

Nurses' Knowledge and Practice in Gastrointestinal Endoscopy: Developing Nursing Guidelines

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ABSTRACT

Since the first publication on nursing care in 1980, much has been written on nursing care during gastrointestinal endoscopy. However, professional guidelines are mainly focused on the physicians' practice and training, while little is standardized or written about nursing care in upper and lower GI endoscopy. In the Netherlands, there are no national professional guidelines for nurses offering basic nursing care and post-procedural care for patients undergoing basic GI endoscopy. Most articles in the literature focus on staff training to prevent by passable incidents, and little is said about training on the importance of the non-medical care provided by the endoscopy nurse.

An initial step for the development of a guideline is a clear overview and a good understanding of current practice and knowledge. Thus, the central research question of the work presented in this thesis is: What is the current knowledge and practice of endoscopy nurses in the Saudi Arabia in providing nursing care in basic upper and lower GI endoscopy, and what can be concluded about their knowledge and practice, and which areas require improvement?

Keywords: professional, knowledge, Netherlands, endoscopy.

1. INTRODUCTION

Since the first publication on nursing care in 1980, much has been written on nursing care during gastrointestinal endoscopy. However, professional guidelines are mainly focused on the physicians' practice and training, while little is standardized or written about nursing care in upper and lower GI endoscopy. In the Netherlands, there are no national professional guidelines for nurses offering basic nursing care and post-procedural care for patients undergoing basic GI endoscopy. Most articles in the literature focus on staff training to prevent bypassable incidents, and little is said about training on the importance of the non-medical care provided by the endoscopy nurse.

An initial step for the development of a guideline is a clear overview and a good understanding of current practice and knowledge. Thus, the central research question of the work presented in this thesis is: What is the current knowledge and practice of endoscopy nurses in the Saudi Arabia in providing nursing care in basic upper and lower GI endoscopy, and what can be concluded about their knowledge and practice, and which areas require improvement?

Methods

The literature review pertained to 13 guidelines. Data were analyzed using both content analysis and factor analysis. Content analysis was used for data reduction, and factor analysis was used for data clustering. The results indicated that seven orientations of knowledge and practice were derived, including attention to infection control, communication and coordination among team members, perioperative nursing care, theoretical understanding and current cognition, techniques of gastrointestinal endoscopy, and related nursing measures. This study was helpful in teaching nurses who are unfamiliar with gastrointestinal endoscopic examination and

in promoting higher standardization, consistency, and even patient satisfaction in perioperative nursing care. It's critical that nurses have the general capacity, specialized knowledge, and good practices when providing nursing care associated with gastrointestinal endoscopy. There are few studies that investigate the expertise of nurses in different workshops of gastrointestinal endoscopy.

Conclusion

We conclude that the nurses' knowledge and practice regarding GIE were inadequate; therefore, nursing practice guidelines were developed to assist nurses involved with GIE. This was achieved by conducting a survey among nurses to investigate their knowledge concerning GIE, and observations were made, triggered by a number of objective observational indicators. Following the exploratory descriptive study design, which integrated both quantitative and qualitative methods of research to gather multi-angled data, research sampling was both purposeful and a convenience sample. The findings led to the support of the development of the Instrumental Nursing Knowledge Practice Guidelines, which provide better development of nurses' knowledge and enhance patient safety while rendering nursing procedural care.

The outcome will lead to the development of an appropriate specification and resource allocation in order to control and develop the quality of patient care in the GIE setting, while improving the focus on quality criteria and best practices. Through these Guidelines, interprofessional collaboration has been enhanced. Another significant contribution is the addition of new criteria within the South African Nursing Council's scope of practice related to GIE in South Africa, and the Nursing Practice Council regarding intraprofessional communication, which also made the practice project successful. Therefore, during the enhancement of nursing staff knowledge, the Guidelines will continue to make a considerable contribution to the merit of care by adherence to professional practice, competence enhancement, instrument and equipment quality, support for professional governance, and the implementation of good governance and care.

