DOI: 10.7860/JCDR/2023/59853.17262

Research Protocol

Anaesthesia Section

Assessment of Behavioural Preparedness on Recovery Outcomes in Patients Undergoing Abdominal Surgeries

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ABSTRACT

Introduction: Behavioural preparedness is the process of preparing patients for the psychological and emotional challenges that may be encountered during and after surgery. This can include providing education about the surgical procedure and postoperative recovery, as well as training in coping strategies and techniques to manage anxiety, fear, and other negative emotions. Prior sensitisation is a form of behavioural preparedness that involves providing patients with information about the potential outcomes of their surgery in advance, in order to help them better understand and prepare for potential challenges. It has been suggested that providing this type of education and training may reduce patient anxiety, increase co-operation with medical staff, and improve recovery, potentially leading to shorter hospital stays and reduced medication needs.

Aim: To assess the effects of behavioural preparedness and prior sensitisation on psychological aspects, recovery outcomes, and user satisfaction in patients undergoing abdominal surgeries.

Materials and Methods: The study will be undertaken on patients in the Inpatient Department (IPD) of the Department of Surgery in a rural tertiary care hospital in central India, during a period spanning two months. All adult patients (aged 18-60 years) undergoing elective abdominal surgical procedures under anaesthesia in the IPD of the Department of Surgery will be eligible. The patients will be randomly selected and interviewed preoperatively, dividing them into two groups: those receiving the intervention and those receiving standard care with no intervention. The investigator will provide an oral presentation to the intervention group regarding their recovery outcomes and expectations. Subjects will be evaluated with a Visual Analog Scale (VAS) scale for pain, RAND 36-item Short Form health Survey (SF-36) questionnaire for physical mobility, RAND Patient Satisfaction Questionnaire III (PSQ-18) instrument for user satisfaction, length of hospital stay and analgesic switchover time on a survey form and the Spielberger State-Trait Anxiety Inventory (STAI) forms Y1 and Y2 for comparison of preoperative and postoperative negative affects. Effects of the intervention on recovery outcomes will be compared via the Chi-square test, the Mann-Whitney U test for comparison of qualitative data between the two groups and the Student's Unpaired t-test for comparison of quantitative data between the groups. Wilcoxon's Signed Rank test and the Student's paired t-test will be used for analysing qualitative and quantitative input between preoperative and postoperative states.

Conclusion: The study seeks to determine if a significant difference occurs from providing patients with prior knowledge about their outcomes and establishing the benefits of psychological preparedness as a cost-effective method in improving outcomes and postoperative recovery.

Keywords: Elective surgery, Postoperative pain, Recovery outcomes, User satisfaction

INTRODUCTION

Surgery and invasive medical approaches are unconscionably daunting and psychologically threatening. They may have a negative impact on the patient's ability to take care of themselves, their socio-economic status, and their family structure, which might have long-term consequences. Patients undergoing such procedures may be prone to overwhelming emotions such as anxiety, aggression, and fear, which, in a medical setting, might render them unable to co-operate with doctors and other medical staff translating to ill effects, failure in compliance with treatment and/or an upturn in medications. Human behaviour is of paramount importance in the determination of health and hence, behavioural interventions that influence the adaptive responses of patients to dire stress and its outcomes have become the need of the hour. Cognitive, behavioural strategies as a form of "evidence-based" interventions to better delve into the information processing of the patient to their milieu, are required to engage in our understanding of perception, user satisfaction and personality variables like denial and anger.

A rational approach to injuries can be encouraged by challenging the negative aspects of its consequences and focusing on mitigating irrational patterns. Potential benefits from such a method are large and may have considerable applications such as the one to be discussed in this study seeking to modify postoperative feelings of pain, duration of stay and other parameters via prior sensitisation and/or training of the patients regarding the outcomes of their morbidities. Patient beliefs relating to the surgery and their ability to comprehend and better process emotional states during recovery are directly related to hastened recovery and early physical mobility [1].

The anxiety of a patient in the absence of information that enables him to make sense of his condition is a major factor in both pre-and postoperative states. A single reason has not been found out, but theories of patient aggression and fear preoperatively directly relating to postoperative adjustment have been proposed [1]. Thus, adding a behavioural/cognitive component in the preparation of invasive surgeries reduces patient anxiety and increases co-operation, speeding up recovery and reducing the duration of hospital stay and analgesic requirement [1]. The modern-day advent of cheap access to the internet, especially to multiple search engines, acts as a dual-edged sword by providing mere information to patients without a practical correlation to their present scenario, thus inviting anxiety and lack of a reasonable degree of care on their part. With a need for research and implementation of the same in India, safe, flexible, and effective preoperative education strategies are hence required to create awareness.

