

Mothers' Knowledge and Practice regarding Post-Operative Care of Infants with Pyloromyotomy

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Abstract

Background: Infantile hypertrophic pyloric stenosis is one of the most frequently treated surgical conditions in pediatrics and characterized by muscular hypertrophy of the pyloric sphincter, causing obstruction of the gastric outlet and projectile vomiting in the new born. **Aim of the study:** Was to assess mothers' knowledge and practices regarding post-operative of infants with pyloromyotomy. **Research design:** A descriptive study was used to conduct the present study. **Setting:** This study was conducted in Intermediated surgical ICU Department of Benha Specialized Pediatric Hospital at Benha city. **Sample:** A purposive sample of mothers who accompanied their infants diagnosed with pyloric stenosis and attended the previously mentioned setting for six months. **Tools of data collection:** Two tools were used to collect the required data. **Tool I:** A structured interviewing questionnaire sheet, consisted of two parts: Part one; Personal characteristics of study subject. Part two; Mothers knowledge assessment sheet. **Tool II:** Mothers' reported practices checklists to assess mother practice to ward post operative care of infant with pyloromyotomy. **Results:** The majority (80.0%) of studied mothers had poor knowledge about pyloric stenosis and pyloromyotomy operation. More than three- quarters (76.7%) of studied mothers had unsatisfactory level reported practices regarding postoperative care of infants with pyloromyotomy. **Conclusion:** There was highly significant correlation between mothers knowledge and their practice. **Recommendations:** Designing and implementing educational programs for mothers of infants with pyloric stenosis to support them emotionally and to minimize their stress regarding pyloromyotomy.

Key words: Infants, Mothers, Pyloric stenosis, Pyloromyotomy, Post-operative care.

Introduction

Pyloric stenosis is an uncommon condition in infants that blocks food from entering the small intestine. Normally, a muscular valve (pylorus) between the stomach and small intestine holds food in the stomach until it is ready for the next stage in the digestive process. In pyloric stenosis, the pylorus muscles thicken and become abnormally large, blocking food from reaching the small intestine. Pyloric stenosis can lead to forceful vomiting, dehydration and weight loss. Babies

with pyloric stenosis may seem to be hungry all the time (Zaparackaite et al., 2022).

The exact etiology of infantile hypertrophic pyloric stenosis is unknown. Some studies have shown that young infants treated with macrolide antibiotics had an increased incidence of infantile hypertrophic pyloric stenosis. Postnatal exposure to erythromycin has also been associated with an increased risk for the development of pyloric stenosis. Other risk factors include bottle feeding, preterm birth, caesarean section delivery, and first-born infants (30% to 40% of cases). If

the mother was a heavy smoker during pregnancy, the risk of hypertrophic pyloric stenosis could increase by 1.5. to 2.0-fold (**Garfield et al., 2020**).

The hallmark of pyloric stenosis is marked hypertrophy and hyperplasia of both the circular and longitudinal muscular layers of the pylorus. This thickening leads to the narrowing of the lumen of the gastric antrum. The pyloric canal becomes lengthened. The muscles of the pylorus become thickened. The mucosa becomes oedematous and thickened. When severe, the stomach becomes dilated secondary to gastric outlet obstruction. This obstruction induces immediately postprandial, nonbilious, projectile emesis (**Abdellatif et al., 2019**).

Pyloric stenosis can lead to failure to grow and develop dehydration. Frequent vomiting can cause dehydration and a mineral (electrolyte) imbalance. Electrolytes help regulate many vital functions. Stomach irritation and repeated vomiting can irritate baby's stomach and may cause mild bleeding. Jaundice may occur due to a substance secreted by the liver (bilirubin) can build up, causing a yellowish discoloration of the skin and eyes (**Choi et al., 2022**).

Infantile hypertrophic pyloric stenosis (IHPS) is a common surgical cause of vomiting in infants. Following appropriate fluid resuscitation, the mainstay of treatment is pyloromyotomy. The main considerations for the postoperative management of infants with HPS are monitoring, analgesia and reintroduction of enteral feeding. Standardization of postoperative care reduces the length of hospital stay has a positive impact on infants and their mother's experience and can reduce the time taken to achieve full enteral feeding. Many variations in postoperative feeding regimens following pyloromyotomy exist (**Poudel, 2021**).

