

# Factors Related to Pre-Operative Anxiety Among Older Adult Undergoing General Surgery in Jinzhou, China

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## Abstract

As a special group of general surgical patients, elderly patients have relatively weak mental ability, and the problem of pre-operative anxiety is more prominent. This correlational descriptive study aimed to identify factors related to pre-operative anxiety among older adult undergoing general surgery in Jinzhou, China. A simple random sampling method was used to recruit the sample of 82 older adults undergoing general surgery in the Third Affiliated Hospital of Jinzhou Medical University in Jinzhou, Liaoning Province, China. Research instruments included questionnaires to gather data for demographic information, State Anxiety Inventory (S-AI), and Social Support Rating Scale (SSRS). Descriptive statistics and point biserial correlation coefficients, Pearson's product moment correlation coefficients were used to analyze the data.

The results revealed that most of the sample (87.80 %) had moderate pre-operative anxiety (score 41-60). For correlation analysis, pre-operative anxiety was significant negatively correlated with age and social support ( $r = -0.268, p < .05$ ;  $r = -0.508, p < .01$ ), and positively correlated with married marital status ( $r = 0.398, p < .01$ ).

The findings suggest that nurses and other health care providers could apply these study results to develop activities/ programs to prevent pre-operative anxiety in older adults undergoing general surgery by focusing on enhancing social support.

**Key words:** Factors, Pre-operative anxiety, Older Adult, General surgery

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## Introduction

Surgery is one of the commonly used methods in clinical surgical treatment. Previous studies have shown that most patients will have severe stress reaction pre-operative. When the psychological changes caused by stress response cannot be adjusted to normal, it may lead to psychological disorders and affect postoperative recovery (Maatta et al., 2019). Anxiety refers to people's nervous, negative emotions about some imminent danger or harm (Zhang et al., 2019). Pre-operative anxiety is one of the most common and typical stress reactions in patients during the operation period (Kumar, Das, Chauhan, Kiran, & Satapathy, 2019). The severe anxiety pre-operative not only affects the mental state of patients, but also causes changes in blood pressure and heart rate, affects the smooth progress of operation and anesthesia, increases the risk of operation and the probability of complications, and affects the quality of life (Tao, Li, Wang, & Gou, 2018). With the change of medical model, it is important to pay attention to the changes of patients' mental state while treating diseases, which plays an important role in improving the effect of treatment (Li et al., 2016).

Based on the literature review, previous studies have shown that most patients have severe stress response pre-operative, which may lead to psychological disorders when the psychological changes caused by stress response cannot be adjusted to normal (Liu, Gao, & Yang, 2018). Pre-operative anxiety is one of the most common stress reactions in patients pre-operative (Kumar et al., 2019). Existing studies have shown that among the 996 patients who are about to undergo surgery, 650 patients have pre-operative anxiety, and the incidence of anxiety is 65.26%. Among them, there were 389 cases of mild anxiety (39.06%), 140 cases of moderate anxiety (14.06%) and 121 cases of severe anxiety (12.15%) (Liao, & Li, 2019). There are several factors that lead to pre-operative anxiety in existing studies.

## Objectives of the study

1. To study the level of pre-operative anxiety among older adult undergoing general surgery in Jinzhou, China.
2. To examine the relationship between age, educational level, marital status, income, social support, and pre-operative anxiety among older adult undergoing general surgery in Jinzhou, China.

## Conceptual Framework

This study was based on Spielberger anxiety theory, also known as state-trait anxiety theory, which required the use of the state anxiety scale, S-AI, described in State anxiety is often a temporary unpleasant emotional experience, such as stress, fear, anxiety, and nervousness, accompanied by the function of the autonomic nervous system. This study focuses on the relationship between age, educational level, marital status, income, social support, and pre-operative anxiety among older adults undergoing general surgery. The researchers hypothesized that if health care providers were aware that general pre-operative anxiety was common among older adult patients, they would implement intervention behaviors to improve general surgical anxiety and facilitate postoperative recovery.

