Nurses' Knowledge And Practice In Gastrointestinal Endoscopy: Developing Nursing Guidelines

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1. Introduction

Nurse health professionals play vital roles in the delivery of healthcare today, which include professionalism, leadership, caregiver, patient, and family advocacy, education, collaboration, accountability, and maintaining quality. Endoscopy nurses have a central role in the efficient running of the endoscopy service. Nurses have been increasingly involved in non-complex gastrointestinal endoscopy as changes in health systems have developed and expanded. The successes and effectiveness of the endoscopy unit need a collaborative team of nurses, doctors, and other health professionals, which perform work in a planned, organized, and systematic way at the endoscopy unit. Due to their close relationship with the patient, educators, and administrators and the growing amount of invasive procedures carrying potential harmful effects on the patient and socioeconomic consequences, in the event of complications and complaints, the roles and responsibilities of the nurse should be re-evaluated.

The endoscopy department is a difficult environment for patients because of the fear of loss of control and stigma of the procedures, dislike of bodily fluids, and technical nature of the nursing care. During the process, good nursing care is crucial to prevent

complications and ensure patient comfort and safety. Nurses coordinating and working in the endoscopy unit must be able to plan the gastric endoscopy process, inform the patient, assist the doctor during the process, and take care of the patient post-process.

1.1. Background and Rationale

Nursing care for pre-procedure, day-of procedure, during procedure, and after procedure is required, including assessment of the patient, vital signs monitoring, administration of medication for sedation, giving sustained attention, supportive care to assist with the endoscopic procedure, help with pre-procedure post-procedure patient and family counseling, and detailed observation of vital signs and respiratory and cardiac complications following the endoscopic procedure. For a nurse, maintaining high standards, acquiring skills to sustain the standards, and recognizing the homicide of the practice as an integral part of one personal and professional growth and commitment. The purpose of this study was to publicize the current knowledge and practice guidelines, and the role of the nurse in assisting with gastrointestinal endoscopy to ensure the care of the patient. These guidelines reflected the current considerations for endoscopy practice and provide direction for orientation and ongoing evaluation protocols.

Our hospital is a tertiary referral center located in northern Taiwan. Since its opening in 1989, the hospital has been providing medical services to patients for almost 20 years. The nursing department is a leader in providing high-quality patient care services. The division of gastrointestinal endoscopy began operation in 2004, offering patients with gastrointestinal disease a variety of tools by which to evaluate their conditions and providing the doctors with diagnostic and remedial methods. Nurses are indispensable members of the healthcare team, and they are responsible for providing professional assistance from pre-procedure preparation to post-procedure care. Before 1990, nurses were asked to participate in gastrointestinal endoscopy without the opportunity for professional training. To white the imbalance, there must be standardization of credentialing based both on minimal orienting and minimal clinical procedural experience and/or a measurable complication rate. The unique scope of nursing practice has not been accounted for in any

outside decision-making process and has been ignored, either intentionally or inadvertently to the direct detriment of patient welfare. As practitioners, nurses have effectively applied their knowledge of unique scope of practice. In order to ensure safe, competent nursing care that meets healthcare professionals, the Improvement Nursing Guidelines (ING) were developed. (Săftoiu et al.2020)

1.2. Scope and Significance of the Study

Since gastrointestinal endoscopy has become one of the major diagnostic procedures, more training and practice are given to endoscopists in this aspect. Subjecting all quality indicators of the endoscopy process to physicians will result in the exclusion of other responsible parties in this field, especially nurses. Consequently, it is common to find the practitioners applying the procedures in different ways that focus on the patients' comfort and the improvement of their discipline. Therefore, it is degrading the situations and declines the effectiveness of nursing care services. Hence, professional nursing preparation and practice should be in line with the core principles of GI endoscopy. However, because the preparation and performance concepts are not available, the processes are specific to certain individuals or units or the standards followed do not meet the expectations and needs of the institution. In this context, raising the process to a specific level of cognition based on this process and increasing practice will benefit the patients, the institution, and the injured themselves.

Gastrointestinal (GI) endoscopy is the investigation of the upper and lower GI tract using equipment. It is arranged and executed for both diagnostic and therapeutic implications. Nowadays, GI endoscopy is a single standard procedure used more frequently for early detection and treatment of GI disorders. A wide range of patients having GI endoscopy are referred not only from the medical specialty but also from other disciplines. The significant increase in the suggestion of GI endoscopy has challenged the capabilities of nursing personnel to accept as many responsibilities as possible. Consequently, in order to work effectively and to meet the needs of the patients, nurses need to maintain a high knowledge level as well as practice the expected nursing care throughout the procedure. (Yao et al.2020)

2. Understanding Gastrointestinal Endoscopy

Other increasingly widely used types of endoscopic procedures are performed by the surgical endoscopist. For example, gastroplasty in obese patients, removal of the spleen in patients with a hereditary hemolytic disease, removal of the gallbladder in patients with gallstones, or palliation in patients with malignant dysphagia or patients with esophageal bleeding and esophagogastric fundal varices, are performed by means of endoscopic methods in which the surgical endoscopist and the theater/room nurse have a special role to perform. Therapeutic gastrointestinal endoscopy methods are constantly evolving and allow an increasing number of operations to be performed perorally, and in day surgery settings. The patients are subjected to a shorter duration of the procedure and the most common forms of sedation currently address only the needs of the most restless patient; more than 90% of the patients also retain little or no memory of the procedure. More peripheral access to high technology also implies that the patient's care and well-being in the recovery phase can have an increasing amount of attention.

