

# Effect of Protocol of Nursing Intervention on Quality of Care in Upper Endoscopy Unit

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**Abstract:** We are challenged to assess the quality of the services we provide. Endoscopy nurses play a critical role in the provision of safe & high quality endoscopy care. This study aimed to evaluate effectiveness of protocol of nursing intervention on the indicators of quality of care (patient's satisfaction, patient education, patient's complains and complications) in upper endoscopy unit. A quasi-experimental study of two groups of patients was undertaken in upper endoscopy unit at Menoufia University hospital in Egypt. All patients undergoing upper endoscopy and discharged to their place of residence, between the hours of 0.8 AM to 0. 2 PM for a period of 8 weeks were eligible for the study. They were recruited into two groups one before the introduction of the intervention (n= 30) and one after the introduction of the intervention (n=30).The protocol of nursing intervention comprised three separate components: 1) In-service training workshop for all staff in upper endoscopy unit about principles of care; 2) patient education and 3) development of a patient liaison nurse who ensured optimal staff-patient community communication and played a role in staff communication education). Data were collected using the following tools:1)Interviewing Questionnaire to assess a- Patient's Sociodemographic and Medical data and b-Patient's Information and 2) Patient Satisfaction Questionnaire to assess Patient's Satisfaction. The quality of care was better in post- intervention group compared with the pre-intervention one. Significant improvements were observed in the post-intervention group in patients' satisfaction and provision of discharge planning (p<0.05), and there was a decrease in the number of patient complaints received in post-intervention period (28 (93.33) - 11 (36.67)).The findings of the present study concluded that the protocol of nursing intervention implemented in upper endoscopy unit had positive impact on quality of care which indicated by improvements in patient satisfaction and discharge information and decrease in patient complains.

**Keywords:** Upper endoscopy, Quality of care, Patients' satisfaction.

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## 1. INTRODUCTION

Quality of Care has come to the forefront of our attention in the recent years and work with quality of care and quality improvement (QI) has been a continuously ongoing process in health care, nationally and internationally. However, some healthcare areas have been explored and developed more than others (Brent et.al 2015). Quality of care is complex and definitions have been discussed by many researchers and within different health care-related professions (Bergman et.al, 2007). Donabedian's definition (1988) says that quality of care is a combination of technical, interpersonal and organizational aspects. This definition is a common basis for today's QI work. Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge ( Chassin and Galvin,1998).

In upper endoscopy units the quality of patient care may overlooked as, by the nature of the unit, patient stays are of short duration, lack of clarity as to who is responsible for patient education as well as time pressures (service pressures in the emergency department) may hinder effective care. Upper endoscopy, is a visual examination of the lining of the

esophagus, stomach and upper section of the small intestine using a flexible tube with a miniature lighted camera, known as a fiber-optic endoscope. Patients suffer from peptic ulcer or bleeding, esophageal and gastric cancer, symptoms of indigestion, acid reflux or difficulty in swallowing should all receive gastroscopy examination. It is more accurate than X-rays for examining the inside of the upper digestive system. In addition, abnormalities can be treated through the endoscope for example, polyps, strictures of the esophagus, stomach, or duodenum and bleeding due to ulcers, cancer or varices. Usually performed as an outpatient procedure and sometimes must be performed in the hospital or emergency room to both identify and treat conditions such as upper digestive system bleeding. (Hinkle & Cheever, 2018).

A high quality endoscopic procedure ensures that therapy is properly performed with minimal risk and ensures satisfaction of the patients (Rees et al. 2014). Endoscopy nurses play a critical role in the provision of safe, high quality endoscopy and have many tasks. Prepares the endoscopic room with the right instrument and necessary devices for examination of the upper GI tract. It is also crucial that the nurse gives the right information about the procedure to the patient, to relieve anxiety and to give explanations about the modality of the endoscopic procedure. During the procedure the nurse must help the endoscopist and, when indicated, the anesthetist. After the completion of the procedure, the nurse must carry-on with the reprocessing of the endoscopic instrument & of the devices and monitoring patient for early signs of any possible complications (fever, swallowing or increasing throat, chest or abdominal pain) (Salvetto, 2007; Petersen, 2011).

