	2	3.8	10	19.2	40	76.9	27	51.9	10	19.2	15	28.8	$\chi^2= 32.92$ , P< 0.001**
23. Removes gloves and washes hands	15	28.8	28	53.8	9	17.3	42	80.8	10	19.2	0	0.0	$\chi^2= 30.32$ , P< 0.001**
24. Returns patient to a comfortable position	35	67.3	14	26.9	3	5.8	48	93.3	4	7.7	0	0.0	$\chi^2= 10.59$ , P 0.005*
25. Disposes of used stormy pouch following agency policy for biohazards waste	48	92.3	4	7.7	0	0.0	51	98.1	1	1.9	0	0.0	FET, P0.363

\*statistical significance when P=0.05

\*\*High statistical significance when P&lt;0.001

**Table (5):** Percent distribution of mothers' practices levels of satisfaction in stoma care of their children before and after program intervention

Mothers practices in stoma care of their children score	Before prog. intervention		After prog. Intervention	
	No	%	No	%
<b>Satisfactory</b> ( $\geq 75.0\%$ )	4	7.7	38	73.1
<b>Unsatisfactory</b> ( $< 75.0\%$ )	48	92.3	14	26.9
Significance test	$\chi^2=46.17$ , P<0.001**			

\*statistical significance when P=0.05

\*\*High statistical significance when P&lt;0.001

**Table (6):** Relationship between the medical history of the studied children and average score of mothers' knowledge, practice about stoma care for their children after program intervention.

Medical history of studied children	No. (52)	Knowledge mean Score	Practice mean Score
		Mean $\pm$ SD	Mean $\pm$ SD
<b>History of hospital admission</b>			
- Yes	18	18.06 $\pm$ 2.10	42.89 $\pm$ 6.49
- No	34	15.85 $\pm$ 3.93	39.03 $\pm$ 6.67
Significance test		t=2.209, P0.032	t=2.203, P=0.050*
<b>- Expected duration of stoma to close (months):</b>			
- 4- < 7	17	14.59 $\pm$ 3.35	38.35 $\pm$ 7.22
- 7 - 9 months	35	17.60 $\pm$ 3.25	41.34 $\pm$ 6.47
Significance test		t=3.104, P0.003	t=1.505, P=0.139

\*statistical significance when P=0.05

\*\*High statistical significance when P&lt;0.001

**Table (7):** Relationship between demographic characteristics of mothers' of studied children and their mean score of knowledge, practice about stoma care for their children after program intervention.

Mothers' demographic characteristics	No (52)	Knowledge mean Score	Practice mean Score
		Mean $\pm$ SD	Mean $\pm$ SD
<b>Mothers' age (years)</b>			
- $\geq$ 25	11	15.73 $\pm$ 4.15	37.82 $\pm$ 4.64
- 26 –	24	15.83 $\pm$ 3.85	39.17 $\pm$ 7.93
- 30 – 35	17	18.29 $\pm$ 1.90	43.71 $\pm$ 5.02
Significance test		F=3.057, P0.056	t=3.507, P=0.038*
<b>Mothers' work:</b>			
- Working	14	17.86 $\pm$ 2.14	42.79 $\pm$ 8.00
- House wife.	38	16.16 $\pm$ 3.86	39.47 $\pm$ 6.18
Significance test		t=1.563, P0.127	t=1.580, P=0.120
<b>Mothers' education</b>			
- Read / write	4	8.750 $\pm$ 1.26	31.50 $\pm$ 4.04
- Preparatory	14	16.76 $\pm$ 3.11	40.24 $\pm$ 7.21
- Secondary	25	17.67 $\pm$ 2.18	41.86 $\pm$ 5.10
- University	9	17.93 $\pm$ 2.56	42.33 $\pm$ 6.54
Significance test		F=12.53, P<0.001	F=3.078, P=0.036
<b>Residence:</b>			
- Urban	34	17.45 $\pm$ 2.86	40.41 $\pm$ 6.66
- Rural	18	16.61 $\pm$ 4.50	40.28 $\pm$ 7.26
Significance test		t=1.503, P0.139	t=0.067, P=0.947
<b>Number of family member:</b>			
- 3	9	14.67 $\pm$ 4.47	36.56 $\pm$ 4.90
- 4	23	16.91 $\pm$ 3.32	40.95 $\pm$ 7.15
- 5	18	17.00 $\pm$ 3.38	41.06 $\pm$ 7.07
- 6	2	18.50 $\pm$ 0.71	44.50 $\pm$ 3.53
Significance test		F=1.234, P0.308	F=1.332, P=0.275

