**Cross Sectional Study on Assess the Risk of Constipation among Patients Undergoing Abdominal Surgery**

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**Authors' contributions**

This work was carried out in collaboration between both authors. All authors read and approved the final manuscript.

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**ABSTRACT**

**Objective**: Aim of the study to assess the risk of constipation among patients undergoing abdominal surgery. Constipation is a gastrointestinal tract condition which can lead to abnormal stools, uncomfortable storage and passing with pain and stiffness. Constipation is one of the gastrointestinal system's functional impairments. Various symptoms also include bloating, pushing, abdominal and rectal pain, a feeling of fullness in the rectum or extreme defecation, a lack of full discharge, and stool infrequency (usually less than three times a week). Constipation problem is a condition that is prevalent in abdominal surgery patients in the preoperative and postoperative period due to physiological and psychological factors. While constipation does not endanger life. Bowel frequency is affected by many variables, including dietary factors, emotional state, immobility, prior history of bowel elimination problem, and psychological morbidity after abdominal surgery. Constipation is a common issue that many individuals face.

**Materials and Methods**: The cross sectional research study conducted in AVBR hospital Sawangi Meghe, Wardha district with quantitative research approach. Sample size was 85. Sample was undergoing abdominal surgery patients. Tool was structured questionnaire including Patients characteristics & constipation risk assessment scale.

**Results**: 48.24% of patients undergoing abdominal surgery had no risk of developing constipation.

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29.41% had low risk of constipation, 14.12% had moderate and 8.23% of the patients undergoing abdominal surgery had severe risk of constipation. Minimum risk of constipation was 0 and maximum was 17. Mean risk of constipation was 5.14±5.71.

**Conclusion:** This study can help to assess the risk of constipation among undergoing abdominal surgery patients and make them aware about risk of constipation.

**Keywords:** Assess; risk; constipation; abdominal surgery; patients; constipation risk assessment scale.

### 1. INTRODUCTION

Constipation is a health condition that ruins the quality of life and is widespread in society. Constipation is defined as the indications of at least two of the following symptoms: rare bowel movements (typically 25 percent) and stool infrequency, hard stool subjective sensation, and insufficient stool. Constipation is one of the gastrointestinal system's functional impairments. Various symptoms also include bloating, pushing, abdominal and rectal pain, a feeling of fullness in the rectum or extreme defecation, a lack of full discharge, and stool infrequency (usually less than three times a week) [1].

Constipation problem is a condition that is prevalent in abdominal surgery patients in the preoperative and postoperative period due to physiological and psychological factors. While constipation does not endanger life. It considered a major health issue that adversely affects the quality of life by affecting mental and social well-being due to the physical, economic and psychological stresses it brings to people [2].

Constipation was defined as : (1) Having two or more of the following symptoms: straining, lumpy or hard stools, sensation of incomplete evacuation, sensation of anorectal obstruction / blockage, less than three defecations per week and requires manual manoeuvres to facilitate defecations; (2) Loose stools were rarely present without the use of laxatives and (3) Insufficient criteria for irritable bowel syndrome. Diseases of the stomach, bile duct, liver, spleen, pancreas, small intestine, large intestine can be treated with abdominal surgery. Complications that arise after abdominal surgery, as in the postoperative period, are unique to the gastrointestinal system. In patients who have undergone abdominal surgery, bowel elimination problems are very common, in hospitalised patients who underwent surgery, this ratio was estimated to be 25 to 40 percent [3].

Bowel frequency is affected by many variables, including dietary factors, emotional state, immobility, prior history of bowel elimination problem, and psychological morbidity after abdominal surgery. Constipation is a common issue that many individuals face. In studies, constipation is described differently, most of the questionnaire-based research study will result from organic condition. 16% of adult constipation (ranging from 0.7% to 79%) worldwide prevalence of constipation. Prevalence was attributed to 33.5 per Percent for adults aged between 60 and 110 years) [4].

Constipation is a heterogeneous condition associated with the quality of life of the individual and the utilization of health care services. Iran has a constipation rate of 1.4 per cent to 37 per cent. Age refers to the high prevalence of chronic constipation [5].

The typical medical definition of constipation emphasizes infrequent or difficult evacuation of faeces, and physicians often define constipation as a bowel movement every 3 to 4 days or less. This opinion is likely based on a study of otherwise healthy people in Great Britain that found that 99% of the population had between 3 bowel movements a week and 3 bowel movements a day. However, patients often have different opinions [6].

In a survey of young adults not seeking medical care, Sandler and Drossman found that 52% defined constipation as straining to pass faecal material, 44% felt it was the process of passing hard stools, only 32% thought it merely to be the infrequent passage of stools, and 34% thought the term referred to an inability to defecate. Thus, it must be recognized that self-reported constipation is just as likely to refer to straining or hard stools as it is to focus on infrequent stool [7].