The American Society of Gastrointestinal Endoscopy (ASGE) and American College of Gastroenterology (ACG) joint task force have stressed the need of monitoring quality in all endoscopic facilities. They concluded that all quality indicators may not apply in all practice setting and they should be modified according to the local requirements. (Bjorkman and Popp, 2006; Rex et al. 2006; Jonathan & Irving, 2015). Quality indicators are defined as "a quantitative measure that can be used as a guide to monitor and evaluate the quality of important patient care and support service activities" (Idvall, 2009). In upper endoscopy unit patient's satisfaction with care, patient's education, patient's complaints and procedure complications are often seen as an indicator for quality of care.

*Patient satisfaction (PS)* or patient perception of the quality of care is often seen as an important component in assessing the quality of care. However there are limited published studies on patient satisfaction towards endoscopy (Brent et al. 2015; and Elder et al. 2004; Azmi et al. 2012). Patient feedback may lead to higher standards, improved endoscopist performance and accountability, enhanced risk management and a higher quality of care. Satisfied patients are more likely to comply with medication regimens, and continue using medical services and individual care providers (Ko et al., 2009). Some classify patient satisfaction as a component of outcomes; others view consider it as a separate dimension. Various dimensions of patient satisfaction have been identified, ranging from admission to discharge services, as well as from medical care to interpersonal communication. Well-recognized criteria include responsiveness, communication, attitude, clinical skill, comforting skill, amenities, food services, etc. (Rubin, 2000; Rubin, 2004; Carey & Seibert, 2003).

*Patient pre-procedure education* (regarding the indication of the procedure, preparation for the procedure, alternatives of the procedure, potential complications of the procedure and the impact on patient future management) should be provided to the patients by the physician and paramedical staff and assessed through an interview before the patient was discharged from the endoscopy suite. It has been reported that the provision of information has a significant impact on patients' perception of the quality of care and overall satisfaction (Berwick, 2003; Ko et al. 2009). The provision of information to assist with transition home and self-care once discharged has beneficial effects as reduced length of hospital stay, improved quality of home care, increased patient satisfaction and a reduction in unplanned hospital readmissions (Holland et al 2003).

*Patient complaints* are also related to their satisfaction with the service provided and analyses of the nature of complaints is thought to allow the identification of problems and to assist in their elimination (Sun et al 2000). Accordingly, many authorities believe that quality assurance measures should include patient satisfaction and complaint analyses (Taylor et al, 2004). As most complaints appear to be resolvable by way of explanation or apology, it has been suggested that many complaints should be preventable by given improved communication (Anderson, Allan & Finucane 2001).

*Complications* occurring during and after endoscopic procedure were divided into an immediate which occurring during the procedure or prior to discharge from the endoscopy unit and delayed that occurring up to seven days after the procedure. All patients should be seen in the clinic after seven days or contacted on phone to determine the delayed

complications. Measures taken to resolve these complications were also accounted. Professional endoscopic nurses should observe the level of consciousness until the sedation off and signs and symptoms of risks associated with upper GI endoscopy including abnormal reaction to sedatives, bleeding from biopsy accidental puncture of the upper GI tract, swallowing difficulties, throat, chest, and abdominal pain that worsens, vomiting of blood or passage of dark stool & fever (Majeski J, Lynch and Durst , 2009)

We are challenged to assess the quality of the services we provide. Patients undergoing upper endoscopy need special nursing care. To assure quality of this care, it is important to apply specific nursing intervention that can entails knowledge and skills required by nurses in order to carry out care effectively, and ameliorate patient care, improve cost effectiveness, decrease patient's problems and complications as well as improve patient's clinical outcomes. Therefore, the application of nursing intervention for these patients aids in establishing basic quality of nursing care rendered. It also assists the profession of nursing in meeting its obligation for improving its practice and policies (Othman, 2010). Therefore this study aimed to evaluate the effectiveness of implementing a protocol of nursing intervention on the indicators of quality of care (patient's satisfaction, patient education, patient's complains and complications) in upper endoscopy unit.

#### *Aim of the study*

We aimed to evaluate the effectiveness of implementing a protocol of nursing intervention on the indicators of quality of care (patient's satisfaction, patient education, patient's complains and complications) in upper endoscopy unit.

