# Assessment of Nursing knowledge and Practices in Caring of Neonatal Intestinal Obstruction

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## Abstract

**Background**: Intestinal obstructions are the most common surgical emergencies in the neonatal period. Nurses play an important role in caring of neonates with intestinal obstructions includes pre-operative care and post-operative care. **This study aimed to**: Assess nurses' knowledge and practices in caring for neonates with intestinal obstruction. **Setting**: This study was conducted at the Neonatal Intensive Care Units (NICUs) in El-Kasr Al-Ainy University Hospital and El-Hussein University Hospital. **Design:** A descriptive design was used**. Sample**: A purposive sample of 86 nurses included in the study working at the previously mentioned setting. **Tools**: The first tool is a predesigned questionnaire sheet to assess nurses' knowledge about neonates with intestinal obstruction; the second tool was observational check list to assess nurses' practices for neonates with intestinal obstruction. **Results**: Revealed that less than two thirds of the studied nurses had unsatisfactory level of knowledge regarding neonatal intestinal obstruction. While less than three quarters of the studied nurses had incompetent level of practices regarding care of neonates with intestinal obstruction. **Conclusion**: This study concluded that the majority of the studied nurses had unsatisfactory level of knowledge. While most of the studied nurses had incompetent level of practices regarding neonatal intestinal obstruction. There were statistically significance relation between total level of the studied nurses' knowledge and their practice. **Recommendations:** Collaboration and continuing education of the pediatric nurses staff in the NICUs are vital to improve their knowledge and practices about care provided for neonates with intestinal obstruction.

**Key words:** Intestinal Obstruction, Practice, Knowledge, Nurses, Neonates.

## Introduction

The neonatal period is defined as the first 28 days after birth. The majority of neonates admitted to surgical unit within this period of life are suffering from intestinal obstruction. These cases require surgical management by pediatric surgeon in medical centers with facilities for anesthesia, radiology and specialized pediatric and nursing care for successful survival.

Obstruction of an neonate's gastrointestinal (GI) tract can occur anywhere from the esophagus to the anus **(Mohammed et al., 2017).**

Intestinal obstruction in neonates is most often due to a congenital anomaly rather than to an acquired condition the most common causes of obstruction at this age is atresia. Atresia of the intestinal tract is total obstruction of the intestinal lumen. A stenosis is incomplete obstruction or

narrowing of the intestinal lumen **(Johnson, 2014).**

Surgical treatment is almost always needed when the intestine is completely blocked or when the blood supply is cut off and repair the congenital anomalies surgical procedure performed depend on the cause of the obstruction **(Juang & Snyder, 2014).**

Nurses play an important role in caring of neonates with intestinal obstructions include preoperative care such as: examination of respiration, gastric suction, enema administration, count heart rate check the naso - gastric tube insertion, check the routine laboratory tests before surgery such as complete blood count, electrolyte tests and coagulation studies **(Potter, et al., 2016).**

The postoperative nursing care includes monitoring the neonates for cardiopulmonary response and identifying surgical complications. The high priority for the nurse is to maintain airway, breathing and circulation, care for the surgical site and notify the physician if observe, any signs of poor wound healing, bleeding or infection **(Forbes & watt 2015).**

Neonates with intestinal obstruction are suffering from many manifestations as :abdominal distention, failure to pass meconium in the first 2 days of life, bilious vomiting in early obstruction of the small, large intestine, tenderness and rigidity are usually minimal, the temperature is rarely >37.8C. Fever if found, indicates that contamination of the peritoneum with infected intestinal content has occurred **(Peteson & Kutzler, 2012).**

Medical management for neonates with intestinal obstruction requirement admission in the Neonatal Intensive Care Units (NICU) and the neonates connected with working venous line to given the floud to replace the fluid lost from the neonates.

Inserted the nasogastric tube (NG) to suction the air and fluid that accumulates the highest obstruction and reduce the pressure of the fluid on the wall of the gastrointestinal tract **(Walden, 2014).**

## Significance of the study:

In Egypt neonatal intestinal obstruction occurs in 1/1500 live births **(Franke, et al., 2014)**. Nurses are the first line contact with the neonates suffering from intestinal obstruction in the neonatal intensive care units. So that, it is important to assess nursing knowledge & practice to improve neonatal health & decrease mortality rate.

## Aim of the Study

This study aims to assess nurses' knowledge and practices in caring of neonates with intestinal obstruction.