When you have less than 3 bowel movements in a week, it means you have constipation. It is a common gastrointestinal disorder in which it is
rare or difficult to get through bowel movements. Our gastrointestinal tract consists of hollow organs such as the mouth, oesophagus, stomach, small intestine, large intestine, including the rectum and anus, and is responsible for digestion, nutrient absorption, and waste disposal [8].

The lower gastrointestinal tract, consisting of the large intestine or the intestine containing the colon and rectum, absorbs water from the food digested and transforms it, via faces, from liquid consistency to solid form. Constipation happens when the food digested spends too much time in your gut. The colon then absorbs too much water to make the stool tough and dry. When the stool is tough and dry, it becomes difficult for your rectal muscles to move the stool out of your body. Constipation is considered a symptom of multiple health problems, instead of a disease on its own [9].

You are known as constipated if you have fewer than three bowel movements in a week. You can end up straining to pass hard and dry stools if you have constipation or find that your intestines can not be completely cleaned out. Bowel movements occurred less in chronic condition of constipation or consisting stools which are dry, hard, painful and then after bowel movement, the individual perceives a sense of incomplete emptying. Normal motions of the intestines differ from person to person. For certain people, it’s absolutely natural to pass stools twice a day, and for others it’s normal to pass stools three times a week [10].

The easiest way to learn whether you are constipated or not is to make some changes from the usual habit. In the treatment of constipation following abdominal surgery, nursing care has a major role. During the pre-operative phase, nurses should describe the risk of constipation using a standard risk scale. In the preparation of nursing practices during the postoperative period, risk evaluation is highly significant. Nurses should track patient’s gas exchange, excretion, mobilisation, oral feeding and fluid intake shortly after abdominal surgery [11].

This study will help people who going to know risk factor of constipation also they can improve their self to decrease the risk. Constipation is an important symptom affecting postoperative healing, quality of life, comfort, respiratory and circulatory systems of the patients. Constipation can also occur due to this factor also like quality of nursing care in the postoperative period, place of surgical intervention, type of anaesthesia, trauma of intestines during the operation, duration of postoperative immobility, suppression of defecation feeling, use of bedpan, privacy, inability of the patients to verbally express their discomfort, using opioids / non-opioids analgesic. Fluid intake and alterations in dietary habits are effective in bowel elimination in the early postoperative period [12].

Objective: 1. To assess the risk of constipation among undergoing abdominal surgery Patients. 2. To associate the risk of constipation among patients undergoing abdominal surgery with demographic variables.

2. MATERIALS AND METHODS

Cross sectional descriptive research design used for this study. Sampling technique was non-probability purposive sampling technique. The study sample was undergoing abdominal surgery patients of AVBR Hospital Sawangi (M), Wardha, Maharashtra. Sample size: For this research study was 85.

Inclusion Criteria: 1. Patient who are undergoing abdominal surgery such as stomach, gall bladder, liver, spleen, pancreas, small intestine, and large intestine. 2. Patient who are hospitalized for at least 3 days after abdominal surgery. 3. Patients who are available at the time of data collection.

Exclusion Criteria: 1. Patients who are participated in similar kind of study.

Tool of the study: Section A: Structure questionnaire on Patients characteristics: Age, gender, marital status, education level, occupation, monthly income, lifestyle, BMI (Body Mass Index), previous constipation history, type of surgery, postoperative mobilization.

Section B: Constipation risk assessment scale (CRAS), Consist of 23 questionnaire on fiber intake, fluid intake, mobilization, personal belief, physiological condition, psychological condition, medication.

Scoring Procedure: There are 23 question in constipation risk assessment scale, no response score “0”, for each response score given “2”. For low risk of constipation: <10. For medium risk of constipation: 11-15. Severe risk of constipation: > 16.
Method of collection of data: Permission taken from the appropriate authorities of the chosen hospital. The researcher addressed the chosen area’s abdominal surgery patients and also explained the purposes of the study and also how it would be useful for them. She enquired their willingness to participate in the study and obtain consent from patients, the researcher visits each participant in abdominal surgery patients, then made them comfortable and oriented to the study and administered questionnaire to them duration of 30 min. Statistical Analysis of the data was done by using descriptive and inferential statistics both. The software used in the analysis were SPSS 24.0. Frequency, mean, standard deviation, mean percentage to explain demographic variables and constipation risk assessment scale. Association of demographic variable with risk of constipation was done by one-way ANOVA (f-test) and ‘t’ test.

3. RESULTS

Section A: Assessment of level of risk of constipation among patients undergoing abdominal surgery.