#### *Hypothesis*

1. Patients' satisfaction and information ( pre-procedure and discharge information) will be better in post-intervention group than the pre-intervention one
2. The number of patient complaints received from post-intervention group will less than the pre-intervention one .
3. A decrease in complications will be observed in the post-intervention group than pre-intervention one.

## 2. SUBJECT AND METHOD

### 1-subject

#### **Research design:**

A quasi-experimental design of two groups of patients (pre- and post-intervention study) was utilized.

#### **Setting of the study:**

This study was conducted at upper endoscopy Unit at Menoufia University Hospital in Menoufia Governate- Egypt. Field work of this study was executed in 2 months from September 2017 to the end of octoper, 2017.

#### **Subjects:**

A purposive sample of 60 adult patients (male and female) who undergoing upper gastrointestinal endoscopy, their ages ranged from 18 to 60 years were eligible for the study. This sample was divided into two groups of patients: Group (1): 30 adult patients before the implementation of a designed nursing intervention protocol as a control group. Group (2): 30 adult patients post the implementation of a designed nursing intervention protocol as study group. **Exclusion criteria:** Unconscious patients, End stage liver cirrhosis , Patients with speech disorder and chronic gastrointestinal complications.

#### **Tools:**

Pertinent data for this study were collected using the following instruments:-

1. **Interviewing Questionnaire:** It was developed by a researcher through a complete review of medical and nursing literature to assess :

**A-Patient's Sociodemographic and Medical data** .It consisted of: age, gender, type and dose of sedative used, total procedure time, nature of procedure (diagnostic, therapeutic), complications both early and delayed were noted in a

structured manner and complaints. Complaints are separated into categories of treatment, communication, access to health care, atmosphere/environment, and administration complaints). Complaint data were compiled for the pre and post-intervention periods.

**B- Patient's Information:** That focused on which information the patient had received. Pre-procedure information provided to the patients by the nurse and physician was assessed through an interview before the patient was discharged from the endoscopy suite. Information regarding the indication of the procedure, preparation for the procedure, alternatives of the procedure, potential complications of the procedure and the impact on patient future management .It also incorporates the provision of information to assist with transition home and self-care once discharged (post-discharge management and follow up) .

**2. Patient Satisfaction Questionnaire.** Patient satisfaction structure interview: It was adapted by Morsy, (2000) and used to assess patient's satisfaction. It included 20 close ended questions arranged in four groups namely, communication (6 Question), continuity of care (5 Question), technical care (5 Question) and consideration of patients concerns (4 Question). Patients' responses were ranked using five point rating scale ranging from 5 to 1 point as follows where "very satisfied (5 points), satisfied to some extent (4 points), in between (3 points), unsatisfied to some extent (2 points) and very unsatisfied (1 point). The level of patient's satisfaction were ranging from 100 to 20, in which 100 means very satisfied, while 20 means minimal satisfaction.

- **Validity and Reliability:** Content validity was tested by five experts in the field of nursing. Reliability for tools was done by using test- re test. The validity and reliability of satisfaction scales were checked. Measurement of the content and construct validity referred to the validation of the study. And also reassessed the reliability of the scales, internal consistency of rating scale was done by Cronbach's alpha coefficient. The reliability coefficient for perspectives scale was 0.87.

## II- Method

- Permission to carry out the study from responsible authorities and participants was obtained after explanation of the purpose of the study.

- **Development of protocol of nursing intervention:** After a thorough review of the existing data and literature available, a final intervention protocol was developed by the researcher and comprised the following three components:

1. **In-service training workshop** for all upper endoscopy unit staff about the principles of care and guidelines for safety in the gastrointestinal endoscopy unit. The researcher design and deliver 4-hour workshop tailored for all upper endoscopy unit staff (medical, nursing, allied health, clerical staff, and assistants). A range of issues relating to patient management skills was discussed including interpersonal communication, determinants of patient satisfaction, perceived deficiencies in holistic management, barriers to high-quality care, and problem resolution. The format comprised didactic presentation, group discussion, problem-solving exercises, and feedback from scenario presentations.