The paediatric nurse has a crucial role in education, treatment, research, and support of infants undergoing pyloromyotomy and their families to help them learn to attain optimal health. Nurses should include families in the care of their infant, accompanying and helping them to establish a more affective connection with their infants. Pediatric nurses play a significant role in reducing postoperative complications among infants with pyloromyotomy. Pediatric nurse support, educates, and empowered mothers to cope with their infant's diseases and to care for their infants at home. Currently, technological advances provide many different educational aids such as booklets and video clips which can facilitate the expansion of mothers' knowledge and practice. Nurses can use the booklets for mothers' education (**Goldman et al., 2019**).

The mother has a vital role in observing signs and symptoms of infection such as poor wound healing, wound drainage, continued incision pain, incision swelling and redness, cough, fever, and mucus production. The mother should contact the caregiver if the child has a fever (38.5°) or more this could be a sign of a post-operative infection, persistent vomiting or vomit has coffee-ground material or blood, incision (cut) bleeds or has a foul-smelling discharge. Baby has any signs of dehydration as dry mouth or cracked lips, fast heartbeat or breathing, more irritable or fussy than normal, passing little to no urine or sunken eyes or fontanel (soft spot on the top of the head) (**Abdellatif et al., 2019**).

Significance of the study

Infantile hypertrophic pyloric stenosis (IHPS) describes a disorder in infancy characterized by hyperplasia of smooth

muscle fibers of the pylorus leading to narrowing of the pyloric canal and gastric outlet obstruction. The incidence of pyloric varies amongst groups and races around the world. Infantile hypertrophic pyloric stenosis occurs in about 1-4 per 1000 live birth and It is more common among male infants than female. Estimated at 4-6:1 and more frequent in preterm than term neonates. Infantile hypertrophic pyloric stenosis is more common in the western world compared with other regions. Although other environmental and genetic factors play a role in developing this disease (**Ezomike & Obianyo, 2018**).

The incidence of infantile hypertrophic pyloric stenosis the statistics in Egypt done at Tanta university in El Garbia Hospital the incidence of the disease is 1:3 per 1000 live births , It is more often in males. With a male to female ratio of 4:1 (**Elyazeed et al., 2019**). Some studies have also asserted variation in pyloric wall thickness and pyloric tumour length according to weight and age. According to **PICU in specialized Pediatric Hospital at Benha City (2022)**, statistics of children who have pyloric stenosis were 150 cases per year. This study will be conducted to assess mothers knowledge and practices regarding care of infant with pyloromyotomy.

Aim of the study

The aim of the study is to assess mothers' knowledge and practice regarding post-operative care of children with pyloromyotomy.

Research questions

1. What is the level of mother's knowledge regarding post-operative care of infant with pyloromyotomy?
2. What is the level of mother's practice regarding post -operative care of infant with pyloromyotomy?

3. Is there correlation between mother's knowledge and practice with characteristics?

Subjects and method

Research design:

A descriptive study was used to conduct the present study.

Research setting:

This study was conducted in intermediate Surgical ICU Department which located at the second floor of Benha Specialized Paediatric Hospital at Benha City that affiliated to the Egyptian Ministry of Health and population which includes two rooms each room consisted of eight beds.

Subjects:

A purposive sample consists of (60) mothers and their infants with pyloromyotomy, regardless of their characteristics who admitted to the previously mentioned setting for six months under the following inclusion criteria.

Inclusion criteria for infants

- Infant aged from 2- 12 weeks.
- Infants diagnosed with pyloric stenosis.
- Infant with pyloromyotomy.

Exclusion criteria for infants

- Infants with medical conditions or chronic illness such as galactosemia, congenital anomalies such as congenital diaphragmatic hernia and oesophageal atresia.
- Low birth weight infants or premature baby due to lack of sucking and swallowing reflexes.

Inclusion criteria for mothers

- Mothers of infant with pyloromyotomy.
- Mothers who were willing to participate in the study.

Exclusion criteria for mothers

- Mothers having serious psychological problems or mental disease.

- Mothers having physical health problems (heart disease).

Tools of data collection:

Data was collected through the following tools:

Tool I: A structured interviewing questionnaire sheet:

This tool was developed by the researchers in Arabic language based on the related literature. It was consisted of two parts to collect the necessary data.

Part I: Personal characteristics of study subjects:

A- Mothers' characteristics which include age, level of education, mother job, place of residence, number of family members, mother complain from any disease, medications during pregnancy, family in come, period of pregnancy, type of delivery and type of feeding of the infant.