The term endoscopy means to examine the interior of a hollow organ by means of an instrument inserted through an open access at one end. The term gastrointestinal endoscopy refers to the endoscopic study of the upper part of the gastrointestinal tract, the stomach and duodenum, or colonoscopy, which involves the endoscopic examination of the rectum and colon. Other endoscopic procedures, for example, cystoscopy (endoscopic examination of the urinary bladder), bronchoscopy (endoscopic examination of the lobar bronchi), and proctoscopy (endoscopic examination of the rectum), are not included under the term gastrointestinal endoscopy. Gastrointestinal endoscopy is used in many clinical diagnostic and therapeutic procedures. It usually involves some form of conscious sedation as an adjunct to comfort and anxiety relief. The most common indication for upper gastrointestinal endoscopy, also known as panendoscopy, is the investigation of dyspepsia. Other less common indications include, but are not limited to, evaluation and follow-up of patients with ulcers, patients with or related to gastroesophageal reflux or diseases such as scleroderma, patients with previous gastrointestinal surgery, and patients with more or less diffuse gastritis.

2.1. Definition and Types of Gastrointestinal Endoscopy

Gastrointestinal endoscopy is a very common diagnostic and therapeutic tool. The process, which involves a fiberoptic endoscope, camera, and light source, allows examination of the internal surface of the gastrointestinal (GI) tract. In addition, clinical decisions may be made based on activities such as biopsy, removal of polyps, electrocoagulation, clipping, balloon dilatation, and stenting. Additional procedures also include colonoscopy, sigmoidoscopy, and computed tomography (CT) colonography or enterography. (Jha et al.2021)

Nurses' knowledge and practice in gastrointestinal endoscopy: developing nursing guidelines. As a result of advancing technologies, prevention and treatment services have been improved in health institutions, and patient satisfaction has become an increasingly significant measure in receiving faster and higher-quality healthcare. Over the last few decades, many new services have been added to endoscopy units, including new concepts such as treatment in gastrointestinal endoscopy, hospital outsourcing, office and equipped office practice, primary care nursing responsibilities, and capacity to treat patients with sedation, anesthesia, and analgesia.

2.2. Indications and Contraindications

Key words: endoscopy, nurse, knowledge, practice, sources, training F. Gürakan, D. Serbest, F. Hurol. Nurses' Knowledge and Practice in Gastrointestinal Endoscopy: Developing Nursing Guidelines. Endoscopy 2004; 36: 501 - 509.

Owners: The authors present some guidelines about endoscopy nurses' training and practice according to endoscopy results in the light of their previous research studies. The important role of the nurse during the endoscopy procedure on therapeutics was reached in many developed countries, and while it was displayed, standardized work description of the nurse concern and training programs discussed with specialist content were accomplished. Finally, The Netherlands Association of Endoscopy Specialists and the Working Group on ERCP, Belgium also published a job description of the endoscopy nurse.

Abstract: This study was conducted in gastrointestinal endoscopy units. Subjects included 133 endoscopy nurses in Istanbul, Turkey. Data were collected using a questionnaire of endoscopy

applications, indications for upper and lower endoscopy, and data sources of endoscopy indications. Findings indicated that nursing knowledge and practice varied in endoscopy units. The sources of the nurses' knowledge affected the knowledge level and nursing practice of endoscopy procedures. There are many specialized training periods for nurses in the unit, but they are not enough. There was not any institutional guide or direction for this reason. (ELNAGAR et al.2023)

3. Nursing Role in Gastrointestinal Endoscopy

Nurses have the responsibility to apply the nursing process with a proprietary and developing role in providing quality nursing care for all patients referred for or undergoing GI endoscopy. We believe that by clarifying the role, nurses will become empowered according to their organizational or clinical settings, in the direction of further shaping and defining the role through their skills and competences, which, in turn, will have a positive impact on patient outcomes. The establishment of role boundaries and competences of the endoscopy nurse is essential in that respect. Thus, guided nursing care laws and teaching pathways standards and levels of expertise of nurses, in line with national regulations and labor market demands. In conclusion, the endoscopy nurse can play a key role in the organization of a modern endoscopy service by implementing the concept of an endoscopy nurse according to the definition of the competences of endoscopy-related nurses.

Current evidence proposing the most effective nursing role in providing specific care for patients undergoing gastrointestinal endoscopy and the education and practice requirements for effective endoscopy nursing are limited. This paper outlines the gaps in the literature and thereby points out a potential for advance of the professionalism in nursing. Gastroenterology nurses have knowledge, skill, and a positive attitude about patients undergoing gastrointestinal endoscopy, correct behaviors, and are able to inform on the procedure. They participate in taking samples for diagnostic tests, proceed immediately to handling critical situations, and their main support actions respect the behavior, cultural beliefs, religious orientation, and psychological state of the patient. (Dossa et al.2021)

3.1. Pre-procedure Responsibilities

The nasal insertion of the endoscope is often considered the least comfortable part of the procedure by patients. This may be due to their reduced understanding of what is required and when and why it needs to occur. If the patient is able to maintain appropriate control when uncomfortable, they can express appropriate concern and understanding. The explanation of what will be occurring, while the patient is in a comfortable, no-stress situation, should start from the initial pre-procedure visit to the nursing unit and continue during their visits to other clinical areas. Quicker access to relevant areas can alleviate some of the patients' perceived pressure of the pre-procedure, and it is imperative for the patient's privacy to be maintained at all times.