2. **A patient education:** This comprised a 20-minute of patient instructions in endoscopy waiting room. This incorporates the provision of information regarding indication of the procedure, preparation for the procedure, alternatives, potential complications and the impact on future treatment. It also incorporates the provision of information to assist with transition home and self-care once discharged (post-discharge management and follow up). This produced by the researcher.

3. **Patient liaison nurse:** This was a single position shared by two senior endoscopy department nurses at any one time. The role entailed quality control of all aspects of communication and care of patients and their families in the emergency department. Special attention was paid to patient/family understanding of endoscopy department processes, management and discharge plans, and communication with general practitioners and community support services. In addition to direct patient intervention, the patient liaison nurse acted as role model and mentor to other department staff.

- **Tools development:** The first and second tools were constructed by the researchers after reviewing the relevant literature and were tested for content validity by 5 experts in Nursing and Surgical fields. Modifications were done accordingly to ascertain relevance and completeness. While the third tool was adapted by Morsy, (2000).

- **Data collection procedures**

- Prior to the actual study, a pilot study was conducted on 10% of the study sample to test feasibility and applicability of the tools and then necessary modifications were carried out accordingly. Data obtained from the pilot study were not included in the current study.
- The researchers introduced themselves to every participant, explain the purpose of the study and assured them that confidentiality would be maintained throughout the study then a verbal consent was obtained from each participant
- The first 4 weeks of the study comprised the pre-intervention period. During this time all patients undergoing upper endoscopy received the conventional care from the emergency doctor or nurse.
- The second 4 weeks of the study comprised the intervention period /period of introduction of nursing intervention as mentioned above. Workshops for all staff in upper endoscopy unit was introduced in the first 2 days of the second 4 weeks.
- Data were collected pre-discharge and one week post discharge. Each patient undergoing upper endoscopy was evaluated by the researcher using the previously mentioned tools. Demographic characteristics, diagnosis , complaints and patient transition information of studied sample were evaluated just before discharge, while patient Satisfaction was evaluated within 7days after discharge through direct or telephone contact. Patient asked rate the care they received on the scale .
- The result of the study was statistically analyzed, compared in two groups and illustrated in tables.

- **Statistical analysis**

- Data were collected and entered onto an Excel database then transferred with no patient identifiers to the SPSS statistical software program. Demographic characteristics of the sample were analyzed using descriptive statistics. These consisted of frequencies, percentages, means, and Standard deviations. Other between groups comparisons were analyzed using Chi square measures. The level of significance was considered to be  $p < 0.05$ .

### 3. RESULTS

In total 60 patients were included in the study, 30 in the pre-intervention group and 30 in the post-intervention group.

**Table (1) a comparison of the demographic and medical characteristics of the pre and post intervention groups included in the sample**

The pre and post intervention groups were similar in terms of age, gender, education, history of previous gastroscopy, indication, and duration of gastroscopy and use of sedation. There were no statistically significant differences in these variables between study participants ( $P > 0.05$ ).

**Table (2) provides comparison between both groups in relation to level of patients' satisfaction after application of nursing intervention.** This table presented that there was a highly statistically significant difference between both groups (pre-intervention group and post-intervention group) after nursing intervention regarding Communication, Continuity of care, Technical care, Consideration of patient concerns; P value was significant at level (0.000) respectively. In relation to the total score of patient's satisfaction level, there was a highly statistically significant difference between pre-intervention group and post-intervention group after nursing intervention at level  $57.68 \pm 10.6$  and  $77.20 \pm 4.24$  respectively where P value was significant at level (0.000).

**Table (3) provides a comparison of provision of pre-procedure information between pre- and post-intervention groups .**The provision of pre-procedure information all improved following the intervention. There was statistically significant difference % pre and post- intervention group (p value was  $< 0.001$ ).

**Table (4) provides a comparison of provision of discharge planning (transition information) between pre and post-intervention groups.** The provision of information and organization of follow-up appointments all improved following the intervention. There was statistically significant difference % pre and post- intervention group (P value was  $< 0.001$ ). Some of the between group differences did not reach statistical significance because the groups were too small.