The main aim of the study will be to compare the psychological aspects and variables in patients having prior sensitisation about their surgical outcomes to those not receiving the intervention in the adult age group and review the effects of behavioural preparedness

on hospital stay, medication requirement, recovery and user satisfaction among patients of the two groups.

MATERIALS AND METHODS

The cross-sectional study will be undertaken on patients in the Inpatient Department (IPD) of the Department of Surgery in a rural tertiary care hospital in central India, during a period of two months. Due clearance from the Institutional Ethics Committee (IEC) will be taken for the study (Reference: DMIMS(DU)/IEC/2021/425). Informed consent for participation will be obtained from the patients before surgery, at the preoperative stage, and a careful and simple explanation of the study and its intended outcomes will also be provided to them.

Inclusion criteria:

- Adult patients (between ages of 18 and 60 years) undergoing elective abdominal surgical procedures under general anaesthesia.
- Patients attending the IPD of the Department of Surgery.
- Willing and conscious patients consenting to the study.

Exclusion criteria:

- Patients requiring emergency surgeries or with severe morbidities requiring successive/extensive surgeries.
- Patients with clinically diagnosed psychiatric disorders.
- Patients receiving medication in the form of sedatives.

Sample size: Due to a lack of a defined standard deviation and expected significant difference, the sample size will include at least 30 participants, divided into two groups, in an equal ratio of 15 per group, reflecting on a previous study [5,6].

The patients will be selected and interviewed preoperatively and postoperatively with due consent, thus dividing them into two groups, one receiving the intervention, and one receiving standard care with no intervention.

(1) The control group will receive standard hospital care practices including preoperative check ups for anaesthesia and general concern about adverse activities such as coughing after surgery.

(2) The intervention group will receive a pamphlet or an oral presentation describing the sensations and effects likely to be experienced during the procedure and will include descriptions on skin and intravenous preparation, postoperative diet, effects of medications, relaxation techniques and information of the postoperative state (bloating, cramps, dryness of mouth).

(3) Data will be recorded on special e-survey forms designed by the authors keeping the basic structure of the selected scales intact.

Consent will be obtained preoperatively along with an interview for the negative affects scale, to contrast with the one that will be conducted postoperatively.

Comparison: No treatment concurrent control groups (typically standard care and/or attention control).

Proposed Intervention

Psychological/behavioural preparation are preoperative interventions involving a myriad of strategies designed to impact the cognition of a person and the following types of interventions will be employed as per the findings [1-3]. Procedural information, sensory information, behavioural instruction, relaxation techniques, cognitive and emotion-focused interventions [4].

- **Procedural information:** Describes the procedure that the patient will undergo explaining the "What, How and When" of the procedure.
- **Sensory information:** Describes how the procedure will feel like or other relevant experiences such as taste or smell sensations.
- **Behavioural instruction:** Will include informing the patients of facilities/ways that would enable a safe and efficient recovery, for example, proper usage of medical equipment.
- **Cognitive interventions:** Aims to change how the patients think and respond to the negative aspects of the process. This can be undertaken by cognitive reframing and distraction, for example, focusing thoughts on other things which also includes relaxation.
- **Relaxation techniques:** Involve instructions aimed at reducing sympathetic arousal, to cause muscle relaxation and a state of calmness and may be used to reduce tension and anxiety preoperatively. These include guided imagery (visualisation/ distraction to an imaginary "pleasant" place), breathing techniques (for example, diaphragmatic breathing), simple relaxation or meditation.
- **Emotion-focused interventions:** Enable patients to become more equipped to process their emotional states and include discussion, acceptance and giving them context.
- **Hypnosis:** Not applicable in the current scenario.

Assessment Criteria

The selected patients will be evaluated on certain psychological aspects and personality variables. They will also be assessed on postoperative pain and acceptance, along with the requirement for medications or switching from injectable to oral analgesic duration, hospital stay and user satisfaction via various methods, which are described under the following heads:

i. Postoperative pain intensity prioritising self-report and sensory pain: The pain Visual Analog Scale (VAS) will be employed on conscious patients which is a continuous, single item scale which may be a horizontal or a vertical line, usually 10 cm (100 mm) in size, with two graphical or verbal indicators at each end relating to the severity of pain, ranging from "No pain felt" to "Worst pain imaginable" [7].
   - The patients will be asked to report on their current pain or intensity over the last 24 hours.
   - Using a ruler, the score will be determined by measuring the distance (mm) on the scale between the two anchors having been allocated scores of '0' and '100'.
   - A higher score indicates a greater intensity and from previous studies, the following cut-points are recommended: no pain (0-4 mm), mild pain (5-44 mm), moderate pain (45-74 mm), and severe pain (75-100 mm) [8].