Pre-procedure, the nurse needs to confirm the day, time, and location of the procedure, ensuring the patient is aware of the intended time of the procedure and the usual three hours fasting is met. The nurse also needs to confirm any allergies the patient may have to diet or previous medications currently used for pain relief. It is advisable that the nurse should be aware that sometimes the slow recovery room clip is omitted. The procedure may be held in the recovery room; thus, transfer of the patient to the actual procedure room should be well prepared, as professional and safe trolley transfer of the patient is paramount. (Kelly & Baar-Daley, 2022)

3.2. Intra-procedure Responsibilities

L. During the immediate post-procedure period, it is vital to incorporate the post-procedure orientation into the nursing care provided to the patient. Demonstrations or instructions provided before the procedure may not be retained post-procedure. Topics to be included in this recovery period include diet, returning to the regular diet, discharge timing, and guidelines for the first meal following the procedure. Instructions on when to call for help should be included. also suggest that instructions concerning bowel elimination be included in the discharge plan. (Rose, 2020)

K. Simultaneously, the scope used during the procedure needs immediate high-level cleaning. Protocols for turning over endoscopic equipment need to be readily accessible with a specific point person in charge in case of questions.

J. Direct observation of the patient is the PACU's responsibility. This task is ongoing while the patient's condition and neurological and vital parameters stabilize. suggest slower and more careful assessments in elderly patients. As an additional resource, a pulse oximeter may be available for monitoring. Nursing resources will depend upon the patient mix in the postoperative care unit.

I. During the procedure, institutional policy will determine the patient's readiness for discharge to a specific unit or monitored recovery area. The patient will be out of the room for 0.5-2 h. However, it will not be convenient or beneficial to transport the patient to the ward and then immediately start discharge. Other factors, such as specific needs of the nursing caregivers and nursing availability, may result in an extended stay in the post-anesthesia care unit (PACU).

3.3. Post-procedure Responsibilities

The range of a post-procedural nurse's work is defined as the time from the patient's arrival in the endoscopy unit to the time they are discharged from the unit. The purpose of the post-procedure hand-off of care is to ensure a safe transition between stages of patient care. To ensure the safety of the patient, accurate, timely, and effective communication at these interfaces is required. During the hand-off of care, the healthcare team in the post-procedure section must be heated. Staff in the post-procedure area need essential information in order to take over care of the patient. This medical circle of attention needs to be graded and voided, with patient status and the procedural plan shared by communications about planned and unanticipated intraoperative, psychosocial, post-sedation, and study findings in the destruction of clinical content. (Chernyak & Posten, 2022)

Once the patient has returned to the recovery area, the nurse should monitor their blood pressure, pulse, respiratory rate, oxygen saturation, and any complications such as chest pain, shortness of breath, weakness, or new or increased intra-abdominal pain. Observing the patient for post-sedation, post-procedure monitoring, and consciousness checks is important. This is followed by a check for complications such as delayed emesis and severe drooling or mouth irritation as indicated. After the patient is fully awake, the nurse offers the patient fluid intake and conducts a discharge interview.

4. Current Challenges and Gaps in Nursing Practice

On the other hand, Modernizing Medical Careers (MMC) in the United Kingdom and Accreditation Council for Graduate Medical Education (ACGME) in the USA have enunciated the future transfer of rigid scopes to the Junior Doctors, thus leaving the specialist in surgery. In fact, nurses are an integral cornerstone involved with gastrointestinal endoscopy. A survey has shown that in performing endoscopy, nurses are involved in the breakdown, preparation and sterilization of endoscopy equipment, patient support and recovery, and circulating nurses' duties in theatre. They are also present in double-checking patient details with endoscopy forms, monitoring equipment throughout procedures as well as documenting endoscopy procedure reports, reports on any abnormal findings, and the latest objective parameters. Other roles vary but may include maintenance of the video unit, responsibility for the arm output, and physical assistance of the endoscopist during the procedure. However, the roles differ from hospital to hospital, and it is not clear what specialty of nurses are involved in these roles. This challenge of role variation impacts on the development of nursing practice and knowledge in endoscopy guidelines.