**Table (5) describes the number and nature of complaints that were lodged by upper endoscopy patients during the pre- and post-intervention periods.** This represented a decrease in complaint rates from 28 (93.33) in pre- intervention periods to 11 (36.67) in post-intervention period. There were fewer complaints of the post-intervention group than pre-intervention group.

**Table (6): describes frequency distribution of complications associated with upper GI endoscopy for study patients.** Shows that all of the study samples (pre and post- intervention group) are complaining from difficult in swallowing, chest pain, sensation of nausea and vomiting and upper abdominal pain as minor discomfort post upper GI endoscopy.

**Table (1) a comparison of demographic and medical characteristics of the pre and post intervention groups included in the sample**

Demographic and medical characteristics	pre-intervention ( n= 30) [N (%) ]	post-intervention ( n= 30) [N (%) ]	p value
<b>Age</b>	51 (10.7)	54 ( 8.5 )	>0.05
<b>Gender</b>			
Male	21 (70%)	19(63.33%)	P>0.05
Female	9 (30%)	11(36.66%)	
<b>Education</b>			
None	11 (36.67%)	13 (43.33%)	P >0.05
Primary	8 (26.67%)	7 (23.35%)	
secondary	6 (20%)	5 (16.67%)	
tertiary	5 (16.67%)	5 (16.67%)	
<b>History of previous gastroscopy, n (%) )</b>			
Yes	8 (26.67%)	6(20%)	P >0.05
No	22(73.33%)	24(80%)	
<b>Indication, n (%)</b>			
Suspected peptic ulcer disease	9(30%)	8(26.67%)	P >0.05
Suspected malignancy	3(10%)	2(6.67%)	
Gastroesophageal reflux disease	11(36.676%)	9(30%)	
Variceal surveillance	2(6.67%)	3(10%)	
Anemia for investigation	3(10%)	5(16.67%)	
Procedural	2(6.67%)	3(10%)	
<b>Duration of gastroscopy, n (%)</b>			
≤ 10 minutes	22(73.33%)	23(76.67%)	P >0.05
> 10 minutes	8(26.67%)	7(33.33%)	
<b>Sedation</b>			
Yes	28(93.33%)	29(96.67%)	P >0.05
No	2(6.67%)	1(3.33%)	
<b>Amount of midazolam given, n (%)</b>			
≤ 2.5 mg	8((26.67%)	9(30%)	P >0.05
> 2.5 mg	22(73.33%)	21(70%)	



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**Table (2) Comparison between both pre and post-intervention groups in relation to level of patients' satisfaction after application of nursing intervention**

Patient satisfaction	Pre-intervention (X2±SD)	%	Post-intervention (X2±SD)	%	T- test	P-value
Communication	20.00± 4.41	66.6	25.64±2.17	85.4	5.728	0.000***
Continuity of care	11.80±3.57	47.2	17.16± 1.65	68.64	6.813	0.000***
Technical care	13.84±3.09	55.36	16.84±1.88	67.36	4.142	0.000***
Consideration of patient concerns	12.60±2.38	63	17.28±1.76	86.4	7.891	0.000***
Total scores	57.68±10.6	57.6	77.20±4.24	77.2	8.51	0.000***

\*\*\* = (highly statistically significant difference)

**Table (3) Comparison of provision of pre-procedure information between pre- and post-intervention groups**

Pre-procedure information	Pre-intervention [N (%)]	Post-intervention [ N (%) ]	p value
1. Given information regarding the indication of the procedure,	4(13.33%)	22(73.33%)	<0.001
2. Given information regarding preparation for the procedure	13(43.33%)	21(70%)	<0.0001
3. Given information regarding alternatives of the procedure	12(40%)	25(83.33%)	<0.001
4. Given information regarding potential complications of the procedure and the impact on patient future management	6(20%)	19(63.33)	<0.001

**Table (4) comparison of provision of discharge planning (transition information) between pre and post-intervention groups**

