

Impact of preoperative surgical anxiety on postoperative surgical recovery among surgical patients: Role of surgical coping

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Abstract

Objective: To examine the moderating impact of surgical coping in the relationship between pre-operative surgical anxiety and post-operative surgical recovery.

Methods: The descriptive cross-sectional study was conducted at the surgical department of various hospitals across Punjab, including the Allied Hospital, Faisalabad, District Headquarters Teaching Hospital, Sargodha, Jinnah Hospital, Lahore, and Margalla Institute of Health Sciences, Rawalpindi, Pakistan, from May 1, 2018, to May 1, 2019. It comprised surgical patients of either gender aged 18-60 years. Data was collected using the Amsterdam Pre-operative Anxiety and Information Scale, the Surgical Recovery Scale, and the Coping with Surgical Stress Scale. Moderation analysis was applied using PROCESS Macro 3.2.

Results: Of the 200 patients, 85(42.5%) were males and 115(57.5%) were females. The overall mean age was 36.34 ± 12.64 years. Threat avoidance ($p < 0.001$) and information-seeking ($p < 0.001$) coping strategies moderated the relationship between surgical anxiety and surgical recovery of the patients.

Conclusion: The use of appropriate coping strategy for prompt recovery post-surgery is critical.

Keywords: Surgical anxiety, Surgical recovery, Coping, Threat avoidance, Information seeking. (JPMA 71: 2313; 2021)

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Introduction

Every year, millions of the patients undergo surgery and develop multiple psychological distresses including anxiety. A scheduled surgical operation is a stressful process for everyone including children and adults. Surgery is an unpleasant and potentially life-threatening experience which is usually followed by a number of elements interconnected with anxiety at pre-operative stage of surgery due to the major illnesses, time duration in staying at hospital, fear of effect of anaesthesia — especially the time when anaesthesia is induced in patients — and the lengthy procedures of operation itself.¹ Pre-operative surgical anxiety is an adverse condition of negative emotions experienced by patients regarding disease or infection, exposure to anaesthesia, hospital environment and fear of post-operative pain.² Although various factors are associated in the arousal of pre-surgical anxiety, such as lack of information about surgery, new hospital environment, unknown roommates, minimal social support, fear of pre-post medications, including injections, feeling of distress, rumination and pain after surgery.^{3,4} Post-operative recovery is the functional procedure of resolving the physiological and psychological symptoms associated with surgery.⁵ Surgical copings are labelled as the approaches which are carried out by surgical patients when pre- or post-operative anxiety is aroused. Patients need to cope with physiological symptoms in

general and symptoms of anxiety in particular while undergoing surgery. Research suggests that patients with sufficient information about surgery and awareness about the healing period had improved coping capabilities which helped them adopt appropriate behaviours towards recovery.⁵ Studies on coping strategies in relevance to the recovery of patients have suggested that effective communication among multiple informants, including patients, surgeons, clinicians and family members, is an appropriate way of enhancing post-operative surgical recovery compliance with recommendations of treatment,⁶ healthcare satisfaction,⁷ general consequences of treatment⁸ and psychological well-being.⁹

Numerous studies have been conducted in different contexts, but in Pakistan this topic is still a less-researched area. The existing research in Pakistan is limited to pre-operative anxiety only. A study examined the frequency of pre-operative anxiety which was reported as high as 62%.¹⁰ High level of anxiety before surgery is linked with post-operative recovery. The Classical Grounded Theory gives the extended theoretical description about social developments in the experiential world.¹¹ It is stated that coping behaviours are multidimensional having complex phenomena¹² that are allied with affective, physiological, behavioural, psychosocial and cognitive magnitudes or dimensions.^{13,14} Moreover, researchers reported that educational interventions, physiological, and psychological strains, like threat avoidance, of the surgery are linked with modified coping behaviours.