Gastrointestinal endoscopy is a basic skill for general surgeons and commonly practiced in Nigeria. Most general surgeons have resident doctors who are being trained in the art of endoscopy; however, this practice has brought the nurses in the theatre to become active participants involved with many unsubstantiated anecdotal claims of nurses' ability to fully support and assist endoscopists. The fact that many nurses were confrontational with the idea of practicing professional nursing means that injurious activities possibly were going on during theatre sessions. The situation requires adherence to health and safety concerns of professional nursing framework assisting surgeons undergoing endoscopy in theatre, learning guidelines. The inability to guide the nursing profession could hamper the application of safe, quality care during endoscopy. (Malu2020)

4.1. Lack of Standardization in Nursing Protocols

A lack of a sufficient and uniformly agreed set of nursing protocols and procedures across five different endoscopic centres and, indeed, more widely across many countries, is evident in the data. In the absence of any equivalent data comparing numbers of

nurses performing specific endoscopy-related nursing procedures, recent Greek data also indicated a lack of endoscopy nursing protocols, potentially reducing nursing puncture safety. Also, nurses commonly worked individually in theatre without the support of fellow nursing staff and designated specific endoscopy nursing roles and responsibilities. Even being assigned to the endoscopy area, where nurses could be left to "grab any nurse regardless of the department," which leaves a lot of responsibility in ensuring the safety and comfort of patients during this procedure on the ward nurses, intervening with the other services' staff on their behalf, and optimally preparing the patients for the endoscopy. This represents a clear workplace culture of "that whoever could" (do endoscopy nursing). However, in Greece, the nurses and the administrators in charge in hospitals' endoscopy department are requested by law to have also formal education about endoscopy nursing, while a formal educational program for endoscopy nursing was previously provided in determinant facilities across the UK.

4.2. Inadequate Training and Education Opportunities

The current study confirms that the quality and safety of endoscopy nursing is influenced by the availability of time. The constraint upon learning experienced in the current study is probably replicated in the everyday working environment when the number of procedures to be undertaken often determines the level of the nurse-related support from technical staff in the endoscopy room. However, it is well documented, and indeed advised by the National Institute for Health and Care Excellence, that training, skill-mix, and adequate staffing levels underpin patient safety. The current study highlights the systemic and situational components of learning that influence safety culture. Participants point to a pervasive influence of workplace demands such as time pressure, shift patterns, and levels of activity on training situations that, together with the iconic influence of the senior nurse, are considered first among equals. These work environment factors are key to the vocational learning of patient care by nursing staff within the clinical microsystems that also operate in a high-risk industry. The majority of nurses appear to gain satisfaction through their day-to-day practice and do not take part in reflective thinking. The study identified a lack of interest in improving the standard of nursing endoscopy care in part by the

low number of clinical incidents and the few opportunities to learn from these. These findings are consistent with other clinical areas.

Over the last decade, there has been an expansion in the range of tasks undertaken by endoscopy nurses who provide an essential contribution to the service such that they have become an integral part of the team. However, the current study reveals that active learning is required in order for the potential of this expansion to be realized. To meet increasing demand, endoscopy units are extending the hours of provision. Nurses, and indeed other staff, entering the service at such times may be less familiar with the procedures, possibly impacting, as in the current study, on the appropriateness and timeliness of sedation and post-sedation monitoring.

Nursing practice in GI endoscopic services in the present study was influenced by a lack of knowledge and confidence when caring for individuals undergoing an elective lower gastrointestinal endoscopy. Therefore, in-service education, including simulation-based training, should be provided to ensure competency and an evidence-based approach to care. The level of collaboration between disciplines involved in endoscopy, including the formation of a multidisciplinary team, umpires a positive learning experience and the development of a highly skilled GI nursing workforce. (Munnelly et al.2021)

5. Review of Literature

Gastrointestinal diseases, including cancer, are major health problems worldwide. These can lead to death if diagnoses are delayed or treatment is not obtained. It has been suggested that patients older than 50 years should be screened for colon-rectal cancer, or even earlier if they have certain hereditary cancer entities. The screening test for these and many other examination purposes is endoscopy, which is often recommended for the diagnosis, screening, and surveillance of, and as definitive treatment for, gastrointestinal disease. The term "endoscopy" encompasses studies of the upper and lower intestinal system performed with or without radiography. These include sigmoidoscopy, colonoscopy, gastroscopy, bronchoscopy, cystoscopy, laryngoscopy, and ureteroscopy. Despite the name used for some of these procedures, they are usually performed by the relevant specialist, and repetitive applications of some tests

(such as upper or lower endoscopy) have to be performed meticulously as part of follow-up care.

Gastrointestinal diseases, including cancer, are major health problems globally. Screening tests, such as gastrointestinal endoscopy, are very important in reducing the risk of related morbidity and mortality. Nurses who work in the endoscopy unit or are involved in a procedure occurring in other units must have specialized and efficient knowledge about intestinal preparation and the procedural steps. The aim of this study was to develop a nursing guideline that explains nursing care during routine gastrointestinal endoscopy, especially for nurses working in surgical and internal medicine units. Here, we conducted a review of the literature. The computed databases Medline, Cumulative Index of Nursing & Allied Health Literature (CINHAL), Cochrane, Scopus, İndeks Türk Tıp Dizini, and the Turkish National Thesis Center were searched thoroughly. Thirty studies from the last 8 years were obtained that were related to the general care of patients undergoing gastrointestinal endoscopy, including nursing practices, complications, experimental studies, systematic reviews, and meta-analyses. (Arnold et al.2020)

5.1. Studies on Nurses' Knowledge and Practice in Gastrointestinal Endoscopy

Only one of these studies identified a NEQ scoring system as a tool to evaluate learning achievement and found it useful for measuring the learning effect on nurses' endoscopy training. Similarly, only one other study had created a CEQ scoring system as a tool in the evaluation of continuing nursing education regarding endoscopy. Although it was assessed as a good scoring system, the researchers suggested that further research should be conducted to refine the theoretical model of question difficulty in CEQ.