Discharge planning	Pre-intervention [N (%)]	Post-intervention [ N (%) ]	p value
<b>Information provision</b>			
Given information specific to diagnosis	3 (10%)	21 (70%)	<0.001
Provided with discharge letter	12 (40%)	20 (66.67%)	<0.0001
Provided with verbal information(verbal instructions to assist with post-discharge self-management	22 (73.33%)	28 (93.33%)	0.06
Provided with written information(written instructions to assist with post-discharge self-management	5 (16.67%)	18 (60%)	<0.001
<b>Medication Information provision</b>			
Given information on purpose of medication	8 (26.67%)	12 (40%)	0.33
Given information on side effects of medication	4 (13.33%)	9 (30%)	0.04
Given information on frequency of medication	6 (20%)	10 (33.33%)	0.12
<b>Follow up arrangements</b>			
Provision of follow-up care appointments or referral to community services.	10 (33.33)	26 (86.67%)	<0.001

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**Table (5) Number and Percent Distribution of complaints that were lodged by patients during the pre- and post-intervention periods**

Nature of complaint	Pre-intervention [n (%)] [N (%)]	Post-intervention [N (%)]
-Treatment	8 (26.67)	3(10)
- Communication	7 (23.33)	2 (6.7)
- Rights	4 (13.33)	2 (6.7)
- Access to health care	5 (16.6)	2 (6.7)
- Cost	2 (6.7)	2 (6.7)
- Atmosphere/environment	2 (6.7)	0 (0.0)
- Administration	0 (0.0)	0 (0.0)
- Total	<b>28 (93.33)</b>	<b>11 (36.67)</b>

**Table (6): Frequency distribution of complications associated with upper GI endoscopy for study patients**

Complications post endoscopy	Pre-intervention [n (%)] ( N=30)	Post-intervention [n (%)] (N=30)	P-value
1- Difficult in swallowing	30 (100%)	30(100%)	---
2- Chest pain.(minimal)	30 (100%)	30 (100%)	----
3- Bleeding from mouth (recurrent Hematemesis)	4(13.33%)	3(10%)	0.43 >0.05
4- Melena	2(6.67%)	1(3.33%)	0.4 >0.05
5- Sensation of nausea and vomiting.	30 (100%)	30(100%)	----
6- Hiccup	4(13.33%)	3(10%)	0.43 >0.05
7- Hypotension	5(6.67%)	3(10%)	0.32 >0.05
8- Hypertension	1(3.33%)	0 (0%)	0.4 >0.05
9- Upper abdominal pain	30 (100%)	30 (100%)	---
10- Chest pain.(sever)	0 (0%)	0 (0%)	---
11- Headache.	11(36.67%)	9(30%)	0.32 >0.05
12- Back pain	4(13.33%)	1(3.33%)	0.21 >0.05



#### 4. DISCUSSION

The present study aimed to evaluate effectiveness of implementing a protocol of nursing intervention on the indicators of quality of care (patient's satisfaction, patient education, patient's complains and complications) in upper endoscopy unit.

Results of the present study demonstrated that the protocol of nursing intervention implemented in this study resulted in important improvements in indicators of quality of care (patient's satisfaction, discharge information, and patient's complains).

##### **Regarding patient's satisfaction (PS)**

All satisfaction items examined showed improvements after intervention. This came in accordance with Ko et.al. (2009) who surveyed 261 Canadian patients using a modified score based on the Group Health Association of America 9-item system (mGHAA-9—a questionnaire on satisfaction) with a number of question with Likert-style responses. A total of 87% (226/261) of patients were satisfied overall and only 1% (3/261) considered their experience dissatisfying. On the same line Yacavone et. al.(2001) also reported that positive interaction with nurses and support staff and explanation of the procedure was linked to higher patient satisfaction . Also Seip et al.,2008 assessed patient satisfaction among patients undergoing upper GI endoscopy, suggesting high levels of satisfaction overall. Henry et. al.(2014) found that patient satisfaction with care decisions and communication was high, in emergency situations .