B- Infant characteristics which include age, gender, weight, infant rank in family, twins pregnancy and consanguinity relationship between parents.

C- Infant medical sheet which includes date of admission, infant complaint, diagnosis, prevention of pyloric stenosis, onset of pyloric stenosis, clinical manifestation of pyloric stenosis, and another disease .

Part II: Mothers' Knowledge assessment sheet which include:

1- **Mothers' knowledge regarding pyloric stenosis:** to assess mothers' knowledge about pyloric stenosis. It was contained eight (8) multiple choice questions

2- **Mothers' knowledge regarding pyloromyotomy operation and post-operative care:** It was contained (11) multiple choice questions to assess mothers' knowledge about pyloromyotomy.

Scoring system for mothers' knowledge:-

1- The mothers' answers were compared with the model key answers and according to mothers' answer.

2-The complete correct response of mothers' knowledge was scored (2), Incomplete correct response was scored (1), Wrong answer or don't know was scored (0). The total score of questions related to knowledge of mothers were 38 score which represents 100%.

Their total level of knowledge categorized as:

- **Good knowledge scored** >70%

- **Average knowledge scored** < 60% to 70%

- **Poor knowledge scored** < 60%

Tool II: Mothers' reported practice checklists:

It was adapted from the **Egyptian Ministry of Health and Population guidelines (2018)** a modified by the researcher to suit mothers to assess mothers' reported practice regarding postoperative care of infants with pyloromyotomy. It was contained (7) questions about mothers' actual reported practice related to hand washing, administration of oral medication, infant feeding (breast feeding- bottle feeding), wound care, fever, oral care and vomiting.

Scoring system for mothers' reported practice will be as the following:

1-The mother answer were compared with the model key according to mothers answer.

2- The total scoring level of mothers' reported practice was calculated and classified to. The total score of mothers' reported practice were 14 score which represents 100%. Done complete and correct was score (2), Done in complete was score (1). Done incorrect or not done was score (0).

- **Satisfactory practice scored** $\geq 75\%$

- **Unsatisfactory practice scored** $\leq 75\%$

Tools validity and reliability:

The study tools were revised by a panel of three experts who were professor and assistant professor in the field of Pediatric Nursing from Benha Faculty of nursing to assess the content validity of the study tools. Testing reliability of tools was done using Cronbach's' alpha test, it was 0.834 for a structured interviewing questionnaire sheet and 0.822 for mothers' reported practice check list.

Ethical consideration:

An official written acceptance was obtained from Scientific Research Ethical Committee (SREC) to conduct this study. The researcher explained the aim and the nature of the research for each mother before their inclusion. Mothers' oral consent obtained from them before their participation in the study. Anonymity and confidentiality of the study subjects secured and the mothers were informed that the gathered data were used for research purpose only.

Field work:

The actual field work was carried out from the beginning of July,(2021) up to the end of December,(2021) covering six months. Official permission was obtained from the Dean of the faculty of Nursing at Benha University and the director of Specialized Paediatric Hospital to collect the Data after reviewing of past and current literatures. It started by interviewing the mothers and their infants using the previous tools in the predetermined setting. The researcher introduced herself to the mother then explained the purpose of the study to the mothers and their infants. The researcher gave the studied mothers the questionnaire to fill and the average time required for completion of each tool was around 10-15 minutes. The researcher was available at the

study setting two days (Sunday and Wednesday) per week during morning shift. All necessary data was collected from the previously mentioned setting twice a week until the completion.

Statistical analysis:

The collected data were organized, coded, computerized, tabulated and analyzed by using the computer software of Microsoft Excel Program and Statistical Package for Social Science (SPSS) version 25. Data were presented using descriptive statistics in the form of frequencies and percentage for categorical data, the arithmetic mean (X) and standard deviation (SD) for quantitative data. Qualitative variables were compared using chi square test (χ^2). In addition, R- test were used to identify the correlation between the study variables. **Degrees of significance of results were considered as follows:**

- P-value > 0.05 Not significant (NS)
- P-value < 0.05 Significant (S)
- P-value < 0.001 Highly Significant (HS).

Results:

Table (1): Illustrate that, more than half (53.3%) of the studied mothers were age ranges between 30-<40 years with Mean SD of age were 27.5 ± 4.74 years. Also , less than half (45.0%) of the studied mothers were reading and writing. As regard to job and residence, the vast majority (93.3%) of the studied mother had not work and less than three-quarters (73.3%) of the living in rural areas, respectively. Moreover, more than half (55.0%) of the studied mothers had 3 family members. Likewise, and more than two-thirds (66.6%) of the studied mothers had suffering from hypertension.