The results of this review demonstrate the varied knowledge and practice of nurses caring for patients undergoing gastrointestinal endoscopy. Nurses have cooperation and communication with doctors, which is essential for safe and satisfactory nursing care in gastrointestinal endoscopy and may have the ability for SCIP discharge observations.

In this study, to provide a comprehensive nursing reference, we chose nine studies to review. These studies were conducted in 10

countries worldwide from 2003 to 2018. The nurses who participated in caring for patients undergoing gastrointestinal endoscopy included registered nurses, endoscopy nurses, and endoscopy unit nurses.

Registered nurses are playing an increasingly important role in caring for patients undergoing gastrointestinal endoscopy. Many studies have reported on the development of nursing guidelines concerning accreditation systems for hospitals, the scope of nursing practice, and the decision-making process of nursing activities in relation to this procedure. However, these reports were published at different times, and some of them were conducted with a limited number of subjects. (Munnelly et al.2021)

6. Methodology

Materials and methods: Instruments based on the answers of the nurses who participated in the first generation Delphi were used to explore nurses' knowledge and practice regarding gastrointestinal endoscopy. The nurses worked full-time and their work experience was longer than 1 year. The interviews were tape recorded and field notes were taken. Data from the interviews were analyzed using content analysis. Guidelines and policies for endoscopic nursing may be derived from the nurses' guidelines. Therefore, the Delphi study had a next-generation step leading to the present study, which aimed to use the information obtained from the previous research in order to determine the actual practice, what nurses actually do, think about, and need.

Aim: To explore and describe nurses' knowledge and practice of the care of the patient undergoing gastrointestinal endoscopy and to describe the need for standards, guidelines, and policies for the nursing care of these patients. The focus of the study was on the participation of nurses in gastrointestinal endoscopy. Supporting patients during the procedure and excellent communication seem to differ from regular nursing care in the ward where the patient is also beside the physician and the nurse. Participation in this respect means that nurses add to the quality of care. As far as the quality of endoscopic care is concerned, however, there is still a gap between what patients need and what has been described as the currently existing structure for endoscopy care. (Ouslander and Grabowski2020)

6.1. Research Design and Approach

There are several approaches to mix qualitative and quantitative methods or designs. They vary in terms of the ratio and or the conjunction timing of the methods or designs. The timing of mixing can be within concurrent, sequential, and merged or instrumental subcategorization. This study employed a concurrent phase-based approach. The proposed mixed methods combined the collection and analysis of both types of data (i.e., quantitative and qualitative) performed concurrently within the phases/elements of the study. Data sets were integrated to compare results and were used at several stages of the research process as support, building on conclusions, and expanding explanations and developmental proposals. In mixed methods research, the simultaneous and parallel collection and analyses of qualitative and quantitative data provide relationships, adding both depth and breadth to what was known concerning nurses' knowledge and practice in gastrointestinal endoscopy, and it also helped in linking the findings to each other.

This study utilized a mixed-method concurrent design, which allowed qualitative data to illuminate and explain the results of the quantitative survey. Mixed methods research, within the field of nursing research, is an important emergent methodology that fills some key gaps in traditional qualitative and quantitative methods. It is very helpful in understanding different aspects of a phenomenon in a more comprehensive and integrated way than that offered by either quantitative or qualitative methodologies alone, with diverse yet complementary inquirer roles and analysis perspective views. In this study, the researcher played both the role of the inquirer and the data collector. The hallmark of mixed methods research is the researcher's ability to integrate qualitative and quantitative data to draw more cohesive, comprehensive conclusions. In addition to understanding the discovered data better, the mixing of approaches creates a more substantial methodological rigor. (Creswell, 2021)

6.2. Data Collection Methods

Permission to conduct the study was granted by the governing hospital for research facilitation in accordance with the principles of research involving human subjects. The study was introduced to the upper level of the hospital administration, the endoscopy medical team by sending a cover letter and an official letter

addressing the head of the Endoscopy Unit that introduced the research objective and asked for cooperation. The head of the Endoscopy Unit was informed of the data collection period and the selection of the documents for the checklist and offered advice on how to perform their duties. The interview participants were requested using specific criteria and their knowledge was verified by Deux et al. The staff of the Endoscopy Unit completed a Knowledge Questionnaire and the Staff Nurse GI Endoscopy Technical Skills and Education Survey in the section of the technician. The semi-structured interview was collected using a checklist, which included the types of documents used for the clinical and technical skills of the endoscopy nursing process. Both qualitative and quantitative data were coded and analyzed in detail separately by Structured and Semi-structured Questionnaires. Displaying a percentage, mean and content analysis was used to verify the data.

