

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

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### ABSTRACT

*This is a cross-sectional study within comparison groups to assess the effects of behavioural preparedness and prior sensitization on psychological aspects and variables such as post-operative pain intensity, measures of physical well-being, length of hospital stay, switchover time from injectable to oral analgesics and user satisfaction. The study will be undertaken on patients in the In-patient department of Surgery in a rural tertiary care hospital in central India, during a period spanning 2 months. All adult patients (aged 18-60) undergoing elective abdominal surgical procedures under anaesthesia in the IPD of Surgery are eligible. Patients from other departments or those undergoing emergency surgeries, local anaesthesia or with severe morbidities are not included.*

*The patients will be randomly selected and interviewed pre-operatively, 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 are subsequently evaluated with a Visual Analog Scale (VAS) scale for Pain, RAND SF-36 questionnaire for physical mobility, RAND PSQ-18 questionnaire for user satisfaction, length of hospital stay and analgesic switchover time on a survey form and the Spiel Berger State-Trait Anxiety Inventory (STAI) forms Y1 and Y2 for comparison of pre-and post-operative negative effects.*

*Data will be analysed with the help of SPSS (version 15.0), IBM Corporation. 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 pre-and post-operative states. 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 post-operative recovery.*

**Key words:** Behavioural preparedness, Post-operative pain, User satisfaction, Elective surgery, Recovery outcomes

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### INTRODUCTION

Surgery and invasive medical approaches are unconsciously daunting and psychologically threatening. They can adversely impinge upon the patient's capacity for self-care, their socio-economic situation and family dynamics leading to long term effects. 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 to 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. They have had a remarkable influence in the management of emotional disorders since the 1910s.

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 post-operative states. A single reason hasn't been found out but theories of patient aggression and fear pre-operatively directly relating to post-operative adjustment have been proposed [2]. 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 [3]. The patient also needs to be prepared for any adverse outcomes that the surgery may lead to, which includes dealing with coming to terms with his condition. Behavioural preparedness might also help reduce the surge in recent attacks on doctors in the community and with the emergence of evidence-based practices, making it important that further research is done to establish the need for behavioural interventions to manage the psychological and emotional challenges that a patient presents subjectively as well as objectively. 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 our country, safe, flexible, and effective pre-operative education strategies are hence required to create awareness.

### Objectives

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.

To review the effects of behavioural preparedness on hospital stay, medication requirement and recovery in the two groups.

To assess and review user satisfaction among patients of the two groups.

## METHODOLOGY

### Study type

Cross-sectional, clinical study within comparison groups.

### Study design

The present study will be undertaken on patients in the In-patient department (IPD) of the Department of Surgery in a rural tertiary care hospital in central India, during a period spanning 2 months. The study will be conducted after due clearance from the Institutional Ethics Committee (IEC). Informed consent for participation will be obtained from the patients before surgery, at the pre-operative stage, and a careful and simple explanation of the study and its intended outcomes will also be provided to them.

### Inclusion criteria

Adult patients (aged 18 and above) undergoing elective abdominal surgical procedures under anaesthesia.

Patients attending the IPD of Surgery.

Willing and conscious patients consenting to the study.

### Exclusion criteria

Patients in the paediatric (below 18 years of age) and geriatric (above 60 years of age) age groups.

Surgeries performed under local anaesthesia.

Patients attending other surgical departments.

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.

Informed refusal and non-cooperation.

### Proposed intervention

Psychological/Behavioural preparation are pre-operative interventions involving a myriad of strategies designed to impact the cognition of a person and the following types of interventions will thus be employed as per findings by Johnston, in 1978 and 1985 [1,4,5]. Procedural information, Sensory information, Behavioural instruction, relaxation techniques, cognitive and emotion-focused interventions.

**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:** Aim 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 pre-operatively. 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.

The patients will be randomly selected and interviewed pre-and post-operatively with due consent thus dividing them into two groups, one receiving the intervention, and one receiving standard care with no intervention.

The control group will receive standard hospital care practices including pre-operative check-ups for anaesthesia and general concern about adverse activities such as coughing after surgery.

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 IV preparation, post-operative diet, effects of medications, relaxation techniques and information of the post-operative state (bloating, cramps, dryness of mouth, etc.) Data will be recorded on special e-survey forms designed by the author keeping the basic structure of the selected scales intact.

Consent will be obtained pre-operatively along with an interview for the Negative effects scale, to contrast with the one that will be conducted post-operatively.

### Comparison

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

### Assessment criteria

The selected patients will be evaluated on certain psychological aspects and personality variables. They will also be assessed on post-operative 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:

#### Postoperative pain intensity prioritizing self-report and sensory pain

The Pain Visual Analogue 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" [6].

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) [7].

#### 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, and limitation in roles due to physical/emotional problems, social and emotional well-being, energy, and general perceptions about health [8-14].

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.

Length of Hospital Stay (in days) – including the day of discharge, will be analysed for outcomes of recovery.

Switchover from Injectable to Oral analgesic time (in days)–will be obtained from patient records [15-17].

#### User satisfaction

The short form of Patient Satisfaction questionnaire III, i.e. the PSQ-18 instrument [9] 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.

#### Pre-and post-operative 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 [10]. 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".

#### Sample size

Reflecting on previous studies and 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.

#### Data analysis

Will be conducted with the help of Statistical Package SPSS (version 15.0), IBM Corporation and Excel 2013, Microsoft Corporation. Effects of the intervention on recovery outcomes will be compared via the Chi-square test, the Mann-Whitney test 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 pre-and post-operative states.

#### Expected outcomes

The investigator expects that the application of behavioural sensitization techniques will indicate enhanced recovery outcomes in patients over standard care practices. Improvements in ratings of post-operative 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 pre-operative psychological preparation to reduced duration of hospital stay and a reduction in time of switchover from injectable to oral analgesics. Post-operative levels of state and trait anxiety evaluated against pre-operative levels are foreseen to show a modest decline in the intervention group in contrast to the control group. The results will be utilized to further research newer modalities in behavioural preparedness to influence patient health care and adoption of said methods in routine practice.

#### CONCLUSION

This study will categorize the participants into two groups: Patients receiving the intervention and those who do not, to determine if a significant difference occurs from providing patients with prior knowledge about what to expect, how to process what they experience and coping mechanisms. Further understanding can be achieved by analysing adrenomedullary and adrenocortical biochemical, namely Epinephrine and Norepinephrine; or focusing on the particularity of intervention used. Behavioural preparedness is being looked under a new light for application in all severe morbidities where a cure is difficult to achieve. Given a paucity of well-designed studies on this topic in our country, the study seeks to establish the benefits of psychological preparedness as a cost-effective method in improving outcomes and post-operative 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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