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A study comprised abdominal surgery patients and explored the relationship among pre-operative counselling, early post-operative mobilisation, and smooth recovery.¹⁵

Studies in western countries were conducted on variables like pre-operative emotional distress,¹⁶ personality,¹⁷ coping strategies,¹⁸ as well as pre- and post-operative anxiety in emergency patients.¹⁹

To examine the moderating impact of surgical coping in the relationship between pre-operative surgical anxiety and post-operative surgical recovery.

Subjects and Methods

The descriptive cross-sectional study was conducted at the surgical department of various hospitals across Punjab, including the Allied Hospital, Faisalabad, District Headquarters (DHQ) Teaching Hospital, Sargodha, Jinnah Hospital, Lahore, and Margalla Institute of Health Sciences, Rawalpindi, Pakistan, from May 1, 2018, to May 1, 2019. ERC approval had been taken from the ethical review team. The sample was raised using purposive sampling technique from among patients of either gender aged 18-60 years undergoing minor and major surgeries. Sample size was calculated by using the g-power analysis.²⁰ Patients who could not participate in the post-operative phase were excluded. Patients reported their post-operative pain in term of mild, moderate and severe levels. Questionnaire booklets were distributed after taking informed consent from the participants.

Data was collected using the Amsterdam Preoperative Anxiety and Information Scale (APAIS)²¹ to measure pre-operative surgical anxiety. It has six items and two subscales; APAIS-A with 4 items measures anxiety before undergoing surgery, and APAIS-I with 2 items exploring need for information. The items are rated on a five-point Likert scale. Scores range from 6 to 30, with low scores indicating less anxiety and vice versa. The reliability of the scales was 0.80 and it has satisfactory validity.²¹

The Surgical Recovery Scale (SRS)²² was used to measure feelings, emotions and functional aspects of surgical recovery. It has 13 items and is rated on a 6-point scale, with scores ranging from 13 to 78. Low scores show low recovery and high scores indicate high recovery. SRS has high alpha

reliability of 0.98, and has high validity to measure post-operative surgical recovery.²²

The Coping with Surgical Stress Scale (COSS)²³ was used to measure the strategies used to cope with surgical stress. It has 27 items, and five subscales. The items are rated on a five-point Likert scale, with scores ranging from 6 to 30, while scores on the information-seeking scale range from 3 to 15. High scores indicate high coping ability and vice versa. Overall reliability of the scales was 0.86 which showed satisfactory internal consistency.²³

All the scales were adapted and translated using the Oblique Translation Technique²⁴ in which bilingual experts participated. After translation, the scales were validated by conducting a pilot study in which the magnitude of correlation coefficients for all items were >0.30 indicating that all items had the desired level of coherence with the overall scale, according to the criteria of Kline (2005).²⁵ The reliability analysis of all the scales showed values >0.07 which indicated high internal consistency. Reliability analysis indicated that all scales were reliable to use in the present study for drawing inferences. Moderation analysis was applied using PROCESS Macro 3.2.

Results

Of the 200 patients who completed the study, 85(42.5%) were males and 115(57.5%) were females. The overall mean age was 36.34 ± 12.64 years. Of the total, 33(16.5%) patients reported mild pain, 80(40%) reported moderate postoperative pain and 87(43.5%) reported severe post-operative pain (Table-1).

Pre-operative anxiety, threat avoidance, information-seeking and post-operative recovery showed alpha coefficients >0.70 (Table 2). The difference between the

Table-1: Sample characteristics.

Demographic Variables	Sub-Groups	n (%)
Gender	Men	85 (42.5)
	Women	115 (57.5)
Operation Type	Minor	78 (39.0)
	Major	122 (61.0)
Operation History	Yes	78 (39.0)
	No	102 (61.0)
Pain Ratio	Mild	33 (16.5)
	Moderate	80 (40.0)
	Severe	87 (43.5)

Table-2: Descriptive, alpha coefficients and Pearson correlation of study variables.