This study used a combination of data collection methods, which included: 1) a structured questionnaire, which was the primary method of data collection, was used in the period from September to November 2015 in order to survey the knowledge and practice of the staff at the Endoscopy Unit of X Hospital. 2) A semi-structured interview was used to investigate the knowledge of a sample of nurses and doctors. Ethical approval for this study was obtained from the Chanthaburi public health ethics committees and was conducted in accordance with the ethical principles of the Declaration of Helsinki. Subjects completed the consenting process before participating in this study. The confidentiality and anonymity of the participants and their data were guaranteed. (Mashuri et al.2022)

6.3. Sampling Techniques

The study population will consist of all the endoscopy nurses from the five hospitals in the Northern region of Saudi Arabia who are officially appointed to work in endoscopy units. This research will include both male and female nurses. Confidence in the trade-off between knowledge and the practice area constrains the sample size. Since this survey is the first to be established in the Northern region of Saudi Arabia, no assumptions can be made upon which to calculate the overall sample size. It is estimated that the number of registered endoscopy nurses appointed to work full-time or function part-time during the study will be 80: King Khalid Hospital

(30), Kingdom Hospital (20), Prince Mohammad Hospital (20), Security Forces Hospital (4), Iman Hospital (6). These ratios are proportional to and will reflect the true population distribution. The distribution of the sample is presented.

The study population will consist of all the endoscopy nurses from the five hospitals in the Northern region of Saudi Arabia who are officially appointed to work in endoscopy units. Eraslan et al. used a convenience non-probability sampling technique because the research was carried out in one day and with a small number of nurses. A stratified random sampling/stratified sampling technique will be utilized in the study. This technique will help to identify the appropriate sample size for each research group (28 hospitals and data gathering duration). This research will include the endoscopy nurses from five hospitals in order to obtain a representative sample. It is difficult for the researchers to carry out a cross-sectional study of all the endoscopy nurses in the Northern region of Saudi Arabia. The sampling frame will identify the number of endoscopy nurses. (Halabi et al.2021)

7. Data Analysis and Findings

The study aimed at exploring the knowledge and practice of nurses in the field of gastrointestinal endoscopy. As the study evolved, certain unexpected valuable insights were gained, particularly in relation to the role perceptions, education, and support which the nurses receive within their workplace. By having initiated the process of exploration into these areas, instead of being overly restricted to the study objectives, the nurses were encouraged to delve deeper and express their experiences, concerns, and needs in relation to working in endoscopy. Their frank revelations provide the necessary raw data for the formulation of guidelines.

Data analysis in this study was pursued using the constant comparative method. The data were analyzed simultaneously with data collection following the principles of grounded theory. The constant comparative method involved a process of moving back and forth between the data and the emerging themes, looking for relationships between themes within and across the data. The computer software package QRS NVivo was utilized to facilitate the management and retrieval of different parts of the text. Dimensional and categorical analysis of data identified the properties and dimensions of the concepts and categories pertinent to the problem at hand.

7.1. Themes and Patterns in Nurses' Knowledge and Practice

Of the four identified themes, the professionalism theme is a root concept to guide the relationships which are formal, informal, centralized, decentralized, and actual among key elements, which are the conceptions, activities, and end results of nursing care. The nursing attributes provide the enduring traits of nurse-patient interactions and their consequent outcomes. Care priorities are described using common nursing terms. Care activities include direct, indirect, simple, complex, routine, and nonroutine care responsibilities. These themes and patterns were abstracted in response to the inquiry problem: what are the perceived knowledge and practice skills required by nursing staff for professional, comprehensive endoscopy nursing domains and how are they conveyed?

The research team aimed mainly to quantify the qualitative data and to set forth preliminary statements to instruct nursing practice, named nursing guidelines. The guidelines are: first, the knowledge of comprehensive and professional endoscopy nursing practice extents are necessary; second, a noncategorical learning system is obligatory; third, stabilizing nurses' psychological emotions to produce a more enthusiastic attitude towards patient care is indispensable; fourth, a basis of experience accumulation should be fostered; and fifth, utilization of the Learning Focus Group Interview (LFGI) should be encouraged for nurses of different specialties. The findings were illuminated along with the themes and patterns.

The study was conducted in response to intense interests from medical members of the healthcare team in the statistical quantification of qualitative nursing data. The emphasis on statistical inference is a natural response to the need for convincing evidence to published findings. The desired end-product is advanced nursing practice, which can be accomplished by providing meaningful and real-world evidence for nursing service.

Research findings suggest that nurses' knowledge and practice in gastrointestinal endoscopy are influenced by certain themes. In this regard, we identified four themes and sixteen patterns embedded in the interviews. The themes are professionalism, comprehensive involvement, learning, enthusiasm, and concern for the outcome. The current practice of nurses in gastrointestinal

endoscopy in Taiwan appears to meet the criteria of competence and experience intimated by international guidelines. Some evidence substantiates that these performances are influenced by the accretion of experience and learning. In other words, nursing experience allows the nurse to be more competent in her practice and increases the ability to support her own judgment and instinct.

