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# Effectiveness of Structured Teaching Programme on Knowledge and Anxiety of Patients Undergoing Endoscopy at a Gastroenterology Centre of a Tertiary Care Hospital

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**Abstract:** ***Endoscopic procedures are OPD procedures which limits the time for the interaction of patients and health team members. Inadequate procedural & sensory information leads to anxiety among the patients that inadvertently affects the outcome of the procedure.A pre experimental study with a single group pre-test post-test design was used for 50 patients undergoing planned, diagnostic upper GI endoscopy for the first time.On the day of appointment, structured questionnaire and STAI was administered. Structured teaching programme on the various aspects of upper GI endoscopy was administered along with a pamphlet for later reference. Data was again collected using the same tools on the day of procedure. The mean pre and posttest knowledge score was 3.62 ± 1.95 and 8.2 ± 1.21 respectively. Wilcoxon's signed rank test yielded a 'Z' value of 6.19( p value <0.0001). The mean pre test and test anxiety score of the patients was 44.30 ± 3.96and 41.40 ± 4.48 respectively. Wilcoxon's signed rank test yielded a 'Z' value of3.67, (p value <0.0001).Structured teaching programme resulted in increased knowledge and decrease in anxiety score.***

**Keywords:** Structured teaching programme, endoscopy,knowledge, anxiety.

## 1. Introduction

Gastrointestinal endoscopy is a simple procedure but stressful procedure for the patients, as they do not receive adequate procedural and sensory information associated with it. Patients received most of the procedural information verbally and only on the day of the procedure. [1] Preventing extreme anxiety during the examination is important because the patient's anxiety may result in a wide range of potential complications.[2] Patients feel more confident when the information is imparted to them by the health care personnel.

There is an overall increase in the number of endoscopies being performed due to increase in the incidence of peptic ulcer, Gastro Esophageal Reflux Disease (GERD), emergence of chronic infectious diseases like hepatitis B and hepatitis C virus infection, increased health awareness of the public and inclusion of upper GI endoscopy in the screening protocol for various diseases. It is estimated that more than 20 million endoscopies are performed yearly in the United States. Out of this, 30.6% endoscopies are Upper GI endoscopy.[3] India lacks a centralized database of these procedures. However, in the hospital under study, an average of 3500 endoscopies is carried out yearly. Upper GI endoscopy constitutes about 75% of these procedures.

According to The American Society for Gastrointestinal endoscopy, the overall complication rate of endoscopy was 0.13% with an associated mortality of 0.004%.[6] Another study by Geraci G, et al found that 43.6% of the patients in the study group experienced temporary and self limiting hypoxia. [4]

**Problem Statement**

A study to assess the effectiveness of structured teaching programme on knowledge and anxiety of the patients undergoing endoscopy at a gastroenterology centre in a tertiary care hospital.

## 2. Objectives

The objectives of the study were to

1. Determine the knowledge of the patients undergoing endoscopy before and after the structured teaching programme.
2. Evaluate anxiety of the patients before and after the structured teaching programme.

**Operational definition**

1.Endoscopy refers to upper gastrointestinal endoscopy.

## 3. Materials and Methods

**Research Approach:** Experimental study.

**Table 1**: Research design

| Variable | Day1 | Day of endoscopy |
|---|---|---|
| Knowledge | $O_1X_1$ | $O_2X_1$ |
| Anxiety | $O_3X_1$ | $O_4X_1$ |

O-test, X-intervention

**Research Design-** One group pre test post test design

**Sample size -** A sample size of 50 was calculated using the formula


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$$n = \frac{(Z_{1-\alpha/2})^2\sigma^2}{d^2}$$

Where, σ= the standard deviation of the response after the intervention, d= acceptable deviation, $Z_{1-\alpha/2}$= value of two tailed alpha (type-I) ie; 1.96 at 5% level of significance

**Sampling technique**-Convenient sampling
Extraneous variables like previous experience were minimizedby including only those patients who were undergoing upper GI endoscopy for the first time. Trait anxiety was not controlled in the study.

**Inclusion criteria**
The following criteria were kept in mind to select the sample.
1. Patients attending Gastroenterology OPD of a tertiary care hospital.
2. Both male and female patients above 18 years of age.
3. Patients who can read and write Hindi, English or Marathi.
4. Patients who were undergoing the procedure for first time.
5. Patients undergoing planned diagnostic upper gastrointestinal endoscopy.

**Exclusion criteria**
1. Patients undergoing emergency endoscopy
2. Patients who were cognitively impaired.

The data was collected using
1. Structured questionnaire –included two parts to collect sociodemographic variables as well as knowledge regarding the procedure.

**Structured Questionnaire on Knowledge Regarding Upper GI Endoscopy**

The questionnaire consisted of ten items. Each item had four options. Each correct option was given a score of one and zero for incorrect option. The alternative of "do not know" was included to eliminate the possibility of giving the right answer by chance. The maximum score on knowledge was 10. The knowledge score was interpreted as poor, average or good.