These findings support those of others who have suggested that communication and education are among the most important issues impacting on patient satisfaction. Holding workshops about how to deal with patients that tailored for all upper endoscopy unit staff (medical, nursing, allied health, clerical staff, and assistants) could greatly help improving PS ((Arendts, MacKenzie, and Lee, 2006 ;Zohrevandi and Tajik 2014 ; Aiken et.al.,2012). Furthermore, because of the enormous workload of staff in such units, it is not possible to explain the details for each patient ; thus, by increasing the number of liaison nurses in these centers, the assignments of nurses can be decreased and the satisfaction level of patients improved, too. It is likely that patient liaison nurse activities often complemented those of the usual carers. Information provided repeatedly, by more than one person and in different ways, is likely to be better retained and may improve the patients' perception of staff care. The repeated provision of clinically based information by a medical student improved significantly a range of satisfaction measures. So that the patient liaison nurse role is required because of deficiencies in usual patient care (Tran et al. ,2002). Indeed, many interventions of liaison nurse involved patient comfort and communication issues are likely to be an important factors influencing PS, generally. Furthermore, the staff in service training sessions included broad issues of service provision as well as communication issues, specifically.

##### **Concerning patient education ( provision of discharge information)**

In the present study the provision of discharge information were poor in pre-intervention group. This contrasts with other studies such as Arendts (2006) where the majority of patients felt that they received adequate discharge information and 80% of patients received written instructions. This may reflect a system failure in this department or poor education of the medical team in discharge planning practices. However, the improvement of discharge information in post-intervention indicates that the pre-discharge education in addition to liaison nurse activities can improve post-hospital care transition.

The findings of this study indicate that the use of liaison nurse leads to an improvement in the provision of written discharge letters and information, the provision of information specific to the diagnosis, the provision of information on side effects of discharge medications, the arrangement of follow up with other health care providers and overall in post-hospital care transition. This result provides beginning evidence for the utility of liaison nurse whose role would be patient education and co-ordination of a multidisciplinary discharge team. Suhonen et al. (2005) suggested that preformatted instructions should be provided to all patients. The results of this study suggest that patients seen by liaison nurse are more likely to receive such information.

The benefits of discharge planning have been acknowledged in the literature particularly in the setting of transition from inpatient care to the community (Caplan et al 2004). Many of the problems with providing adequate discharge planning relate to a lack of co-ordination and communication between professionals and poor provision of information to patients and their care givers (McKenna et al 2000). This finding suggests that patient education regarding endoscopy needs to be readily available in the endoscopy unit and should target potential misconceptions around the endoscopy experience.

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From a quality perspective, the findings that the personal manner of the support staff, physical surroundings and the adequacy of the information provided before and after the procedures were significantly related to overall rating of the visit provides some direction for potential improvements, and suggest some direction for follow-up

**Regarding number of patient complains**

The considerable decrease in the number of complaints lodged in the post-intervention period was encouraging. This decrease is consistent with the improvements in the satisfaction items examined and the findings of other studies involving communication interventions (Lau FL,2000). Interestingly, the decrease in the proportion of communication-related complaints ( approximately 6.7 % ) is considerably lower than those reported in other studies. (Anderson et al. ,2001; Taylor, Wolfe and Cameron,2002). We believe this decrease to be clinically significant and are related to in-service communication skills workshops for endoscopy unit staff. Indeed, it has been reported that customer service training and communication skills workshops can both reduce patient complaints and improve levels of satisfaction (Lau,2000).

**5. CONCLUSION**

The findings of the present study concluded that the protocol of nursing intervention implemented in upper endoscopy unit had positive impact on quality of care which indicated by improvements in patient satisfaction and discharge information and decrease in patient complains.

**Limitations**

- This study demonstrated methodological limitations, including potential bias inherent to single-center study.
- Two to three attempts were made to contact patients by phone for follow-up

**6. RECOMMENDATIONS**

1. The study recommended that continued nursing education and in-service training workshops in the endoscopic gastroenterology center should be organized regularly and the nurses should use pre, post nursing teaching guidelines according to protocol for caring with patient undergoing upper GI endoscopy.
2. Further research should be undertaken in order to refine this or similar protocol of intervention. Furthermore, the study should be replicated in a multicenter setting with more comprehensive data collection and analysis. Future research may incorporate randomized controlled trial design as well as testing alternative interventions such as a discharge education program for medical staff.
3. In all endoscopy units, PS should be evaluated routinely as a quality assurance activity .The results of periodic assessment of PS level, as a critical indicator in health care quality and applying it in quality management is necessary to create changes based on achieved results.
4. The patient liaison nurse role is required because of deficiencies in usual patient care.

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