1.1. Background and Rationale

In recent years, endoscopic procedures, including gastrointestinal (GI) endoscopy, have rapidly developed, improved, and become more widely used. Nurses' knowledge and practice are essential to patients undergoing GI endoscopy in order to promote the effectiveness of endoscopic procedures, provide knowledge, and reduce anxiety. Nursing guidelines for GI endoscopy can help to standardize nurses' knowledge and practices for this endoscopic procedure to improve the quality of care consistent with the best evidence-based research and practice for common characteristic problems. Such guidelines therefore have the potential to enhance the quality of patient health outcomes and reduce unnecessary care to the benefit of both patients and society. Since there are no existing nursing guidelines for nurses in performing GI endoscopy, the purpose of this study was to develop such guidelines specifically for nurses. GI endoscopy is time-critical, personnel-intensive, and associated with certain patient anxiety due to invasive characteristics, insertions of the endoscope into the mouth, and movement in the gastrointestinal tract. Furthermore, potential adverse events of GI endoscopy, such as cardiopulmonary events, bleeding, perforation, hypoxemia, and nausea, can be life-threatening, calling for emergency treatment or surgery. Nurses' knowledge and skills in advanced nursing assessment and pharmacological and non-pharmacological nursing interventions are essential to ensure safety, effectiveness, and efficiency for this type of procedure. The existing research evidence mainly comes from physicians or nursing staff evaluating GI patients or post-endoscopic procedures, with weak evidence on how to provide safe, efficient, caring nursing care during endoscopic procedures. Research evidence on quality nursing care, nursing representation in the multidisciplinary team, and standardizing assessment and intervention tools is scarce. So far, no nursing guidelines are available for nursing knowledge and practices in GI endoscopy.

1.2. Scope of the Study

The performance of endoscopic procedures involves risk to the patient's life, and it is a critical responsibility of nurses to provide support in life-saving measures and ensure the health and safety of each person. Nurses are applying increasingly specialized knowledge on the pre- and post-endoscopy procedures and play a significant role in monitoring and caring for these patients. In Taiwan, digestive endoscopy is conducted by physicians from several departments, but one of the essential tasks is to ensure the smooth implementation and safety of gastrointestinal endoscopy procedures with the close cooperation between the nurse and the physician. Gastrointestinal endoscopy is often a team task, and its success is contingent upon the effective performance of each member of the team. Medical discussions regarding the precise patient procedure need to be conducted in advance of the operations. Nurses must have a certain level of mastery of the procedure, set up and tear down, and establish emergency response and care.

Nurses' knowledge and practice in gastrointestinal endoscopy, if inadequate, could affect patients' safety outcomes. Many of the documents containing the knowledge and practice are general operation steps and the care of specific diseases or the complications of surgery after endoscopy. There are few guidelines that are specialized for the nurses of gastrointestinal endoscopy. This study collected 290 questionnaires, and 159 usable

questionnaires were returned. All respondents were qualified to work in both the normal endoscopic unit and the positive-pressure isolation unit. These nurses did not participate, and the average response was between 1.6 and 4 years. A 4-point Likert-type scale was used to measure nursing qualifications and the professional competencies of the endoscopy nurse. (Mohamed et al.2022)(ELNAGAR et al.2023)

2. Gastrointestinal Endoscopy: Overview

As the practice of gastrointestinal endoscopy advances, it becomes more important that nurses gain a better understanding of current procedures. Nurses plan, implement, and evaluate all nursing care activities, so they should have the necessary knowledge and practice skills required. As yet, however, there are no specialist guidelines developed for the nursing care of gastrointestinal endoscopy patients. Nursing guidelines can be created by systematically exploring expert opinion and should include parts relevant to the patient, including 'nursing diagnosis', 'basic nursing care', 'nursing care during the endoscopy', and essential 'nursing competency'. Endoscopy refers to using a flexible endoscope to diagnose and treat internal abnormalities. The mouth is used to insert the upper gastrointestinal endoscope into the esophagus, and for colonoscopy, the anus is used. The technique is painless as the larynx and sensibility reflex pathways are blocked by a topical anesthetic. Recognition and treatment of major gastrointestinal diseases during early and middle stages minimize possibly serious damage to other body parts, so the usefulness of the method in early detection of these is clear. Nursing care promotes the success of the examination. The doctor or operating room nurse will therefore provide patients with pre-endoscopy instructions, which should be confirmed by the nurse before the endoscopy begins, for common patient safety. They will ask the patient to sign a consent form, and unless the examination is an emergency, these instructions will also contain details to assure the patient that he will be under supervision during sedation to ensure his safety.