### Research questions

1- What are the levels of nurses' knowledge and practices about neonates with intestinal obstruction?
2- Are there a relationship between nurses' knowledge, practices and their characteristics?

### Subjects and Methods

### Technical designs:

The technical design for the study included research design, research setting, subjects as well as tools of data collection.

### Research designs:

Descriptive design was utilized for conducting the study.

## Research setting:

The study was carried out at the **Neonatal Intensive Care Units (NICUs)** in El-kasr Al-Ainy University Hospital and El-Hussein University Hospital.

## Research subjects:

A purposive sample composed of (86) nurses were working at (NICU) at caring of neonates regardless there, age, gender, years of experience and educational level. Were included in the study from in the previously mentioned setting where, (50) nurses from El-kasr Al-Ainy University Hospital and (36) nurses from El-Hussein University Hospital.

## Tools of data collection:

Two tools were used for data collection:

**Tool I: A questionnaire sheet (Appendix II)**

It was developed by the researcher based on review of recent and related literature it included two parts as following:

**Part (1):** Socio demographic data of nurses such as: Age, gender, years of experience, job position, nursing qualification and place of work.

**Part (2):** Nurse knowledge about neonatal intestinal obstruction such as: Definition, causes, clinical manifestations, incidence, diagnosis, management, complications and nursing role.

➢ **Scoring System:**

A Purposive answer will take the score of "one" and the wrong answer will take the score "Zero".

The total score knowledge equal 13 grades and was graded as following:

• "Satisfactory" level of knowledge if total score ≥75 %.
• "Unsatisfactory" level knowledge when < 75 %.

## II- Nurses' Observational Checklists:

Observational checklist as adapted based on Pediatric Nursing Procedure Manual **(Padmaja, 2014)** to assess nurses practices regarding care of neonates with intestinal instruction such as: Naso, oro pharyngeal suction, measuring axillary temperature, counting respiration, heart rate, nursing care of neonate in incubator and gastrostomy care.

➢ **Scoring system:**

The correct answer taken the score of "one" and the wrong answer taken the score "zero". The total score practices equal 95 grades and was graded as following:

• "Competent" level of practice if total score ≥85 %.
• "Incompetent" level practice if total score< 85 %.
•
**Operational design:**

**Preparatory phase:**

A review of the past and current related literature covering various aspect of nursing care of neonates' intestinal obstruction was done using available books, articles, periodicals and magazines to get acquainted with the research problem and to develop the study tools.

**Pilot study:**

A pilot study was conducted over period of two months, from the beginning of May 2017 up to the end of June 2017. It was

conducted on 10% (8 nurses) of total sample to evaluate the research plan, clarity and applicability of the study tools. No modifications of the tool after pilot study. So that, nurses who included in the pilot study was included in the study sample.

### Validity of the study tool:

It was ascertained by a Jury consisting of three experts in the field. They were professors of Pediatric Nursing who revised the tools for clarity, relevance, applicability, comprehensiveness and understanding. According to their opinion minor modification were applied.

### Reliability of the study tool.

Cronbach alpha coefficient was used to assess the internal consistency of the tool. The questionnaire value was (0.80).

### Field work

The data have been collected over a period of 6 months the actual field work was carried out from the beginning of July 2017 to December 2017. Each nurse was interviewed and assessed individually using the study tools. The researcher was available at each study setting by rotation, 2 days weekly (Saturday and Tuesday) throughout the morning shift from 09:00 A.M to 02:00 P.M and started by researcher herself to the nurses then informing them about the purpose of study. The questionnaire sheet, the time consuming for completion of questionnaire takes 10 - 15 minute. As regards the nurses' practices, they were observed in the previously mentioned setting during their actual work in the shift. Time consumed for assessing the procedures was 10 - 20 minutes according to checklist.

### III. Administrative design

An official permission to carry out the study was obtained from the Dean of the Faculty of Nursing, Helwan University to the directors of El-Kasr Al-Ainy University Hospital and El-Hussein University Hospital at which the study was conducted. The title, aim and expected outcome of the study have been illustrated.

### Ethical consideration:

The agreement for participation of the nurses was taken after explanation the aim and nature of the study. The researcher informed the nurses that participation in the study was voluntary, also they were notified that they were assured that the information would renowned confidentially and used for the research purpose only, and they have the right to withdrawn from the study at any time. The study maneuvers don't entail any harm to participants.