Table (2): Illustrate that, less than half (41.7%) of the studied infants were aged less than 2 weeks with mean SD of age were 4.76 ± 1.35 week. Also, less than three-quarters (73.3%) of them were males. As

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regard to infant weight, less than half (41.7%) of the studied infants had weight ranges from 2.5 kg - 3 kg with mean SD of weight were 2.61 ± 0.88 kg. Also, child ranking, less than half (46.7%) of the studied infants had the third rank among siblings. Meanwhile, three-quarters (75.0%) of the studied infants hadn't consanguinity relationship between parents.

Figure (1): Shows that, the majority (80.0%) of the studied mothers had poor knowledge level regarding care of infants with pyloromyotomy operation and post-

operative care. While the minority (8.3%) of them had good knowledge regarding care of infant with pyloromyotomy.

Figure (2): Shows that, more than three-quarters (76.7%) of the studied mothers had unsatisfactory level of total reported practice regarding care of infant with pyloromyotomy. While, less than one-quarter (23.3%) of them had satisfactory level of total reported practice.

Table (3): Indicates that, there was highly significant positive correlation between total mothers' knowledge and their total practices about pyloric stenosis at ($P < 0.00$).

Table (1): Frequency distribution of the mothers according to their personal characteristics (n= 60).

Mother's characteristics	Studied mothers(n = 60)	
	No.	%
Age		
- < 25 yrs.	16	26.7
- 25< 30 yrs.	32	53.3
- 30< 35 yrs.	4	6.7
- ≥ 35 yrs.	8	13.3
Mean\pm SD	27.5\pm4.74	
Educational level		
- Not able to read or write	8	13.3
- Read and write	27	45.0
- Basic education (primary - preparatory)	13	21.7
- Secondary education	8	13.3
- University education	4	6.7
Mother's job		
- Working	4	6.7
- Not working	56	93.3
Place of residence		
- Urban	16	26.7
- Rural	44	73.3
Number of family members		
- 3 members	33	55.0
- 4 - 6 members	11	18.3
- > 6 members	16	26.7
Mother complain from any disease		
- Diabetic mellitus	12	20.0
- Hypertension	40	66.6
- Heart disease	4	6.7
- None	4	6.7

Table (2): Frequency distribution of the infants according to their personal characteristics (n = 60).

Items	Studied infants (n = 60)	
	No.	%
Age		
- Less than 2 weeks	25	41.7
- From 2 weeks to 6 month	18	30.0
- From 6 month to 1 year	17	28.3
Mean± SD	4.76±1.35(weeks)	
Gender		
- Male	44	73.3
- Female	16	26.7
Infant weight		
-Less than 2.5 kg	23	38.3
-From 2.5 kg - 3 kg	25	41.7
-More than 3 kg	12	20.0
Mean± SD	2.61±0.88 (kg)	
Infant ranking		
- First	16	26.7
- Third	28	46.7
- Second	12	20.0
- Fourth	4	6.7
Twins pregnancy		
- Yes	7	11.7
- No	53	88.3
Consanguinity relationship between parents		
- First degree	11	18.3
- Second degree	4	6.7
- Third degree	0	0.0
- No consanguinity	45	75.0