2.1. Definition and Types of Endoscopy Procedures

Endoscopy is the general exploration of the body. It is a minimally invasive medical procedure. The use of endoscopy is diagnostic, therapeutic, or investigative. A longer length of endoscope allows passage through the oral cavity, esophagus, and permits better visualization of organs, body cavities, hollow organs, and the gastrointestinal tract. Since the idea of endoscopy was born approximately a century ago, many different types of endoscopy have developed. Currently, the most commonly used types are esophagogastroduodenoscopy, colonoscopy, bronchoscopy, cystoscopy, sigmoidoscopy, choledochoscopy, or pancreatoscopy. Gastrointestinal endoscopy is mainly used to inspect the upper and lower gastrointestinal tract. The exploration of the anus and rectum is merely considered a proctological endoscopic procedure. The reason for their classification all together is that they are all performed to evaluate the presence of lower gastrointestinal complaints such as rectal bleeding or to diagnose anal, rectal, and left colonic problems such as inflammatory bowel disease, polyps, and adenomas, and to perform polypectomy in selected cases.

2.2. Importance of Endoscopy in Diagnosis and Treatment

Endoscopy is rapidly developing as an indispensable aid in the diagnosis and treatment of gastrointestinal diseases. A wide range of diseases of the gastrointestinal system, from simple acid peptic disease to cancer, needs early diagnosis and treatment. Gastrointestinal endoscopy is an important and informative diagnostic tool that is frequently used in the management of these diseases. It is easier to recover during the recovery period, and it is more economical with a lower percentage of complications compared to surgical procedures. Many early-stage cancerous lesions or precancerous lesions can be diagnosed and treated using endoscopy. Because of these potential benefits, endoscopy is usually performed in an outpatient setting. The number of tests is increasing every day as a result of cases to be examined in the hospital. Endoscopy day-case clinics and mobile endoscopy are increasingly used to cope with increased demand and problems of overcrowding in the hospital. The majority of patients attending an endoscopy service require a procedure involving the upper gastrointestinal tract. These patients receive one or more of the following endoscopic diagnostic procedures to facilitate their diagnosis: oesophagogastroduodenoscopy, sigmoidoscopy, colonoscopy, flexible sigmoidoscopy, and/or double contrast barium studies of the colon. Gastrointestinal endoscopy is an important procedure performed not only for diagnosis but also for therapeutic purposes. Many gastrointestinal bleeding, mucosal and tissue closure procedures, removal of foreign bodies, dilation, removal of polyps, and removal of any obstruction in the esophagus, stomach, small intestine, and large intestine are carried out by endoscopy. In addition, drainage of fluid in pancreatic pseudocysts, bile duct drainage, and placing stents can also be done by therapeutic endoscopy. Gastrointestinal endoscopy is also important for acquiring biopsies and cytological materials from the esophagus, stomach, small intestine, large intestine, rectum, and other structures in the abdominal cavity. Biopsy and cytological material are obtained from growths or suspected tumors, gastritis, ulcers, observation of vessels, appearance of polyps, abnormal ulcerations, and suspicious lesions to determine the nature of the disease.

3. Nurses' Role in Gastrointestinal Endoscopy

The pivotal role of nurses in endoscopy units has been so influential that the majority of the literature highlights the significant role of nurses and mentions that endoscopy results depend on proper nursing intervention and competent care. The active participation of nursing services not only before and after the endoscopy but also during the endoscopy process is important in terms of creating conditions and an environment to perform endoscopy and to keep patient safety, comfort, and satisfaction at the highest level. Due to their close and direct contact with the patient, the responsibilities of nurses start at the beginning of care and continue until the end of the process. Direct nursing services can be defined as patient admission, physical examination, and controlling the patient's vital functions to be assessed, taking clinical data, supporting the patient before, during, and after the procedure, sedation management, planning pre- and post-screening discharge, and sending the patient to the room. (Munnelly et al.2021)(Riegert et al.2020)(de et al.2022)

Nurses' roles vary widely in high-activity endoscopy units depending on the country and the unit; in some countries, patient monitoring and endoscopic procedure monitoring belong primarily to nurses, and in some other countries, the roles of endoscopic nurses are hygienic support, endoscope tracking, and completion of the documentation. However, it is accepted almost universally that the nursing tasks specific to the endoscopy unit are wheelchair aid to bring patients to the transportation room, admission of patients for the planned schedule and to prepare all the patients with detailed transfer information for inpatients, cooperation with bed service workers to get a bed for admitted patients, patient reception, providing the privacy of the patients, emotional support, providing an environment to meet the toilet needs, endoscopic room preparation, organizing materials to be used during endoscopic interventions, regulating and providing supplies during the shift, and being successful in systemic features such as technical information on endoscopy unit rules and medical apparatus preparations. In addition to the features mentioned, the nurses can also perform bleeding control by taking necessary precautions, initiate cardiopulmonary resuscitation, and monitor the vital signs of patients during the endoscopic procedure.