Variables	Mean±SD	α	Potential	Actual	Skewness	Kurtosis	1	2	3	4
1. Pre-operative Anxiety	19.38±6.44	0.84	6-30	6-30	-0.11	-0.93	-	0.30***	0.18**	-0.14*
2. Threat Avoidance	18.97±3.86	0.71	6-30	9-28	-0.02	-0.16	-	-	0.52***	0.28***
3. Information Seeking	10.22±2.61	0.79	3-15	3-15	-0.33	-0.29	-	-	-	0.23**
4. Post-operative Surgical Recovery	45.13±9.87	0.72	13-78	21-68	0.01	-0.52	-	-	-	-

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$. M; Mean, SD: Standard deviation.

Table-3: Mean differences related to study variables in men and women surgical patients. Findings revealed non-significant mean differences on all the variables. The values of Cohen's d ranged from 0.1 to 0.05 which indicated small effect size.

Variables	Men Mean±SD	Women Mean±SD	t(198)	p	95%CI		Cohen's d
					LL	UL	
Pre-operative Surgical Anxiety	19.03±6.84	19.66±6.16	0.68	0.46	-2.45	1.19	0.01
Surgical Coping	91.15±18.28	92.42±13.94	0.56	0.57	-5.77	3.22	0.02
Rumination	19.25±5.76	19.37±4.82	0.16	0.87	-1.59	1.36	0.02
Optimism and Trust	21.25±5.06	21.73±4.78	0.69	0.49	-1.86	0.89	0.09
Turning to Social and Religious Resource	21.96±5.45	21.76±4.30	0.28	0.78	-1.17	1.56	0.04
Threat Avoidance	18.69±4.21	19.19±3.59	0.89	0.38	-1.58	0.61	0.02
Information Seeking	10.00±2.60	10.38±2.62	1.03	0.31	-1.12	0.36	0.05
Post-operative Surgical Recovery	44.56±10.49	45.57±9.42	0.71	0.49	-3.86	1.78	0.00

SD: Standard Deviation, CI: Confidence interval, LL: Lower limit, UL: Upper limit.

genders was not significant (Table 3).

Threat avoidance ($p<0.001$) and information-seeking ($p<0.001$) coping strategies moderated the relationship between surgical anxiety and surgical recovery of the patients (Figure-1)

ModGraph showed that the role of low and moderate levels of threat avoidance and information-seeking were

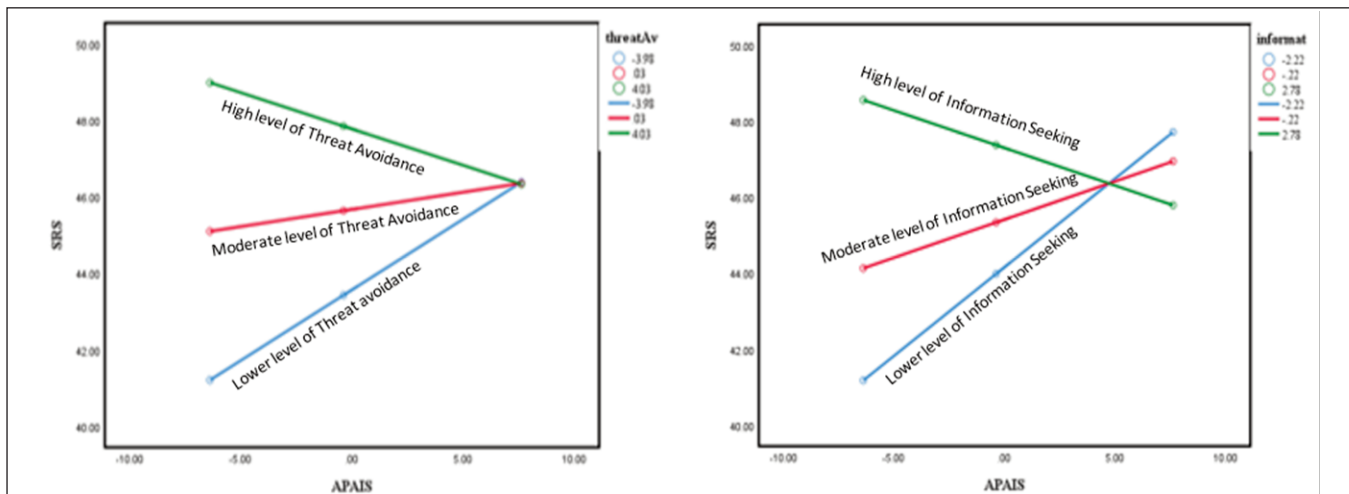
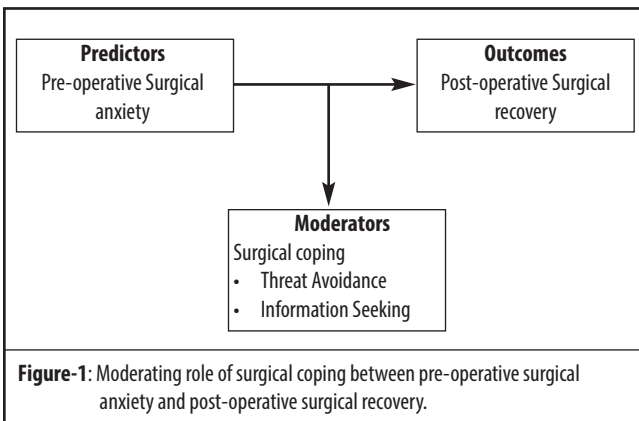