Spielberger's State and Trait Anxiety Inventory (STAI)

| Interpretation | Score | Percentage |
|---|---|---|
| Poor | 0-3 | <30% |
| Average | 4-7 | 40-70% |
| Good | 8-10 | 80-100% |

Data was collected from 50 patients fulfilling inclusion criteria. A written informed consent was obtained. Confidentiality was assured. The investigator introduced self and informed the patients about the objectives of the study on the day of their appointment. Their sociodemographicdata, knowledge regarding endoscopy and their anxiety level was assessed using the questionnaire and STAI. Structured teaching regarding the procedure of upper GI endoscopy was administered to all the selected patients. Initially they were shown a video depicting the procedure of endoscopy. Then they were explained about upper GI endoscopy including the unpleasant sensations in detail using the flash cards and flip charts. They were familiarized with the endoscopy room, staff and the instruments used. The patients were also provided with a pamphlet (Hindi English or local language) along with the appointment form that they could carry home and refer to. It explained the various aspects of upper GI endoscopy like preparation, steps and post endoscopic care.

## 4. Results

The collected data was analyzed using descriptive and inferential statistics. Nonparametric tests used were Mann Whitney U test and Wilcoxon's signed rank test. Testing of hypothesis was done using Wilcoxon's signed rank test.

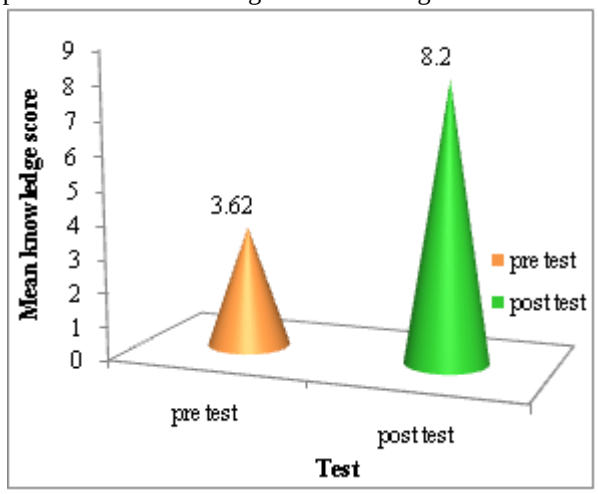



**Figure 1:** Mean knowledge score of patients undergoing endoscopy

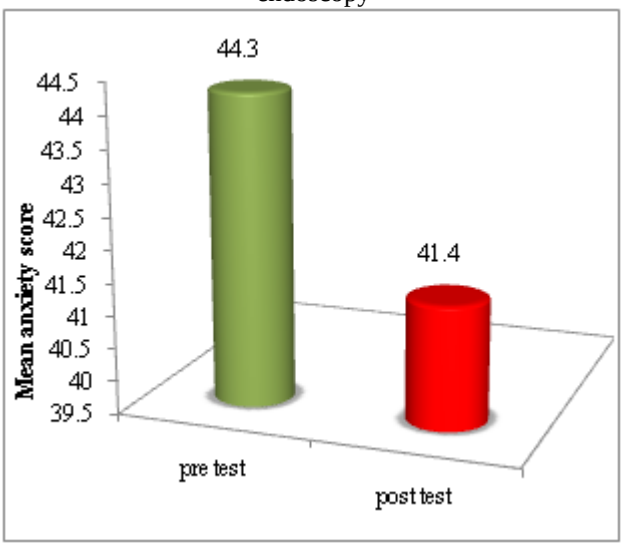



**Figure 2:** Mean anxiety level of patients undergoingendoscopy

**Table 2:** Mean knowledge score of patients undergoing endoscopy n=50

| | Mean Pre test knowledge score | Mean Post test knowledge score | Wilcoxon 'Z' Value | p Value |
|---|---|---|---|---|
| Knowledge score | 3.62 ± 1.95 | 8.2 ± 1.21 | 6.19 | <0.0001 |


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**Table 3:** Mean anxiety score of patients undergoing endoscopy n=50

| | Mean Pre test anxiety score | Mean Post test Anxiety score | Wilcoxon 'Z' Value | p Value |
|---|---|---|---|---|
| **Anxiety score** | 44.30 ± 3.96 | 41.40 ± 4.48 | 3.67 | <0.0001 |

**Table 4:** Association of mean knowledge score with the educational qualification of patients, n=50

| Educational qualification | n | Knowledge score | |
|---|---|---|---|
| | | Mean pre test knowledge score | Mean post test knowledge score |
| Primary | 10 | 2.10 ± 1.19 | 7 ± 0.94 |
| Secondary | 14 | 3.50 ± 1.91 | 8.21 ± 1.05 |
| Higher secondary | 16 | 4.19 ± 1.97 | 8.69 ± 1.08 |
| Diploma | 6 | 3.0 ± 1.2 | 8.5 ± 0.54 |
| Graduate & above | 4 | 3.25 ± 1.41 | 8.50 ± 0.57 |
| 'F 'Value | | 3.50 | 5.82 |
| p Value | | <0.05 | <0.005 |

Table 4 shows that the knowledge score was highly dependant on the educational qualification as suggested by the value p<0.05 and p<0.005 in the pre and post test knowledge group respectively.