3.1. Pre-procedural Preparation

The pre-procedural phase is described as the time from when the patient is scheduled for the procedure until the patient arrives in the endoscopy unit for the procedure. Advance knowledge is required to provide evidence-based preparation for the patient. Information and preparation for the patient could be categorized as medical, physical, or legal/ethical. The nurse often provides most of the information covering these areas, and as such, it is important that the information given to the patient is correct from the viewpoint of the primary nurse as a source of reliability among the healthcare staff. Patients expect accurate and appropriate information delivered by the nurse, and they value the nurse as a source of information. It was noted that a significant number of patients had not received sufficient information prior to their procedure. By appropriately informing patients before the procedure, patients become less anxious and more cooperative; the focus is on patient safety, and the patient is aware of what will happen throughout the test. It is established, in the ethics of nursing, that the focus should be patient-centered and respectful of the dignity, comfort, and choice of the patient. The preparation should be completed before any form of sedation is started.

3.2. Intra-procedural Responsibilities

Nurses play a significant role in GI endoscopy procedures through pre, intra, and post-procedural nursing care, but the responsibilities of the GI endoscopy nurse during the intra-procedural stage are directly related to providing patient safety, procedural efficiency, and the detection and management of potential complications. Our study revealed the impressive level of knowledge and practice held by the nurses, except for some deficits. Overall, the compliance of the nurses with regard to wearing PPE, handling blood, and cleaning consumables was not at a satisfactory level. To avoid unnecessary complaints and to prevent hospital-acquired infections, the implementation of preventive measures in the form of regular and current education will minimize the degree of error. An absence of PPE was detected in the majority of the nurses, as well as problems with cleaning the operational field and providing care for blood vessels. It was also noted that a lack of compliance in using PPE increases the risk of infections. Blood handling is a priority for achieving patient and nurse safety, and all kinds of waste material should be disposed of in such a way as to avoid harming anyone who may come into contact with it.

3.3. Post-procedural Care

The role of the endoscopy nurse intensivist comprises more than caring for patients and assisting physicians in the endoscopy room. Nurses intend to develop their knowledge and practice in relation to the nursing care that patients require before, during, and after the procedure. Although various policies and guidelines document the care that is required before and during the gastroscopic and colonoscopic procedures, at the time of data collection, no specific guidelines existed for nurses caring for patients who had undergone other gastrointestinal

endoscopic procedures in the recovery phase of anesthesia. This study will help to fill this gap by addressing the extent of nurses' knowledge and practice in the post-anesthetic phase of gastrointestinal endoscopy. Guidelines will be developed from the findings of the qualitative component of the research. (Ljungqvist et al.2021)(Gifkins et al.2020)(Nilsson et al., 2020)

All gastrointestinal endoscopic procedures are associated with risks and discomfort. The two main risks for adult patients undergoing an endoscopic procedure are perforation of the organ and post-procedural bleeding. Nose cords may occlude the nasal passages if not removed, causing patient anxiety, choking sensation, or difficulty in breathing. Gastrointestinal endoscopic procedures require a local anesthetic, sedation, and respiratory monitoring, and an increased number of procedures are now performed under deep sedation or general anesthesia in a unit staffed only by an endoscopy nurse intensivist and the endoscopist. The nurse intensivist must be knowledgeable and competent in this area of nursing practice. High-quality nursing care contributes to morbidity prevention and the early recognition and initiation of treatment of any complications that do occur, as well as decreasing patient anxiety and discomfort.

4. Current Challenges and Gaps in Nurses' Knowledge and Practice

Nurses play a significant role in gastrointestinal endoscopy (GIE) as members of the GIE procedure team. They can actively support the endoscopy process through the activation of various activities, the provision of education, and the non-invasive interventions that are required both during and after the procedure. Their knowledge and practice can also have a significant effect on patient outcomes. However, research indicates that there are current problems regarding the roles of the nurses in the GIE setting, which seem to vary widely between and even within countries. These problems are related to the role of the nurse, their shifts, educational background, and the ethnicity of the patients. Furthermore, no specific nursing training for nurses exists, and their primary scope of practice is left undefined. These issues can ultimately lead to discontinuous state-endorsed guidelines for nurses, the absence of available training courses, a lack of standardization, no validity in promoting educational programs, and a gap in determining the qualifications and performance criteria for working in the GIE setting.