ii. Behavioural recovery relating to physical mobility and restoration of performance: The RAND 36-item Health Survey (version 1.0) or Short Form health Survey (SF-36) developed by the RAND Corporation as part of the Medical Outcomes Study (MOS) is a set of generic, easy to understand and easy to administer quality of life measures. The survey utilises self-reporting as a measure to tap into concepts such as physical functioning, bodily pain, limitation in roles due to physical/ emotional problems, social and emotional well-being, energy, and general perceptions about health [9].
   - Scoring is a two-step process that involves recording the numerical value assigned to a particular answer, subsequently averaging certain specific items to create scales (physical functioning, role limitation and so on) and finally calculating for measures of central tendency and variability in the scales.

iii. Length of hospital stay (in days): Including the day of discharge, will be analysed for outcomes of recovery.

iv. Switchover from injectable to oral analgesic time (in days): Will be obtained from patient records.

v. User satisfaction: The short form of Patient Satisfaction Questionnaire III (PSQ-18) instrument [10] developed by the RAND Corporation deals with the development of psychometric properties and taps into dimensions of medical care satisfaction such as general satisfaction, technical quality, communication, accessibility, convenience, etc., and is analysed in the same manner as the SF-36 instrument via a two-step process of recording pre-assigned values and calculating averages of the scales created.

vi Preoperative and postoperative negative affects/mood: The Spielberger State-Trait Anxiety Inventory (STAI) is a psychological inventory that relies on a 4-point Likert scale and consists of questions answered on a self-reported basis [11]. The STAI measures state anxiety (event-related) and trait anxiety (personality related). Form Y1 and form Y2, the current revisions of the same will be employed to find correlations of outcomes to levels on anxiety.

- The value of possible scores for form Y of the STAI ranges from a minimum score of 20 to a maximum score of 80 on both the STAI-T and STAI-S subscales. STAI scores are commonly classified as “no or low anxiety” (20-37), “moderate anxiety” (38-44), and “high anxiety” (45-80).

STATISTICAL ANALYSIS

Analysis will be conducted with the help of the Statistical Package for the Social Sciences (SPSS) version 28.0, IBM Corporation and Excel 2019, Microsoft Corporation. Effects of the intervention on recovery outcomes will be compared via Chi-square test, Mann-Whitney U test for comparison of qualitative data between the two groups and the Student’s Unpaired t-test for comparison of quantitative data between the groups. Wilcoxon’s Signed Rank test and the Student’s paired t-test will be used for analysing qualitative and quantitative input between preoperative and postoperative states.

DISCUSSION

The investigator expects that the application of behavioural sensitisation techniques will indicate enhanced recovery outcomes in patients over standard care practices. Improvements in ratings of postoperative pain intensity, behavioural recovery and patient satisfaction with their medical care are surmised from the intervention group compared to the control. The study will presumably also correlate effects of preoperative psychological preparation to reduced duration of hospital stay and a reduction in time of switchover from injectable to oral analgesics. Postoperative levels of state and trait anxiety evaluated against preoperative levels are foreseen to show a modest decline in the intervention group in contrast to the control group. The results will be utilised to further research newer modalities in behavioural preparedness to influence patient healthcare and adoption of said methods in routine practice.

Evidence is mounting that psychological variables influence surgical results in both the short and long-term. Preoperative anxiety, hopelessness, and low self-efficacy have all been linked to worse physiological surgical outcomes and postoperative quality of life [12].

CONCLUSION(S)

The study seeks to establish the benefits of psychological preparedness as a cost-effective method in improving outcomes and postoperative recovery, along with creating awareness amongst patients and doctors, aspiring to improve healthcare delivery services. Although ignorance might be bliss for some patients, an accurate grasp of future expectations in the form of an ability to accept is even better.

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PLAGIARISM CHECKING METHODS: [Jain H et al.]

- Plagiarism X-checker: Sep 30, 2022
- Manual Googling: Oct 11, 2022
- iThenticate Software: Oct 14, 2022 (10%)

ETYMOLOGY: Author Origin

AUTHOR DECLARATION:

- Financial or Other Competing Interests: None
- Was Ethics Committee Approval obtained for this study? Yes
- Was informed consent obtained from the subjects involved in the study? No
- For any images presented appropriate consent has been obtained from the subjects. No

Date of Submission: **Aug 25, 2022**
Date of Peer Review: **Sep 26, 2022**
Date of Acceptance: **Oct 15, 2022**
Date of Publishing: **Jan 01, 2023**