**Hypothesis Testing**

In the study, the hypothesis adopted were

1. $\mathbf{H_{0a}}$ –There is no significant difference in the knowledge level of the patients undergoing endoscopy before and after the structured teaching programmeat 0.05 level of significance. The test statistic value 'Z' computed using Wilcoxon's signed rank test was 6.19. The 'Z' value is greater than the table value corresponding to 0.05 level of significance and two tail test, which was highly significant at a p value of <0.0001. Thus it can be inferred that structured teaching has significantly improved the knowledge level of the patients regarding endoscopy. The investigator is 95% confident that the mean post -test knowledge score of the patients undergoing endoscopy lies in the range of 7.86- 8.53.
2. $\mathbf{H_{0b}}$- There is no significant difference in the anxiety level of the patients undergoing endoscopy before and after the structured teaching programme at 0.05 level of significance

The test statistic value 'Z' computed using Wilcoxon's signed rank test was 3.67. The ' Z' value is greater than the table value corresponding to 0.05 level of significance and two tail test, which was highly significant at a p value of <0.0001.
The investigator is 95% confident that the mean post test anxiety level of the patients undergoing endoscopy lies in the range of 42.64 -40.16.

## 5. Discussion

In the study population, majority of the patients 15 (30%) belonged to the age group of 31-40 years and were predominantly males 34 (68%). However, the data provided by the National endoscopic data base revealed that majority of the patients undergoing upper GI endoscopy belonged to the age group 50-59 years.[5] This shift can be attributed to various causes. The study was carried out amongst a population, which has a stressful life style. Most of them have a very rigorous life style and have long periods of stay separated from their family due to the job constraints. At present, people have been found to consume junk foods and increased consumption of alcohol consumption. These factors could have attributed to the findings of the present study where a large of young people was found to be affected with gastroenterology problems. The mean knowledge score of the patients increased significantly after the structured teaching programme. The finding of this study was similar to the results of the study conducted by Dhital AD et al among 200 adolescents in Nepal to assess the effectiveness of structured teaching program on knowledge and attitude of school going adolescent children towards reproductive health. Statistical analysis showed that there was a significant increase in the knowledge and attitude of children after the structured teaching program (p<0.001). [6,]

Statistical analysis of the association of sociodemographic variables and knowledge score of the patients revealed that there was a significant association between the knowledge score and educational qualification of patients. In the present study, there was a reduction in the anxiety level after structured teaching programme. The above findings were supported by the study conducted by Jlala HA et al in the year 2010. On comparing both the studies, it was found that majority of the patients in the present study exhibited moderate anxiety. This may be due to the fact that in the study setting, the upper GI endoscopy was carried out without any sedation. The conscious patient would be more worried about the unpleasant taste of the local anesthetic spray and sensations associated with the procedure. However, there was a decrease in the number of patients exhibiting severe anxiety in the post test.[7]

The mean anxiety score in the post test (41.40 ± 4.48) was significantly less than the mean anxiety score in pre test (44.30 ± 3.96). The study group consisted of 34 (68%) male patients with only 16 (32%) female patients. This might have resulted in a highly statistically significant reduction in the mean post test anxiety level of the patients.

On the contrary, a case control study conducted by Pinar G et al among 60 gynaecological patients undergoing surgery found that pre-operative instructions did not cause a significant reduction in the anxiety of the patients (p<05). [8]Further, a study done by Uzbeck M et al among patients undergoing bronchoscopy revealed that patients who received detailed risk information had greater increase in anxiety levels than those who received simple information. (p<0.001).[9]

In the present study, it was found that anxiety was not significantly associated with demographic variables like age, sex, educational qualification or marital status. These findings were consistent with the findings of Jones MP et al.[10] However, other studies conducted by Eberhardt J et al and Kiyohara LY et al found that gender had an influence on the anxiety levels of the patient. Female patients were more anxious than male patients (p< 0.05). [11,12] present study revealed that there was no significant correlation between knowledge and anxiety in the pre-test group. However, in


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the post-test group, it was found that there was some correlation between knowledge and anxiety (r = -0.12) but it was not statistically significant. The findings were similar to the study by Sjoling M et al, which revealed that the pre operative state anxiety decreases with the level of knowledge.[50] Similar results were depicted by Kiyohara LY et al (2004) among 149 preoperative patients. The study revealed that increased knowledge regarding the surgery reduced their state anxiety levels. [51]

## 6. Recommendation

- The study can be conducted on a large sample and in multiple settings
- The study can be repeated with a control group.

## 6. Conclusion

Study findings revealed that the patients lacked adequate knowledge regarding the procedure resulting in anxiety before the procedure. Though anxiety is a trait, it can be modified through various interventions. Structured teaching programme is an effective strategy in improving the knowledge level of the patients undergoing endoscopy. This can be made more effective by using appropriate audiovisual aids and incorporating the experiences of patients who has undergone the procedure before. Nurses play a pivotal role in imparting education and being supportive during the procedure. There is an urgent need to educate patients regarding the procedure at the time of appointment. This helps in better comprehension, as the stress on the day of procedure will cloud the comprehension and understanding of the patients.

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