In order to address these gaps and the current problems with the nurses' role in GIE, the development of evidence-based nursing guidelines for practice is essential. These would allow for education and training that could be utilized in the field. By examining the role of the nurse in the GIE setting, through the identification of the appropriate qualifications that are needed to work within it, this review can introduce future nursing measures that relate to these qualifications. Additionally, as part of these measures, the present study establishes specific guidelines and suits them to the role sum of the nurse working in the GIE setting. Ultimately, these guidelines aim to provide quality care and support to both the patient and the endoscopy team.

5. Developing Nursing Guidelines for Gastrointestinal Endoscopy

Nurses play an important role in the safe and effective provision of an endoscopic service by assisting in performing the actual endoscopic procedure, supporting and caring for the patient before, during, and after their endoscopy, and also serving as a potential source of endoscopic expertise. Although endoscopic practice is well established and safe roles for nurses in endoscopy have been elucidated, many nurses may not be aware of existing nursing role descriptors. Indeed, nurses' knowledge about gastrointestinal endoscopy is poor; there is a need for more specialized nursing oral health education globally. In particular, nursing knowledge of gastrointestinal endoscopy procedures is lacking, and merely providing endoscopy nurses with generic knowledge of the procedure does not mean that this knowledge is then transferred to practice, particularly if the practice is occasionally performed. All nurses, therefore, need a set of nursing guidelines for clinical endoscopic situations. With the knowledge of all nurses increased, this would enhance the patients' endoscopic experience and support the nursing staff with their professional education.

It was important for the unit to develop clinical guidelines, as it is considered essential to have clear, up-to-date guidelines written in an easy-to-use format for both the experienced specialist nurse and the occasional user. In line with this evidence, guidelines for practice have been an important focus for endoscopy nursing. Therefore, representatives of the nursing staff and radiographers in the unit developed guidelines in collaboration with other departments that perform endoscopy. The aim of this paper is to describe the development of the nursing guidelines and to examine the available evidence from the research studies for nursing in such interprofessional guidelines that can support the clinical development of nurses involved in endoscopy. The majority of the guidelines were produced after a review of the literature. Items needed for the complete guidelines were disseminated through the endoscopy committee for expert review, and all comments received were used to revise the guidelines. All guidelines were updated when required.

5.1. Evidence-Based Practices

Various studies have found nurses' knowledge and practice related to GI endoscopy procedures and complication management to be inadequate. The application of endoscopy guidelines was also low. Developing

evidence-based guidelines may enhance routine practice. The aim of this study was to develop nursing evidence-based practices in GI endoscopy. This study was an integrated mixed-method research. The study consisted of four main research methods: evidence reviews, observational studies, consensus-building studies, and exploratory studies.

The guideline was developed based on the results of eight components. The study results were reported in twenty-five guideline criteria and seven suggestions for best practices, identifying four scopes of practice and nursing roles. Evidence-based practices were developed by integrating expert consensus views, patients, guidelines from other disciplines, researcher observations, and qualitative findings. The study outputs consisting of guidelines, best practices, and nursing roles can enhance and promote operational functions, nursing care quality, and interdisciplinary practice. Future evaluations and revisions of the guideline should be completed. This finding may provide for and attract other health care team members who are involved in the GI endoscopy process as well.

5.2. Incorporating Best Practices in Nursing Guidelines

A nursing guideline incorporating evidence-based knowledge is recommended for structuring a systematic approach to nursing practice during each stage of a gastrointestinal endoscopy. Incorporating best practices not only promotes procedural safety but also helps create a culture of continuous learning and development within the team. In clinical practice, nurses often need specialized skills to respond to the complexity of gastrointestinal endoscopy. In light of this observation, the team continually improves the nursing team's specialized role and proposes a guideline for executive reference, which refines the core competencies required of endoscopy nurses. Institutional support, which includes sufficient time for specialized training and a stable staff with rotational guidance, is also necessary for achieving the safety of the practice environment.

When developed and properly implemented, nursing guidelines contribute to evidence-based practice and promote the achievement of standardization of nursing skills, as well as promoting the continuing education and expertise needed for gastroenterology nursing practice. The development of these guidelines provided expert consensus and a review of the literature, serving as a compilation of the endoscopy nursing practice best evidence, reflecting all the skills and knowledge required at all stages from the pre-procedure to the post-procedure in the role of nursing. The format of structured operational standards can help develop a consensus on nurses' professional role, thereby fostering the excellence of each nurse's work in laid-out standards and serving as a reference for the training of less experienced members, thereby maintaining institutional continuity.

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