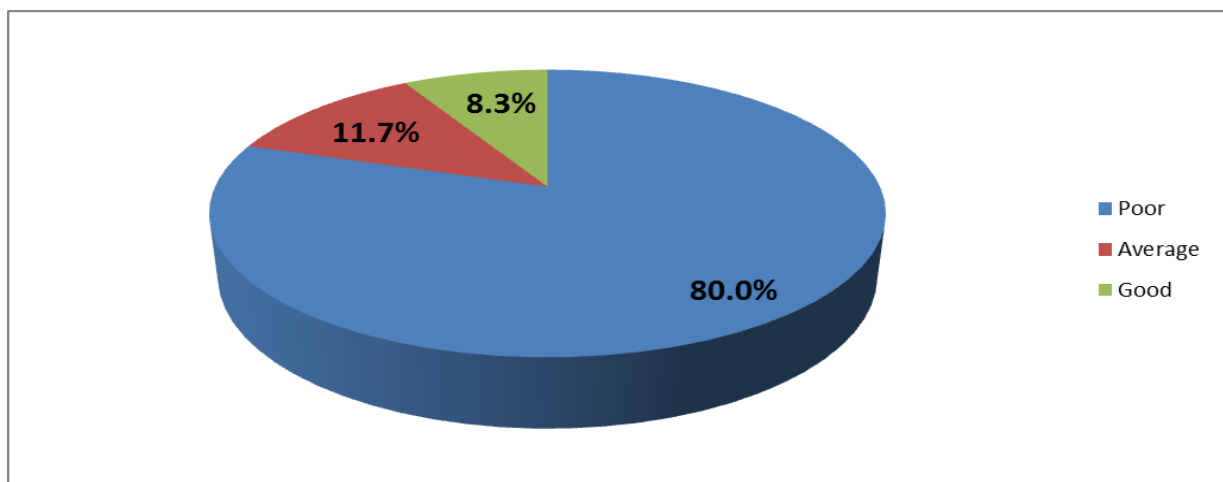


Figure (1): Percentage distribution of the mothers according to their total knowledge about pyloric stenosis, pyloromyotomy operation and postoperative care (n=60).

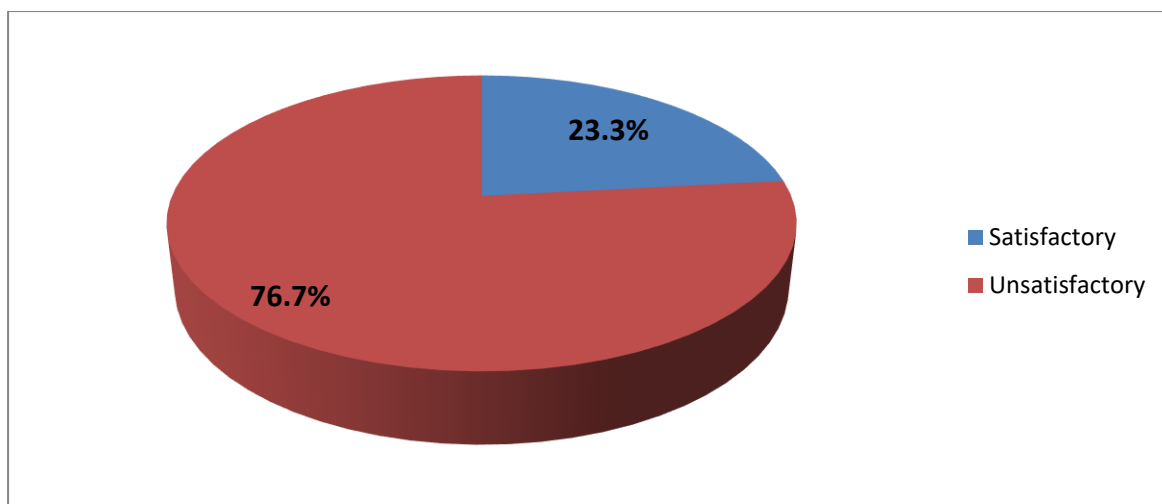


Figure (2): Percentage distribution of the studied mothers according to their total reported practice regarding care of infant with pyloromyotomy (n=60).

Table (3): Correlation between mothers' knowledge and reported practice about pyloric stenosis (n=60).

Variables	Total knowledge		Total practices	
	r	p-value	R	p-value
Total knowledge			0.479	0.000**
Total practices	0.479	0.000**		

Discussion

Hypertrophic pyloric stenosis is a common condition affecting infants that presents with progressive projectile non bilious vomiting. The pyloric portion of the stomach becomes abnormally thickened and manifests as gastric outlet obstruction. The cause is unknown. Pyloromyotomy remains the standard of treatment and outcome is excellent. (Zampieri & Camoglio, 2021).

Main considerations for the postoperative management of infants with HPS are monitoring, analgesia and reintroduction of enteral feeding. Recent evidence has demonstrated that standardization of postoperative care reduces the length of hospital stay, has a positive impact on patient experience and can reduce the time taken to achieve full enteral feeding (Kilgman 2020).

The current study was a descriptive research study aimed to assess mothers' knowledge and practice regarding postoperative care of infants with pyloromyotomy.