\*statistical significance when P=0.05

\*\*High statistical significance when P&lt;0.001



**Table (8):** Correlation between total knowledge score and total practice score before and after intervention program

Knowledge score	Practice Score	
	Before intervention Program	After intervention Program
R	-0.015	0.722
P value	0.915	<0.001**

\*statistical significance when  $P=0.05$

\*\*High statistical significance when  $P<0.001$

## DISCUSSION

In terms of correct mothers' knowledge about stoma care before and after program intervention, the current study found that there was an improvement in all areas of mothers' knowledge after program implementation as compared to before program implementation, with a highly statistically significant difference between pre and post program implementation with p value 0.001, For example, the shape of the stoma, the different types of artificial stomas, the reasons of the stoma, the complications of the stoma, foods that help with constipation, the times for changing the stoma per day, and specific bathing care. This outcome was agreed upon by (Mohammed, Bayoumi, and Zaki (2012), who investigated the "Self-Management Program for Mothers of Children with Stoma" and discovered that there was a very statistically significant improvement in all areas of knowledge related mothers' knowledge about stoma between pre and post programme implementation, with a P-value of 0.0001. Mothers may not have received enough counseling from nurses in the hospital's stoma therapy units before to the program's commencement. This could be owing to the fact that nurses in hospitals are overworked and understaffed, leaving them with little opportunity to provide training or educational seminars on stoma care for mothers. The current study found that only a small percentage of the mothers studied gave correct answers to questions about stoma causes and times for changing the stoma per day before the program was implemented, and that the results were improved to include all mothers who knew the correct answer after the program was implemented. This finding was contradicted **Kadam, & Shinde's (2019)** in study about "Effectiveness of structured education on caregiver's knowledge and attitude regarding colostomy care" and found that, Pre-educational program, caregivers had adequate understanding about stoma causes and care, according to the

majority of careers. The current study's findings can be linked to the overall desire, needs, and anxiety of moms who wanted to learn more about how to aid their children.

Regarding mothers' practices, According to the findings, one-quarter of the mothers in the study did not have skin folds along the stoma line before the program was implemented, but this result improved to more than three-quarters of them after the program was implemented, with a highly statistically significant difference (p value 0.001).,this was consistent with **Noone, (2020)**, who conducted a study about "Pre- and postoperative steps to improve body image following stoma surgery" and illustrated that Pre-instructional program, nearly a quarter of mothers positioned their children in a comfortable position without any skin creases, which improved to the vast majority of them immediately after the program intervention. This could be due to the nurses not executing the skills in front of the mothers, or because the mothers aren't interested in watching and learning when the skills are performed for their children.

The current study found that the vast majority of the examined mothers cleaned their stoma and surrounding skin with warm water and mild soap before program implementation, which improved after program implementation with a highly statistically significant difference (p value 0.001). This result was uncoordinated with **Lister, Webster & Mirza, (2020)**, who studied "Colostomy complications in children" as well as revealed that all caregivers gently cleansed the area surrounding the stoma with warm water before and after applying the guidelines. This could be due to mothers' reduced levels of attentiveness, which increases the risk of insufficient understanding regarding stoma care, or because mothers did not have any prior training or education. The current study found that nearly three-quarters of the mothers studied measured the size of their stoma before the program began, and that this percentage increased to include all mothers who measured the size of their stoma after the program began, with a highly statistically significant difference (p value 0.001). This finding was agreed with **Coyne, (2017)**, who studied "Partnership in care: parents' views of participation in their hospitalized child's care" and reported that the majority of parents took stoma measurements before and after the teaching program because they thought it was an important step in stoma care to minimize leakage.

In terms of total mothers' stoma care practice level, the current study found that the majority of the studied mothers had an unsatisfactory practice score prior to program'

implementation, which decreased after program' implementation with a highly statistically significant difference (p value 0.001). This finding was in the same line with **Werth, Schutte & Stommel, (2019)**, who studied " Perceived Educational Needs in the Inpatient to Home Care Setting for the Person With a New Stoma " and found that, prior to enrolling in the program, all caregivers had inadequate stoma-care practices. These findings could be justified in light of the fact that a lack of suitable education, training, resources, and supervision may have a negative impact on their profession. Also, because mothers are the first and final people accountable for their children's care at home, it was vital for them to understand the skills so that they could put them into practice when they left the hospital.