### Statistical design:

The collection data were organized, revised, stored, tabulated and analyzed using number and percentage distribution. Statistical analysis was done by computer using Statistical Package of Social System(SPSS) package version 17. Proper statistical tests were used to determine whether there was a significant statistical difference between variable of the study.

### The following statistical techniques were used:

- Percentage.
- Mean score degree$\overline{X}$.
- Standard deviation SD.
- Pearson correlation (r).
- Chi-square ($x^2$).
- Proportion probability of error (P- value).

### Significance of results:

- When p>0.05, there is no statistical significance difference.
- When p<0.05, there is statistical significance difference.

**Result:**

Table (1): Number and Percentage Distribution of the Studied Nurses Regarding to their Characteristics (n=86).

| Characteristics | No | % |
|---|---|---|
| **Age (years)** | | |
| <20 | 3 | 3.4 |
| 20 <30 | 47 | 54.6 |
| 30<40 | 27 | 31.3 |
| ≥40 | 11 | 12.7 |
| **mean ± S D** | **36.6 ± 7.3** | |
| **Gender** | | |
| Female | 86 | 100 |
| **Job position** | | |
| Staff nurse | 66 | 76.7 |
| Supervisor nurse | 20 | 23.3 |
| **Nursing qualification** | | |
| Diploma of nursing technical school | 18 | 20.9 |
| Diploma of nursing technical institute | 24 | 27.9 |
| Bachelor of nursing | 22 | 25.6 |
| Specialized Diploma in nursing | 22 | 25.6 |
| **Years of experience** | | |
| 1< 3 | 28 | 32.6 |
| 3<5 | 16 | 18.6 |
| ≥ 5 | 42 | 48.8 |
| **mean ± S D** | **4.4±2.9** | |
| **Attending previous training course** | | |
| No | 86 | 100 |
| Yes | 0 | 0 |

**Table (1):** find that about more than one quarter the studied nurses (27. 9%) had Diploma Of Nursing Technical Institute and the mean age was 36.6 ± 7.3 years. Regarding job position this table revealed that, more than three quarter of them (76.7 %) were technicians. It was clear from this table that the mean years of experience of the studied nurses were 4.4 ± 2.9.No one of them attending previous training course.

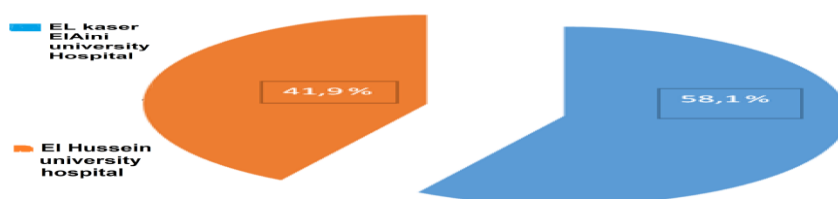Figure (1): Percentage Destruction of the Studied Nurses in Relation to Place of Work (n=86).



**Figure (1):** Concerning place of work of the studied nurses, this figure revealed that, more than half of the studied nurses (58.1%) from El-Kasr Al Ainy university hospital and 41. 9 % of then from El-Hussein university hospital.

**Figure (2):Percentage Distribution of the studied nurses in relation to total knowledge score Regarding Neonatal Intestinal Obstruction (n=86)**
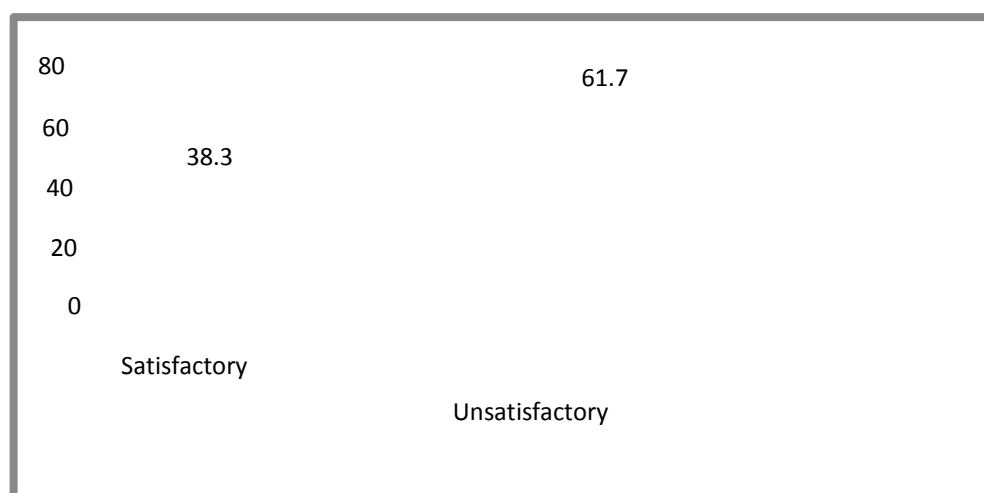