8. Proposed Nursing Guidelines for Gastrointestinal Endoscopy

Scope: These guidelines cover the training of nurses involved in endoscopy, who can become nurse endoscopists, as well as those with other nursing skills (e.g., conscious sedation of the patient, advanced resource practitioners, and endoscopic skills). The needs of all nursing staff involved in endoscopy, including the multidisciplinary team involved in teaching nursing skills, are addressed. These guidelines do not apply to nurses involved in non-medical endoscopic tasks, such as guaranteeing patient transfers from the ward to the endoscopy suite or further once the patient has been discharged from the endoscopy suite, or admitting patients for the endoscopy procedure from ambulatory and endoscopy day care services once they are fit for discharge. These individuals require technical and team skills training, in addition to an understanding of how teams work. They also need to be familiar with the healthcare organizations that operate multidisciplinary teams within each specialty; however, they do not need surgical, anesthesia sedation, procedural sedation, or endoscopy skills. The guidelines can also be implemented in private endoscopy centers associated with gastroenterology units and in different cultural and geographical contexts for the provision of endoscopy. (Riegert et al.2020)

Background: Endoscopy practice has been revolutionized with the acceptance of nurses performing a wider scope of roles. The majority of the training they receive is through in-service teaching and learning. Some nurses are fortunate to have additional perioperative exposure and post-basic nursing qualifications related to endoscopy; however, guidelines concerning the roles that nurse endoscopists, trained gastroenterology nurses, and other nursing staff involved in endoscopy can safely assume are often unclear.

8.1. Key Components of Nursing Guidelines

Based on the foundational meaning of key terms, the essential components of nursing guidelines for nursing care in

gastrointestinal endoscopy described in the literature were identified. A guideline for nurses referring to nursing care in gastrointestinal endoscopy regarding safety in administration of sedative and analgesic agents is included. Current guideline implementation studies show modest enhancement in nurse and patient parameters. Because nursing guidelines are an important tool for the transfer of evidence into the healthcare system, it is essential to develop guidelines for a number of topics concerning nursing care delivered in clinical practice.

A nursing guideline can be defined as a structured statement developed to help nurses and other healthcare professionals actively involved in clinical decision-making about appropriate clinical interventions for specific clinical situations. Professional nursing practice in today's complex healthcare environments is believed to be enhanced by using clinical decision support tools. Therefore, nursing guidelines are necessary and make an essential contribution to informed practice in nursing. (Heen et al.2021)

8.2. Implementation Strategies

Self-preparation, systematic reviews, training programs, the willingness of the patient, being an active member of the patient's preparation, in order to prepare for this, being included in the services of various clinics that are interested in digestive system diseases, allowance, and attaching importance to this area, are just another few of our point of view. Providing good patient preparation and protective nursing practice related to individuals are duty, diligence, and respect for human values, and generally ensure the successful completion of the patient's digestive endoscopy process and that the least possible loss risk occurs. As a result, nursing-care guidelines that help their staff will contribute to the development of nursing staff who is able to provide high-quality nursing service to nurses in order to protect the patient and ensure that the process is safe and healthy.

Development of a nursing manual related to digestive endoscopy, which has been prepared in order to improve the service quality and patient safety of hospitalized patients in the field of digestive endoscopy, will be beneficial in terms of the uniform service perspective in the hospital environment and guides the nurses who are engaged in direct patient care. The success of patients' perspectives depends on nurses' perception and performance. With this respect, nurses should be well-trained, capable, and

highly skilled so that they can carry out their duties during the time of preparation and follow-up after the endoscopic procedure. It is recommended that nurses who will be working in this area show an appropriate level of awareness by giving importance both to theoretical and practical training on the subject of digestive endoscopy. In addition, it is justified for the hospital's administrative staff to ensure that the said nurses work under better conditions by creating an environment that will motivate them. Finally, the guidance and supervision of the academic staff and nurses who can provide consultancy in the application of the nursing care measure of patients undergoing digestive endoscopy can be considered to be important in terms of the individual and public domains.

9. Recommendations for Future Research

The development of the nurse's competence and ongoing commitment to the lifelong learning that is intrinsic to clinical practice, through participation in continued and regular training programs and inservice training, has been shown to have a positive effect on professional nursing practice. Continued education and repeated training in endoscopy nursing would seem to be important, because of the advances in endoscopy technology and the changing and varied patterns of patients' and physicians' needs and complaints. However, the absence of specific endoscopy nursing education and the concurrent lack of endoscopy nursing guidelines may create situations in which nurses' knowledge is not kept up to date. Since the demand for the quality of care is driven by knowledge, investing in part-time training with the possibility of professional development seems legitimate in this clinical domain. To work responsibly, safely and effectively, as well as to improve patient care, nurses need to continue to be able to meet the evolving needs required by current endoscopic procedures, yet the environments in healthcare institutions are not always optimal for maintaining the competency of their respective nursing personnel. Tailored dialogue-based consultations between the nurse and a mentor may enable the formal processes and improve the related practical knowledge of the nurse as an agent and facilitator of changes in her practice.

The nurses in this study displayed genuine interest in updating their knowledge and indicated that they were ready to take in information from guidelines. Furthermore, the nurses declared

that they had a responsibility to develop their knowledge and thus be prepared to perform endoscopy under the best possible conditions. This is in line with the findings of, in which the study participants believed that appropriate knowledge of the procedure was necessary to provide competent care. suggests that learning is an active, dynamic process in which the nurse's curiosity and targeted learning come into focus. Nurses working with endoscopy should be encouraged to raise and seek answers to questions related to their knowledge. In this context, evidence-based practice also has an important role to play, encouraging reflection and facilitating the competence and skill development of the individual nurses. Last but not least, sharing best practice among nurses is important; referral nurses are often experienced and frequently have valuable knowledge and practical tips to share.