Regarding to the personal characteristics of the studied mothers, the findings of the current study revealed that, more than half of the studied mothers their age ranges between 30-<40 years, the Mean SD of age is 27.5±4.74 years. This result was supported with El Mwafie & Abdulllah et al., (2020) who carried out a study to evaluate the "efficacy of predefined discharge instructions for mothers on post-operative recovery of their infants after abdominal surgery" which represented that, nearly half (45.0%)of the studied mothers' age ranged from 20< 30 years.

Concerning educational level of the studied mothers, the results showed that, less than half of the studied mothers were reading and writing. This result was consistent with **Sabaq et al., (2020)** who carried out a study entitled "effect of implementing continuous care model on psychological outcomes in children undergoing abdominal surgery and mother's anxiety level" and founded that, less than two thirds(45.0%) of mothers were read and write. This finding might be due to less than three-quarters (73.3%) of the studied mothers were residence in rural area and according to their culture they don't interested with females education and continuing their education. From the researcher point of view this result may be due to interpreted this finding as Specialized Pediatric Hospital at Benha City is the refuge of many rural areas and females in rural usually marry and product early.

Regarding job and residence, the present study found that, the vast majority and less than three-quarters (93.3%) of the studied mothers were not working and were residing in rural areas, respectively. These findings were consistent with a study conducted by **Esmail et al., (2020)** and entitled "effect of implementing educational guidelines on mothers' performance regarding postoperative gastrointestinal motility for their infant with abdominal surgery "which showed that most of his participants were house wife and lived in rural areas.

Related to health status of the studied mothers, the present study presented that, two-thirds and more than half (66.6%) of the studied mothers were suffering from hypertension and were taking medication during pregnancy, respectively. This result approved with the study performed by **Gao et al., (2019)** at their study to assess "Enhanced recovery after surgery in pediatric

gastrointestinal surgery"and illustrated that, more than half of the infant's mothers had history of hypertension. This result may due to exposure to continuous stressful situation in life leading to increased risk of chronic diseases.

Concerning personal characteristics of the studied infants, the present study results showed that, more than half (41.0%) of the studied infants their age less than 2 weeks. This result agreed with **Firomsa et al., (2018)** who studied "Trends and outcomes of emergency pediatric surgical admissions from a tertiary hospital in Ethiopia" and reported that the majority of the studied infant were in the age group from one to three month. But, this result in disagreement with **Esmail et al., (2020)** who studied" the effect of implementing educational guidelines on mothers' performance regarding postoperative gastrointestinal motility for their infant with abdominal surgery". who founded that, more than, half of the studied children aged six to less than nine years. This finding might be due to the average age of pyloric stenosis diagnosis is the first months of infants life. This result may be because of several studies proved that infantile hypertrophic pyloric stenosis is one of the most common gastrointestinal emergencies in that happen the first two months of life.

Concerning gender of infants in this study, these results indicated that less than three-quarters(73.3%) of them were male. This finding is in the same context with **Mahna et al., (2020)** who carried out a study entitled "assessment of post-operative pain in children undergoing abdominal surgery" and revealed that more than half of the studied children were males.

As regard to weight, the findings of the current study showed that less than half

(41.7%) of the studied infants their weight ranged from 2.5 kg - 3 kg. This finding is in harmony with **Somri et al., (2018)** who conducted a study entitled "Postoperative outcomes in the pyloromyotomy procedure under spinal anaesthesia" and showed that, half of the studied infant their weight was ranged from 2.300 to 3.500 kg. This finding might be due to most of the studied mothers had a full nine-month pregnancy, that's means most of the infants were full term and this ia a normal weight for full term infants.

In addition, the present study findings reported that, less than half and the majority of (46.7%) the studied infants was the third child among his siblings and didn't have twins, respectively. These results were consistent with the study done by **Raval et al., (2018)** at a study entitled "Development of an enhanced recovery protocol for children undergoing gastrointestinal surgery" who mentioned that most of the studied infants were single birth and didn't have a twins.

Also, the current study illustrated, three-quarters of (75.0%) the studied infants had no parental relationship with each other. This result was approved with the study achieved by **Galea & Said, (2020)** who studied "Infantile hypertrophic pyloric stenosis" and clarified that most of the studied mothers hadn't consanguinity with their husbands. From the researcher point of view, infants whose parents have consanguinity relationship high risk for the disease should do early checkup.