**Figure (2):** It was clear from this figure that, less than two third of the studied nurses (61.7%) had unsatisfactory knowledge about neonatal intestinal obstruction, while more than one third of them (38.3%) had satisfactory knowledge about neonatal intestinal obstruction.

**Figure (3): Percentage of the Studied Nurses in relation to total Practice score Regarding Neonates with Intestinal Obstruction(n=86)**
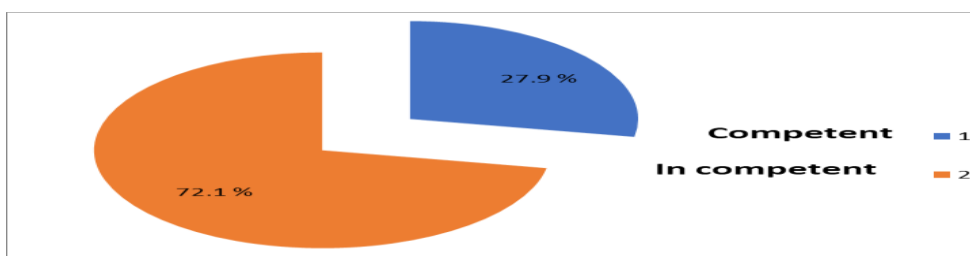


**Figure (3) :** as show from this figure that, less than three quarter of the studied nurses (72.1%) had incompetent performance practice about neonatal intestinal obstruction and more than one quarter of the studied nurses (27.9%) had competent performance practice about neonatal intestinal obstruction.

## Discussion

This chapter discussed the results of the current study and compared them with other related studies, recent literature, as well as representing the researcher interpretation.

Intestinal Obstructions are the most common surgical emergencies in the neonatal period. Early and accurate diagnosis of intestinal obstruction is paramount for proper neonates' management. For evaluation and diagnosis, intestinal obstruction in neonates it divided into either high or low obstruction.

High intestinal obstructions are occurring in proximal to the ileum, resulting in various combinations of gastric, duodenal, and jejuna. Low intestinal obstructions involve the distal ileum or colon and typically result in diffuse dilatation of multiple small bowel loops (**Vinocur et al, 2014).**

This study aimed to assess nurse's knowledge and practices in caring for neonates with intestinal obstruction.

**Part (I): Characteristics of the studied nurses:**

Concerning to characteristics of the studied nurses the present study results revealed that, more than half of them had age group from 20 and less than 30 years, this finding was agreement with **Hussein, (2016)** in a study entitled "Effectiveness of an Educational program on Nurses' Knowledge Concerning Preoperative care of Children undergoing Intestinal Obstruction Surgery at Pediatric Teaching Hospital in Baghdad City", who mentioned that the majority of the studied nurses we're between age group from 20 - 30 years. While these findings were in disagreement with **Otheed, (2016)** in a study entitled "Nurses' Knowledge and Practice regarding Complication of Neonatal Intestinal Obstruction", in Baghdad, who found that more than half of nurses were aged thirty years or above. From the researcher point of view, this differences may be due to most of the studied nurses were newly graduated from Technical instituted of Nursing.

In relation to the studied nurses' gender, the current study showed that in table (1), all of the studied nurses were female. This result in the same line with **Obaidkh et al., (2016)** in a study entitled " Nurses Knowledge Concerning Congenital Anomalies in Neonatal Intensive Care units", in Baghdad, who mentioned that the majority of the nurses were females. From the researcher point of view, this may be due to the greater fraction of the nurses in Egypt was females and may also related to the studying of nursing in Egyptian universities were exclusive for females only till few years ago.

As regard of years of experience, it was noticed in Table (1), that less than half of the studied nurses had experience ranged from 5 years or above. This results contradict with **Hammod, (2016)** in a study in Egypt entitled "Effectiveness of an Educational Program on Nurses Knowledge Concerning Complications of Neonatal Congenital Anomalies", who reported that most of the studied nurses had experience 5 years or above. From the researcher point of view, this differences may be due to most of the studied nurses were recently graduated.