This above section deals with the assessment of level of risk of constipation among patients undergoing abdominal surgery. The level of risk of constipation is divided under following heading of no risk, low risk, medium and severe risk respectively. The above Graph no.1 shows that 48.24% of patients undergoing abdominal surgery had no risk of developing constipation, 29.41% had low risk of constipation, and 14.12% had moderate and 8.23% of the severe risk of constipation. Minimum risk of constipation was 0 and maximum was 17. Mean risk of constipation was 5.14±5.71

Graph 1. Level of risk of constipation

Section B:

Table 1. Show percentage wise distribution of patients undergoing abdominal surgery and their association according to their Patients characteristics

<table>
<thead>
<tr>
<th>Patients characteristics</th>
<th>No. of patients</th>
<th>Percentage (%)</th>
<th>Mean risk of constipation score</th>
<th>F-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age(years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-28 years</td>
<td>20</td>
<td>23.5</td>
<td>5.25±5.58</td>
<td>0.51</td>
<td>0.72</td>
</tr>
<tr>
<td>29-39 years</td>
<td>31</td>
<td>36.5</td>
<td>4.83±5.86</td>
<td></td>
<td>NS,p&gt;0.05</td>
</tr>
<tr>
<td>40-50 years</td>
<td>23</td>
<td>27.1</td>
<td>4.43±5.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-60 years</td>
<td>8</td>
<td>9.4</td>
<td>7.62±6.52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;60 years</td>
<td>3</td>
<td>3.5</td>
<td>6.33±5.50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Patients characteristics | No. of patients | Percentage (%) | Mean risk of constipation score | F-value | p-value | F-value | p-value |
--- | --- | --- | --- | --- | --- | --- | --- |
Gender | | | | | | | |
Male | 38 | 44.7 | 4.78±5.62 | 0.13 | 0.87 | | |
Female | 47 | 55.3 | 6.44±5.85 | | | NS,p>0.05 | |
Transgender | 0 | 0 | 0±0 | | | | |
Marital Status | | | | | | | |
Single | 13 | 15.3 | 6.76±6.27 | 0.47 | 0.75 | | |
Married | 58 | 68.2 | 4.58±5.58 | | | NS,p>0.05 | |
Divorced | 7 | 8.2 | 6.14±6.33 | | | | |
Widow | 5 | 5.9 | 6±5.78 | | | | |
Other | 2 | 2.4 | 5±7.07 | | | | |
Educational Status | | | | | | | |
Primary | 26 | 30.6 | 5.07±5.83 | 0.28 | 0.83 | | |
Higher Secondary | 26 | 30.6 | 5.11±5.83 | | | NS,p>0.05 | |
Graduation | 32 | 37.6 | 5.37±5.71 | | | | |
PG and above | 1 | 1.2 | 0±0 | | | | |
Occupation | | | | | | | |
Govt. Servant | 10 | 11.8 | 6.80±5.47 | 0.69 | 0.60 NS | | |
Private Sector | 26 | 30.6 | 5.03±5.95 | | | p>0.05 | |
Employee | | | | | | | |
Homemaker | 35 | 41.1 | 5.34±5.74 | | | | |
Retired | 2 | 2.4 | 0±0 | | | | |
Other | 12 | 14.1 | 4.25±5.80 | | | | |
Monthly Family Income(Rupees) | | | | | | | |
Up to 3000 Rupees | 34 | 40.0 | 5.17±5.58 | 0.65 | 0.62 NS | | |
3001-5000 Rupees | 24 | 28.2 | 6.04±6.16 | | | p>0.05 | |
5001-10000 Rupees | 11 | 12.9 | 3.81±5.84 | | | | |
10001-20000 Rupees | 12 | 14.2 | 3.66±4.73 | | | | |
≥20001-30000 Rupees | 4 | 4.7 | 7.50±7.32 | | | | |
Life Style | | | | | | | |
Sedentary | 4 | 4.7 | 8±2.94 | 1.02 | 0.30 NS | | |
Active | 81 | 95.3 | 5±7.78 | | | p>0.05 | |
Body Mass Index(kg/m2) | | | | | | | |
Underweight | 16 | 18.8 | 7.56±6.74 | 2.01 | 0.14 | | |
Normal | 56 | 65.9 | 4.78±5.45 | | | NS,p>0.05 | |
Overweight | 13 | 15.3 | 3.69±4.95 | | | | |
Obese | 0 | 0 | 0±0 | | | | |
Previous constipation history | | | | | | | |
No | 70 | 82.4 | 4.82±5.83 | 1.09 | 0.27 | | |
Yes | 15 | 17.6 | 6.60±6.87 | | | NS,p>0.05 | |
Type of surgery | | | | | | | |
Stomach | 5 | 5.9 | 5.40±5.54 | 0.53 | 0.71 | | |
Colon | 5 | 5.9 | 3.80±5.21 | | | NS,p>0.05 | |
Appendix | 17 | 20.0 | 4.17±5.00 | | | | |
Hernia | 33 | 38.8 | 4.81±5.46 | | | | |
Other | 25 | 29.4 | 6.44±6.71 | | | | |
Postoperative mobilization day | | | | | | | |
Day 0 | 7 | 8.2 | 5.42±6.28 | 0.10 | 0.95 NS | | |
Day 1 | 49 | 57.6 | 5.38±5.46 | | | 0.05 | |
Day 2 | 19 | 22.4 | 4.63±6.29 | | | | |
Day 3 and above | 10 | 11.8 | 4.70±6.79 | | | | |