Related to total subscales of knowledge about pyloric stenosis among the studied mothers, the present study clarified that, two-thirds (66.7%) of the studied mothers had poor level of total knowledge about pyloric stenosis. Also, the majority (83.3%) of them had poor level of total knowledge about pyloromyotomy and postoperative

care. These results were consistent with finding by **Rogers, (2021)** at a study entitled "The cause of pyloric stenosis of infancy" presented that most of mothers and care givers of infants had a lack of information regarding pyloric stenosis and its causes. These findings may be because of lack of mother's education regarding care of infant with pyloric stenosis and training to diseases and the treatment.

According to total reported practice regarding post-operative care of Infant with pyloromyotomy, the present study illustrated that more than three-quarters(76.7%) of the studied mothers had unsatisfactory level of total reported practice regarding postoperative care of children with pyloromyotomy. While, less than one-quarter (23.3%) of them had satisfactory level of total reported practice. From the researcher point of view, this result mean that the mother's knowledge had an effect on their practices, as when the mothers have unsatisfactory knowledge level regarding their infant conditions, this will affect their practices regarding care of their children with pyloric stenosis. Another explanation, this result due to lower age of mothers, low socioeconomic status and living in rural areas where a lot of services are not available.

Concerning correlation between mothers' knowledge and reported practice about pyloric stenosis, the current findings represented that there was a highly significant positive correlation between total mothers' knowledge and their total practices about pyloric stenosis. This result was on the same line with **Esmail et al., (2020)** " who studied Effect of Implementing Educational Guidelines on Mothers' Performance Regarding Postoperative Gastrointestinal Motility for their Children with Abdominal

Surgery” illustrated that there was correlation between total knowledge and total reported practices of mothers. This finding could be due to the mothers' level of knowledge and information help them to be aware about the correct and the needed practice of care to their children. From the researcher point of view, this rationalized that, mothers' knowledge, attitude and practice factors effect on increasing knowledge, attitude and correct done practices.

Conclusion:

- The majority (80.0%) of the studied mothers had poor level of knowledge regarding care of infant with pyloromyotomy .
- Also, the most (76.7%) of mothers had unsatisfactory level of total reported practice regarding postoperative care of infants with pyloromyotomy.

Recommendations:

1. Raising awareness among parents and primary care physicians about simple management strategies which could significantly reduce the stress and severity of disease.
2. Designing and implementing educational programs for mothers of infants with pyloric stenosis to support them emotionally and enhance education regarding care of their infants with pyloromyotomy.
3. Future researches should be replicated on a large sample of mothers in different setting which are needed for generalization of the obtained results.

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معلومات وممارسات الأمهات فيما يتعلق برعاية أطفالهن بعد عملية توسيع فتحة البواب

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تضييق البواب الضخامي عند الأطفال هو أحد الحالات الجراحية الأكثر علاجًا في طب الأطفال ويتميز بتضخم عضلي في العضلة العاصرة البوابية، مما يسبب انسداد مخرج المعدة والقيء المقذوف عند الأطفال حديثي الولادة. تهدف هذه الدراسة إلى تقييم معرفة وممارسات الأمهات فيما يتعلق بعد العملية الجراحية للرضع الذين يعانون من بضع عضل البواب. تم استخدام الدراسة الوصفية لإجراء الدراسة الحالية. أجريت هذه الدراسة في قسم العناية المركزة الجراحية المتوسطة بمستشفى بنها التخصصي للأطفال بمدينة بنها. تم استخدام عينة غرضية من الأمهات اللاتي رافقن أطفالهن الرضع الذين تم تشخيص إصابتهم بتضييق البواب وحضروا الإعداد المذكور سابقاً لمدة ستة أشهر. وقد أسفرت نتائج الدراسة أن غالبية (80.0%) من الأمهات المدروسات لديهن معرفة ضعيفة حول تضييق البواب وعملية بضع عضل البواب، أكثر من ثلاثة أرباع (76.7%) من الأمهات اللاتي شملتهن الدراسة كان لديهن مستوى غير مرض من الممارسات المبلغ عنها فيما يتعلق برعاية ما بعد الجراحة للرضع الذين يعانون من بضع عضل البواب. وقد لخصت الدراسة أن هناك علاقة ذات دلالة إحصائية كبيرة بين معرفة الأمهات وممارساتهن. وقد أوصت هذه الدراسة على تصميم وتنفيذ برامج تعليمية للأمهات الأطفال المصابين بتضييق البواب لدعمهم عاطفياً والتقليل من التوتر الذي يتعرضون له فيما يتعلق ببضع عضل البواب.