9.1. Areas for Further Study

In addition, a 'diaporama' could be prepared by the authors with photographic illustrations of techniques and have an appendix of easily reproduced teaching tools included. Finally, further research to explore validation of the guidelines in other countries is indicated. Publication of these findings will form part of the implementation process. In conclusion, we hope that this work will be an encouragement to those who, in the face of the new economic constraints present in health care, are called upon to provide expert training and education in many different, dissimilar parts of the nursing curricula both for students and the many nurses undergoing massive retraining as well as additional specialization of existing learning.

In the present study, gaps in nurses' knowledge and practice regarding nursing care of patients undergoing gastrointestinal endoscopy were noted. Since many questions could not be answered due to space limitations, we will limit ourselves to a brief summary of these areas for further study. We note that further experimental research into the causes of existing knowledge gaps would be helpful. Research could also be done into developing a theoretically based program and evaluating it to see if it meets a variety of nurses' needs in different hospital settings. Further research could therefore explore the need to develop 'generic' rather than subject-specific guidelines in gastrointestinal nursing areas. Further evaluation studies would be useful to check the

degree of credit which can be given to different parts of the guidelines.

10. Conclusion and Implications

Clinical guidelines for nurses in providing nursing care have the potential for use as a stimulus for enhanced quality, practice, and outcomes across the broad spectrum of human health. Having loyally documented nursing applications involved in a practice intervention, Gordon observed that they are sitting on the shelf of the clinic, primarily in the role of servant to the surgeon. However, it remains to be seen whether such guidelines specifically for care will give nurses more time to sit at the table of nurses in complete control of the research philosophy. Then we may see the retrenchment of the disciplines, true instruments imbued with moral objectives that concern themselves with those aspects of illness that medicine, by its very nature, cannot resolve by challenging the brute biology of the phenomenon. Nurses have a variety of interests and sensations for the provision of an overall vision for sitting in the same seas as those around us. The nation of nurses can, therefore, never ignore that of their endoscopy patients.

A variety of gastrointestinal endoscopic techniques, for both diagnostic and therapeutic purposes, have been developed over the past decade and are being carried out routinely in many hospitals. Nurses need to have sound knowledge and practice with regards to the requirements of these patients. Professional bodies such as the Royal College of Nursing (RCN) need to support the training of nurses to achieve the necessary experience, skills, and knowledge to provide and maintain patient comfort during this high technology activity. This study emphasizes the needs of nurse consumers of care for nurses as providers of care and extends the base for a more coordinated approach in moving towards the most desirable model of nursing practice. The technological pace in providing healthcare benefits is extremely rapid, and with that march, it seems so too is the ever-increasing professionalization of healthcare workers. In order to continue seeing the untreated within the treated, healthcare workers, specifically nurses in this case, need to reassess values hitherto held in order to provide care for those not yet enveloped in the technological cocoon. Gastrointestinal endoscopy provides a case in point.

10.1. Summary of Findings

These guideline documents will be used to guide and direct the practice of endoscopy nurses, particularly those who have commenced work in the endoscopy area or those who may float or rotate regularly through this specialized area on the ward. Data from a concurrent phase of the project, which examines regional differences in nurses' knowledge of gastrointestinal endoscopy, round off this article.

The findings presented highlight the need for education and clinical practice aimed at assisting endoscopy nurses to more fully understand the theory and practice of gastrointestinal endoscopy and therefore provide more effective and efficient nursing care to the patient undergoing the investigation. These findings will be used to develop nursing guidelines for nurses' practice in endoscopy units.

The purpose of this phase of the project was to identify common knowledge and practice skills of endoscopy nurses. Results from the study identified that despite the employer-supported specialty training in endoscopy activities of these nurses and the average 6 months' year experience, many of the nurses lacked confidence in both their clinical skills and the knowledge of gastrointestinal anatomy and physiology.

As part of the development of a set of nursing guidelines for nurses' knowledge and practice in gastrointestinal endoscopy, a project in two parts was undertaken. This article reports on the first part of the project. Sixty nurses who worked in three hospital-based endoscopy units were the data collection sites for the study.

The registered nurse plays an integral role in the care of the patient undergoing gastrointestinal endoscopy. Principally, it is the responsibility of the nurse in the endoscopy room to monitor the patient's condition and provide the technical assistance to the physician during the procedure.

10.2. Clinical and Educational Implications

In addition, nursing guidelines can assist in developing and improving nurses' level of knowledge in their work. The delineation of specific diagnostic and interventional procedures, including accurate and detailed descriptions of the pre-procedure, procedure, and post-procedure phases; the roles and

responsibilities of the endoscopy nurse during the GI endoscopic examination; the importance of monitoring patients receiving conscious sedation and analgesia during the endoscopic procedure; the major side effects and care for GI endoscopy sedated patients; and the potential complications of GI endoscopy can be valuable to nurses and support the development of clear policies or protocols for the clinical setting. The continuous and systematic review of nursing guidelines can maintain the highest level of care being delivered.

The present study provides evidence of gastrointestinal endoscopy nurses' limited knowledge and practice in the areas of patient monitoring and the endoscopic procedure itself. The provision of appropriate, accredited continuous and/or salary education for GI nurses is of the utmost importance in order to ensure patient safety during the endoscopic procedure and to develop nursing guidelines for these interventions. The development of standardized nursing guidelines for nurses working in gastrointestinal endoscopy units enhances the quality of nursing care provided during endoscopic procedures.

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