Figure-2: Mod-Graph depicting the moderating effect of threat avoidance and information seeking in the relationship between pre-operative surgical anxiety and post-operative surgical recovery of surgical patients.

antagonistic as the direction of relationship between pre-operative anxiety and post-operative recovery was reversed in which the negative relationship turned into a positive one (Figure-2).

Discussion

In the current study, patients using the threat avoidance coping strategy had better post-operative

recovery. Avoidance is a coping mechanism to effectively deal with stressful conditions and anxiety-laden situations.¹⁹ Literature has revealed that threat avoidance coping skill is successful in reducing pre-operative anxiety linked with recovery of patients post-surgery.²⁶ Thinking about avoiding negativity -- taking the lighter side of the threatened situation -- is likely to reduce anxiety in patients before surgery. Patients using threat avoidance as coping strategy develop self-confidence in solving their problems and have the ability to deal effectively with the situation. This approach has been seen to be the healthiest in terms of maintaining good sleep and is beneficial in the reduction of anxiety symptoms. Thus, threat avoidance more clearly contributes to reducing the impact of pre-operative anxiety on post-operative surgical recovery when it is applied as a coping mechanism.²⁷ Information-seeking was also able to moderate between pre-operative anxiety and post-operative recovery. The more information is collected about the surgical procedure, the higher will be the chances of reducing the element of anxiety. Information-seeking is way to extract information from different

sources. Effective communication of patients with healthcare providers about their health conditions has been very effective in decreasing or reducing anxiety and managing symptoms of psychological distress.^{28,29} Surgical recovery is enhanced when the patients are willing to know more about their surgery. Employing numerous sources of information -- such as questioning from doctors, other staff members, sharing with family members, reading blogs, and consulting books -- turns patients into well-informed self-doctors for their surgical treatment.³⁰ The current study has its limitations. Information was collected about surgical recovery and coping at first follow-up only and did not cover the healing process. Also, entire data was collected from single source, only from the patients, and cross-rating from multiple informants, such as surgeons, nursing staff and caregivers, was not done. The self-reporting nature of data was also a major limitation, further studies are recommended on the subject that may avoid the limitations of the current study.

Conclusion

Surgical patients' elevated anxiety ahead of surgery has an adverse impact on their post-surgical recovery, and information-seeking and threat avoidance coping strategies play a significant role in reducing such anxiety.

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Conflict of Interest: None.

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