## Methods

### Research Design

This study is descriptive correlational study was used to examine the relationship between age, educational level, marital status, income, social support, and pre-operative anxiety among older adult undergoing general surgery in Jinzhou, China.

### Population

The study population was older adult undergoing general surgery in the Third Affiliated Hospital of Jinzhou Medical University, China, during June 27 to July 28, 2022.

### Sample and Sample size

The Sample was recruited from the target population, following inclusion criteria: 1) 60 years old and older; 2) Be able to understand, read, write, and speak Chinese; 3) No current psychological problems from medical record. The sample size was calculated following the G\*power program by using the calculation method of correlation study and determined the parameters as follows: Tail = two, effect size = 0.3 (Tan et al., 2020),  $\alpha = 0.05$ , power  $(1-\beta) = 0.8$ , the results showed that the total sample size was 82 participants.

### Sampling

Simple random sampling by lottery was used to recruit participants who met the inclusion criteria. Two to three participants were randomly selected every working day (Monday to Friday) until reaching the prescribed sample size of 82.

### Research Instruments

#### 1. The demographic data questionnaire [DDQ]

The DDF including gender, age, education level, marital status, medical expenses, income.

#### 2. State Anxiety Inventory [S-AI]

The study required the use of the State Anxiety Inventory (S-AI). This inventory has a wide range of applications and was translated into Chinese in 1988 with satisfactory validity and is suitable for our country. The S-AI is self-evaluation, concise in content, easy to operate, and easy to be accepted and mastered by the participants. The scoring method was 1-20 questions, with a full scale of 1-4 (state anxiety: 1-none, 2-some, 3-medium, 4-very obvious. The cumulative scores of state anxiety were calculated respectively, with a minimum of 20 points and a maximum of 80 points (note: all positive emotional items are scored in reverse order). A higher score reflects a higher anxiety. The state anxiety scale has a good internal reliability (Cronbach alpha 0.82), which has been used in many medical and general medical practice (Spielberger et al., 1970). The state anxiety level is as follows: a score of 20-40 means mild anxiety, 41-60 means moderate anxiety, 61-70 means high anxiety, and 71-80 means severe anxiety.

#### 3. Social Support Rating Scale (SSRS)

In this study, the researcher used Chinese version of Social Support Rating Scale. The scale was designed and compiled by Shuiyuan Xiao and other mental health workers on the basis of foreign scales and according to the actual situation in China, which helps people to have a comprehensive

evaluation of their social support. The scale is widely used and recognized in China, With 10 items and 3 dimensions, with a total score of 12-65 points,  $\leq 22$  as a low level, 23-44 as a moderate level, (Xiao, 1994) and  $> 45$  as a higher level. The higher the score, the higher the degree of social support. The coefficient of Cronbach's  $\alpha$  in this scale is 0.817.

### Ethical considerations

The protocol for this study was approved by the Institutional Review Board of Burapha University (Protocol code G-HS064/2564) and the Ethics Committee of the Third Affiliated Hospital of Jinzhou Medical University (Protocol code KX2021- 028).

### Data Collection

Participants who indicated their willingness to participate in the study were asked to sign an informed consent form and fill out the study questionnaire independently in a private setting. The completeness of the questionnaire was checked by the investigator on site. The data collection process was repeated until the specified sample size was reached.

### Data Analysis

In this study, the test level  $\alpha = 0.05$  will be set, and Descriptive statistics were used to describe the demographic data. Pearson correlation coefficient and point biserial were used to examine the relationship between age, educational level, marital status, income, social support, and pre-operative anxiety among older adult undergoing general surgery in Jinzhou, China.

## Results

### Part 1 Demographic characteristics of sample

More than half of the participants were men (60.7%), and the overall age was 61-87 years (M = 66.81, SD = 5.2). Among them, the proportion of 60-69 years was the highest (78.6%). Most of the participants were widowed (54.8%). 53.6% of the participants had a common income of 0 to 5000k. Most participants had history of surgery (67.9%).