The current study found a substantial beneficial relationship between previous hospitalization and total mothers' practices at  $P=0.050$ , as well as a significant positive relationship between projected stoma closure time and total mothers' knowledge score at  $P=0.003$  following intervention. This finding was in the same line with the finding of **Rashed, Khalifa, Zein El Dein & Omar, (2020)**, who conducted a study about "Stoma Care for Children having Colostomy in Menoufia University Hospital" and reported in their study that, At  $p=0.002$ , there was a substantial favorable relationship between reasons for stoma surgery and overall mothers' knowledge and practices shortly after the program was implemented. This could be linked to earlier hospitalizations where mothers gained valuable experience. Furthermore, the current study's findings revealed that after intervention, there was a significant beneficial relationship between mothers' education and overall mothers' knowledge score at  $P0.001$ . This finding is similar to that of **Bray & Sanders (2019)**, who investigated "Preparing children and young people for stoma surgery" and found a favorable relation between carers' educational level and their total knowledge score after program' application. The researcher believes that it is normal for mothers to be educated at the same pace as their children. As a result, the current study's findings may indicate that a mother's educational level is a significant and independent element in developing and updating her knowledge regarding stoma care.

This study found a highly statistically significant difference in the total knowledge and total practice scores of the tested mothers after program' implementation, with a p value of 0.001. This finding was versus with the finding of **Maohamed, El Sayed, Husain & Farag, (2016)**, who conducted a study about " Evidence Based Nurses' Practice for

Children Undergoing Abdominal Stoma Outcome" and found a strong association between total knowledge and total practice score before evidence-based practice (p value = 0.001) and immediately after EBP (p value = 0.029). The researcher speculated that the current study's findings could indicate that whenever women received training sessions from the researcher to improve their stoma care knowledge and practice, their total knowledge and total practice' scores increased following the intervention' program

## **CONCLUSION**

The current study concluded: the mothers' knowledge and practices in caring for their children with stomas were lacking prior to the implementation of the program. After establishing a health program for them on stoma care, the results demonstrated that the mothers knowledge and practice of stoma care had improved with statistically significant differences.

## **RECOMMENDATIONS**

**The following recommendations should be considered based on the findings of this study:**

**For the child and mothers or caregivers:**

- Providing health-care programs for mothers on stoma care in order to improve their knowledge and practices on stoma care in order to reduce complications and improve their children' health.

**For Nurses:**

- Stoma care guidelines should be used as a reference for all nursing working in pediatric surgical units, and to be distributed to patients or their caregivers to prevent lack of knowledge or practices and further complications.

## **Conflict of Interest**

The authors haven't any conflicts of interest.

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## تأثير برنامج الرعاية الصحية لامهات الاطفال الذين لديهم فغر صناعى للاخراج

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### الخلاصة

تعتبر الأمهات هن مقدمات الرعاية الأساسيين للأطفال المصابين بالفغرة الصناعية للاخراج لذا كان الهدف من هذه الدراسة هو تحديد تأثير برنامج الرعاية الصحية لامهات الاطفال الذين لديهم فغرة صناعية للاخراج. تم استخدام تصميم بحثى شبه تجريبي. و لقد أجريت هذه الدراسة لمدة ثلاثة أشهر بالقسم الداخلي لجراحة الأطفال بمستشفى الأطفال الجامعى بالمنصورة. و اشتمت العينة المتاحة على 52 أم للأطفال المصابين بالفغرة. الأدوات: تم جمع البيانات باستخدام ثلاث أدوات: (I) نموذج استبيان مقابلة توضح الخصائص الشخصية للأطفال المصابين بالفغرة وأمهاتهم: (II) استمارة استبيان لتقييم معلومات الأمهات حول الثغرة و العناية بها، (III) استمارة الملاحظة لفحص ممارسات الأمهات حول العناية العملية بالفغرة. النتائج: تحسنت معلومات وممارسات الأمهات حول الفغرة إلى 94.2% ، 73.1% على التوالي بعد تنفيذ البرنامج مع وجود فرق ذو دلالة إحصائية عالية قيمة  $p < 0.001$ . الاستنتاج: ساعد برنامج الرعاية الصحية في تحسين معلومات الأمهات وممارساتهم تجاه الرعاية بالفغرة الصناعية للاخراج بشكل ملحوظ. التوصيات: تنفيذ برامج رعاية صحية دورية لامهات الأطفال المصابين بفغرة صناعية للاخراج لتحسين معرفتهم وممارساتهم في رعاية أطفالهن.

الكلمات المرشدة : رعاية صحية ، برنامج ، فغر