4. DISCUSSION

This segment deals with the evaluation of the extent of risk of constipation in abdominal surgery patients. 48.24% of patients undergoing abdominal surgery had no risk of developing constipation, 29.41% had a low risk of constipation, 14.12% had a moderate risk, and 8.23% of patients undergoing abdominal surgery had a severe risk of constipation.
According to the literature, small intestine returns to its normal function in a couple of hours after the surgery. This time would be 24 - 48 hours for stomach surgery and 48 - 72 hours for colon surgery. Previous studies regarding abdominal surgeries, the bowel elimination problem often occurred and it did not occur in 3 - 57% of the patients. There is a constipation risk in the patients who have undergone abdominal surgery since bowel elimination problem is high. Surgery and postoperative practices are effective on bowel elimination problem after abdominal surgery [13].

A similar study may be conducted to determine the difference in the degree of constipation among abdominal surgery patients on the basis of different cultures. An advantage of this research is in this research for collecting data-use resources with proven reliability and validity in a sample. This research provides a more systematic opportunity for potential studies to be evaluated [14].

In recent studies, it was reported that early mobilization and early enteral feeding are beneficial for bowel functions and help patients to return to their normal bowel functioning within 12-72 hours. Furthermore, the surgery type, anesthesia, duration of surgery, postoperative analgesic use and duration of hospitalization are found to negatively affect bowel elimination, but the result did not show a statistically significant difference. The effect of these variables on bowel elimination was emphasized in the previous studies. It was proven that epidural anesthesia returns bowel functions earlier [15].

Cross-sectional study was conducted in a general surgery ward of a university hospital in Zonguldak, Turkey between January 2013 and May 2013. Most of the patients have undergone colon (37.4%) and stomach surgeries (21.5%). Open surgical intervention (83.2%) was performed on almost all patients (96.3%) under general anesthesia. Patients were at moderate risk for constipation with average scores of 11.71 before the surgery. A total of 77 patients (72%) did not have bowel elimination problem during postoperative period. The type of the surgery (P < 0.05), starting time for oral feeding after the surgery (P < 0.05), and mobilization (P < 0.05) were effective on postoperative bowel elimination. There is a risk for constipation after abdominal surgery [16].

5. CONCLUSION
The researcher performed quantitative research on the subject in order to determine the likelihood of constipation among patients undergoing abdominal surgery. The purpose of the study was to determine the risk of constipation in patients. To precede the analysis, such goals were pre-determined. Those targets were necessary to achieve the findings. For every phase, a specific time period has been allocated. In the beginning, the researcher expressed her hypothetical opinions about the research. 48.24% of abdominal surgery patients had no constipation, 29.41% had a low risk of constipation, 14.12% had mild constipation, and 8.23% of abdominal surgery patients had a severe risk of constipation. A researcher may be conducted to explore further risk factors that influence the risk of constipation among patients undergoing abdominal surgery. Similar studies may be carried out to generalize the results with more study participants. One of the drawbacks of this study is research work carried out in AVBR hospital Sawangi (Meghe) so that it can be carried out in different district hospitals and country hospital.

STUDY LIMITATION AND STRENGTHS
Results of the study are limited to the sample group and cannot be generalized. To overcome this problem, studies must be conducted on larger samples. Second, the present study has a limited number of affecting factors examined. Third limitation is the cross-sectional design of this study, which prohibited it from exploring causal relationships. Use of instruments with known reliability and validity in a sample is an asset of this study.

The study was limited to sample size (i.e. 85 Patients). This might be inadequate to generalize the study findings. More time duration would give more relevant results with variations of any research, but the researcher planned to complete the research work within one month to get more feasibility of getting sample. Therefore, sufficient number of sample and time duration was required to establish risk of constipation among undergoing abdominal surgery patients.

CONSENT
Individual consent has been taken from patients undergoing abdominal surgery.
ETHICAL APPROVAL

The institutional ethical committee of Datta Meghe Institute of Sciences deemed to be university sanctioned approval for conducting the research study. Ref No. DMIMS (DU)/IES/Dec-2019/8641

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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