### Part 2 Description of pre-operative anxiety

The major portion of pre-operative anxiety had a moderate level of anxiety (87.80%) (score 41-60). The details are shown in Table 1.

**Table 1** Description of pre-operative anxiety (n = 82)

pre-operative anxiety	n	%
Mild anxiety (score 20-40)	7	8.54
Moderate anxiety (score 41-60)	72	87.80
High anxiety (score 61-70)	3	3.66

### Part 3 Relationships between selected factors and pre-operative anxiety

Pearson's correlation analysis was used to examine the relationships between selected factors (age, educational, marital status, income, social support) and pre-operative anxiety. There was

a correlation between age, educational, marital status, income, social support and pre-operative anxiety. Table 5 showed that pre-operative anxiety was significant negatively correlated with age and social support ( $r = -0.268, p < .05$ ;  $r = -0.508, p < .01$ ), and positively correlated with married marital status ( $r = 0.398, p < .01$ ).

**Table 2** Pearson correlation coefficient and point biserial between selected factors and pre-operative anxiety (n = 82)

Factors	pre-operative anxiety (r)
1. Age	-0.268*
2. Marriage status: Married	0.398**
3. Education	-0.013
4. Income	-0.039
5. Social support	-0.508**

\* $p < .05$ , \*\* $p < .01$

## Discussion

### 1. Pre-operative anxiety among older adult undergoing general surgery

In general, 8.54% of older adult undergoing general surgery had mild pre-operative anxiety, 87.80% had moderate pre-operative anxiety, and 3.66% had high pre-operative anxiety.

The results of this study indicate that most patients have different anxiety conditions before surgery, although most patients still have moderate or obvious anxiety before surgery. This is understandable after all; general surgery for most people is a major life event, and the larger negative stress of not understanding the disease and treatment of elderly patients will bring some mental anxiety. (Li, 2019).

### 2. Factors related to pre-operative anxiety among older adult undergoing general surgery

To explore the related factors of pre-operative anxiety in older adults undergoing general surgery according to the Spielberger anxiety theory. Statistical analysis found a low negative correlation between age and pre-operative anxiety ( $r = -0.268, p < 0.05$ ). For example, Li et al. (2021) pointed out that age can affect the degree of general pre-operative anxiety in elderly patients. Age is considered a factor in pre-operative anxiety. Age may also be related to a person's pre-operative anxiety. This may indicate that older age and more experience lead to a better mindset in older adults. Married status was moderately positively correlated with pre-operative anxiety in the elderly ( $r = -0.398, p < 0.01$ ). This may be because their partner's support reduces their anxiety. (Johnson, 2019). Social support was negatively correlated with pre-operative anxiety in the elderly. ( $r = 0.508, p < 0.01$ ). Our study showed that a robust social support system can significantly reduce pre-operative anxiety. (Wang, Zhang, Sun, Kang, & Wei, 2021). Social support provides emotional comfort and practical help

to help patients face surgical challenges more positively, meaning that the more support a person has in society, the less anxiety they experience before common surgery.

### **Implications for Nursing and Recommendations**

The results of this study will provide a basis for nurses and other medical staff to understand the related factors of pre-operative anxiety of patients in Jinzhou area. Medical staff have a certain understanding of the related factors affecting the pre-operative anxiety of the elderly, which can be paid attention to when providing nursing care to prevent pre-operative anxiety. It is helpful for nurses to make better plans and interventions for patients with pre-operative anxiety, so as to improve the anxiety of patients, improve their quality of life, and promote the recovery of the disease. Researchers can apply these correlated factors in future studies to investigate predictors of pre-operative anxiety in older adults, or incorporate these correlated factors into quasi-experimental studies.

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### **Conflict of Interests**

The authors declare no conflict of interest

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