It was clear that, more than one quarter of the studied nurses were had Technical Institute degree (diploma). This finding was agreement with **Al-Mawasheki, et al., (2016)** in a study in Egypt entitled " Nurses' Knowledge and Practice regarding care for the neonatal with congenital anomalies", who reported that more than half of the studied nurses had Technical institute degree. These findings were also in agreement with **Hammod, (2016)**, who reported that more than one quarter of the studied nurses had Technical Institute. From the researcher point of view, this may be due to most of bedside nurses in governmental hospitals were diploma and technical nurses because bachelor nurses in the governmental hospitals are working as head nurses.

As regard attending training courses, it was found that, no one in the studied nurses attended previous training courses about care of neonates with intestinal obstruction. This result supported by **Hussein, (2016)** who reported that no one of the studied nurses attended previous training courses about preoperative care of children undergoing intestinal obstruction surgery. From the researcher point of view this may be due to shortage of staff and workload in Neonatal Intensive Care Unit.

**Part (II): Nurses' knowledge regarding to neonatal**

Intestinal obstruction and nurses' knowledge about practices i n caring of neonates with intestinal obstruction.

Regarding nurses' knowledge about neonatal intestinal obstruction, it was noticed that, less than half of the studied nurses had satisfactory knowledge related to definition and causes of neonatal intestinal obstruction. The results were in agreement with **Obaidkh et al., (2016)** who found that less than half of the studied nurses who worked in neonatal intensive care units had satisfactory knowledge regarding congenital anomalies. From the researcher point of view, this results may be due to the most of the studied nurses were newly graduated.

As regards to nurses' knowledge about clinical manifestations of intestinal obstruction, it was noticed that, the majority of the studied nurses had satisfactory knowledge, this results were similar to **Boker, (2015)** in a study in Egypt entitled "Congenital Anomalies Prevalence, clinical and operative studies in neonates and infancy " who reported that, the most of studied nurses had satisfactory knowledge about clinical manifestation of neonates with intestinal obstruction. These findings may be due to most of the studied nurses we're newly graduated and had update information.

Regarding nurses' knowledge about complication of intestinal obstruction, it was noticed that, more than half of the studied nurses had satisfactory knowledge. This result of the current study was in agreement with **Obaidkh et al., (2016), who** reported that, half of the studied nurses had satisfactory knowledge regarding complication of neonatal congenital anomalies. Additionally, **Hussein, (2016),** reported that more than half of the studied nurses had satisfactory knowledge regarding complications of intestinal obstruction. From the researcher point of view, it may be due to deficit of nurses' knowledge

which it is the main causes of lack of awareness about nature of the disease, it causes and importance of treatment thus expose the neonates to problem and delayed of cure.

Regarding nurses' total level of knowledge about care of neonates with intestinal obstruction, the results of the current study revealed that, less than two third of the studied nurses had unsatisfactory knowledge related to care of neonatal intestinal obstruction, this result supported by **Obaidkh etal., (2016)** who found that more than half of the studied nurses who worked in neonatal intensive care units had unsatisfactory knowledge about neonatal congenital anomalies. From the researcher point of view, this result may be due to the newly graduated nurses that means don't gain enough knowledge.

**Part (III): Nurses' practice regarding neonates with intestinal obstruction.**

On assessing nurses practice regarding the measurement of vital signs for neonates with intestinal obstruction, the current study clarified that, the majority of the studied nurses were competent in practice, this findings ware similar with the study done by **Bokor, (2015)** who found more than three quarter of the studied nurses had good performance in assessing vital signs as it is important and can't be ignored as it is a basic nursing activity in the neonates assessment which should precede nursing care planning and implementation. In addition this findings were in agreement with **Mustafa, (2017)** in a study in Egypt entitled "Quality of Nurses Performance in Neonatal Intensive Care Units" who found that, no one of the nurses had poor performance in vital signs, so it is a basic procedure in the assessment of the neonates.

Regarding nurses' practice about incubator care for neonates with intestinal obstruction, the present study revealed, more than one quarter of the studied nurses had competent practice about incubator care, this findings were in agreement with **Mohamed, (2016)** in a study in Egypt entitled "impact of

intervention program on nursing performance provided for neonates with intestinal obstruction at intensive care units", who found that the majority of nurses competent practice about incubator care. From the researcher point of view, this may be due to lack of supervision and lack of knowledge about incubator care and infection control practice.

According to nurses' practice about measuring abdominal circumference for neonates with intestinal obstruction, the present study revealed that, few of the studied nurses were competent practice about measuring abdominal circumference, this findings were contradict with **Hussein, (2016)** who reported that more than one third of the studied nurses were competent practice about measuring abdominal circumference. From the researcher point of view, this result may be due to lack of experience of the studied nurses.

Regarding the nurses' practice concerning about nasogastric insertion for neonates with intestinal obstruction the present study found that, a few of the studied nurses' were competent practice about nasogastric insertion. The finding disagreement with **wongs, (2016)** in a study in London entitled "Assessment Nurses Knowledge and Skill for Infant with gastrointestinal dysfunction" who reported that more than half of them were competent practice about nasogastric insertion.

Concerning nurses' total level of practice about care of neonates with intestinal obstruction, finding of this study that, less than three quarters of the studied nurses had incompetent practice regarding care of neonates with intestinal obstruction. These findings were in agreement with **Hussein, (2016)** who found that more than two third of the studied nurses had incompetent level of practice regarding care of neonatal with intestinal obstruction. From the researcher point of view, this may be due to lack of knowledge level of the studied nurses.

The researcher point of view, it might be due to the lack of nurses' application of knowledge especially regarding nursing interventions with common complication that occur and misunderstanding of their roles as there is no job description or definition of responsibilities in the neonatal intensive care units.

**Part IV: Relation between total Nurses' Knowledge and Practice for neonates with intestinal obstruction and their characteristics.**

The current study showed that, no significant difference between nurses' knowledge scores and age of the studied nurses' toward care of neonates with intestinal obstruction. These results were in agreement with **Hussein, (2016)** who reported that no a statistical significant difference between nurses' knowledge scores and their age. It might because now a day the newly graduated nurses focus on practice more than knowledge.

The current study showed that that a statistical significant difference between nurses' knowledge scores with their years of experience toward care of neonates with intestinal obstruction, this result disagreement with **Al - Mawashek, et al., (2016)** who stated that there is no statistical significant difference between nurses' knowledge scores with their duration of experience. From the researcher point of view, these findings may be related to that the studied nurses spent more time with care of neonates withintestinal obstruction.

The current study revealed that, there were no statistical significance differences between the studied nurses' practice and their years of experience, these findings were in disagreement with **Bokor, (2015)** who found that significant different between nurses' practice and years of experience. This may be related to older nurses depend on younger nurses in work and their prefer to play administrative role only.

The current study revealed that, there were no statistically significant relation between the nurses' level of practice and their level of education toward care of neonates with intestinal obstruction, these findings come in agreement with **Hussein, (2016)** who found that there is no significant difference between nurses practice about care of neonates with intestinal obstruction and their level of education. This finding may be related to the studied nurses spent more time with care of neonates with intestinal obstruction and more practice work, more skill increased.

As regard to the relation between studied nurses' knowledge and practice about care of neonates with intestinal obstruction, the current study revealed that, there were a statistically significant relation between nurses' knowledge and practice. All studied nurses who had satisfactory level of knowledge had competent level of practice these study agreement with **Ammar, (2016)** who found that there were statistical significant differences between the nurses' knowledge scores and their practice. These findings may be due to that the studied nurses had satisfactory level of knowledge and apply these to knowledge in their practice.

## Conclusion

Based on the findings of the current study, the study concluded that the majority of the studied nurses had un satisfaction level of knowledge. While most of them had incompetent level of practice regarding care of neonates with intestinal obstruction. There were statistically significance relation between total level of the studied nurses' knowledge and their practice.

## Recommendations

**I**n the light of the finding of the current study the following recommendations are suggested.

1.Collaboration and continuing education of the staff in the NICUs are vital to improve their knowledge and practices about care provided for neonates with intestinal obstruction.

2.Develop nursing guidelines about care of neonates with intestinal obstruction to be used for nurse for the nurse management of neonates with intestinal obstruction.

Counseling services regarding prevention, detection and management of neonatal intestinal obstruction should be available in each study setting in addition to brochures, booklets, intervention media program containing simple information about needs and problems of neonates.

## Conflict of interest:

<u>**No**</u>    Yes

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