

## A Correlation Study on Self-Efficacy, Social Support, and Psychological Resilience in Physically Restrained ICU Patients: Postprint

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### Abstract

**Objective** To explore the role of self-efficacy in the relationship between social support and psychological resilience among ICU patients with physical restraints. **Methods** Using purposive sampling, a questionnaire survey was conducted on 221 physically restrained ICU patients from September 2021 to April 2022, applying the Psychological Resilience Scale, General Self-Efficacy Scale, and Social Support Rating Scale. **Results** The psychological resilience score of physically restrained ICU patients was  $(51.68 \pm 9.03)$  points, total social support score was  $(36.47 \pm 7.79)$  points, and total self-efficacy score was  $(23.63 \pm 4.80)$  points. Pearson correlation analysis showed that social support was positively correlated with psychological resilience ( $r = 0.637$ ,  $P < 0.001$ ), and self-efficacy was positively correlated with psychological resilience ( $r = 0.616$ ,  $P < 0.001$ ). Linear regression revealed that subjective support and self-efficacy were the main influencing factors of psychological resilience ( $P < 0.001$ ). Mediation effect analysis demonstrated that self-efficacy played a partial mediating role between social support and psychological resilience, with a relative effect of 38.40%. **Conclusion** Physically restrained ICU patients have poor psychological resilience. Self-efficacy and social support are important influencing factors of psychological resilience. Diversified psychological intervention strategies should be implemented to improve psychological resilience in this population.

### Full Text

#### Preamble

**Title:** Correlation Study on Self-Efficacy, Social Support, and Psychological Resilience Among Physically Restrained Patients in ICU

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## Abstract

**Objective:** To investigate the role of general self-efficacy in the relationship between social support and resilience among physically restrained patients in ICU.

**Methods:** Using a purposive sampling strategy, we conducted a questionnaire survey among physically restrained ICU patients using the Connor-Davidson Resilience Scale (CD-RISC), General Self-Efficacy Scale (GSES), and Social Support Rating Scale (SSRS).

**Results:** The mean resilience score among ICU physically restrained patients was ( ) points, with a total social support score of ( ) points. Pearson correlation analysis revealed that social support was positively correlated with resilience ( $r=$  ), while self-efficacy was the primary influencing factor on resilience ( $P<$  ). Self-efficacy was positively correlated with resilience ( $r=$  ). Linear regression analysis showed that subjective support and self-efficacy were significant predictors. Mediation effect analysis demonstrated that self-efficacy played a partial mediating role between social support and resilience, with a relative effect size of %.

**Conclusion:** Physically restrained ICU patients exhibit poor psychological resilience. Both self-efficacy and social support are important influencing factors on resilience. Diversified psychological intervention strategies should be implemented to enhance resilience in this patient population.

**Keywords:** self-efficacy; ICU; physical restraint; social support; resilience

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## Introduction

The Intensive Care Unit (ICU) is a specialized setting for treating critically ill patients. Physical restraint refers to the use of physical or mechanical devices attached to a patient's body that cannot be easily removed, thereby limiting the patient's freedom of movement. Physical restraint is a common clinical practice in ICUs; however, inappropriate use can cause physiological harm. International research indicates that physical restraint can lead to abrasions, pressure injuries, and vascular and musculoskeletal damage. Studies have also shown

that physical restraint causes psychological trauma, manifesting as anger, irritability, anxiety, loneliness, diminished self-esteem, and feelings of humiliation. Such psychological harm affects patient recovery and reduces quality of life.

Psychological resilience refers to an individual's capacity to recover from adversity. Strong resilience enables individuals to develop effective coping mechanisms and maintain healthy psychological functioning. Physical restraint represents a significant stressor for patients, and robust psychological resilience can facilitate positive adaptation to such adverse events, playing a crucial role in promoting physical and psychological recovery. Research has confirmed that self-efficacy and social support are important factors influencing resilience. This study examines the impact of social support and self-efficacy on resilience among physically restrained ICU patients.

## 1. Materials and Methods

### 1.1 Study Subjects

We selected patients who had undergone physical restraint while admitted to the adult ICU of a tertiary hospital in Fujian Province between and as study participants. This study was approved by the hospital ethics committee (Ethics No.: (K )). Inclusion criteria were: (1) conscious and able to cooperate with the study; (2) history of physical restraint; (3) signed informed consent for questionnaire participation. Exclusion criteria included: hearing impairment; speech communication 障碍; and withdrawal from participation. Dropout criteria were defined as patients experiencing discomfort during the investigation or unable to complete follow-up surveys.

### 1.2 Research Instruments

**General Information Questionnaire:** Based on research content and objectives, we designed a self-developed General Information Questionnaire for ICU Physically Restrained Patients, including demographic characteristics (gender, age, marital status, education level) and disease-related information (ICU admission duration, APACHE score, restraint duration, restraint site, etc.).

**Connor-Davidson Resilience Scale (CD-RISC):** Developed by American psychologists Connor and Davidson in based on post-traumatic stress disorder research, this scale measures resilience levels in general and clinical populations over the past month. The scale includes items, each using a 5-point Likert scale ranging from “not true at all” to “true nearly all of the time.” The total score ranges from to points, with higher scores indicating greater resilience. The Chinese version was translated by Xiao Nan et al. in and includes three dimensions: tenacity, strength, and optimism. Cronbach's  $\alpha$  coefficient is .

**General Self-Efficacy Scale (GSES):** The English version of the GSES was developed by Schwarzer et al. This unidimensional scale contains items without subscales, using a 4-point Likert scale. Each item is scored from 1 to 4, with

response options ranging from “not at all true” to “exactly true.” The theoretical score range is to points, with higher scores indicating greater general self-efficacy. Wang Caikang et al. revised the Chinese version in , demonstrating good reliability and validity with an internal consistency coefficient of and split-half reliability of .

**Social Support Rating Scale (SSRS):** Developed by Xiao Shuiyuan in , the SSRS includes three dimensions: objective support ( ), subjective support ( ), and utilization of social support ( ). Scores of indicate low social support, indicate moderate support, and indicate high support, with higher scores reflecting better social support.

### 1.3 Survey Methods

After obtaining approval from the data collection units and departments, the researcher conducted surveys at patients’ bedsides. For physically restrained patients meeting inclusion criteria, the research purpose and significance were explained in detail. After obtaining consent, the General Information Questionnaire, CD-RISC, GSES, and SSRS were administered within hours of restraint removal. The researcher asked questions while participants responded. If participants could not complete the forms independently, the researcher recorded their responses. General information was obtained through medical record review. Questionnaires were collected immediately and checked for completeness, with any omissions promptly addressed. To minimize participant burden, similar questions were integrated, and each survey required approximately minutes.

### 1.4 Statistical Methods

Data were entered by two individuals to establish a database, and software was used for analysis. Measurement data (such as resilience scores, social support scores, and self-efficacy scores) were expressed as mean  $\pm$  standard deviation ( $x \pm s$ ). Count data (such as age, gender, and marital status) were expressed as frequency and percentage (%). Pearson correlation analysis was used to examine correlations between resilience, self-efficacy, and social support among ICU physically restrained patients. Regression analysis was used to explore relationships between resilience, social support, and self-efficacy, as well as the mediating role of self-efficacy. The significance level was set at  $\alpha = 0.05$ .

## 2. Results

### 2.1 General Patient Information

shows the general characteristics of physically restrained ICU patients.

### 2.2 Resilience Scores of Physically Restrained ICU Patients

The total resilience score was ( ) points, with an item average of ( ) points. Details are presented in .

### 2.3 Social Support and Self-Efficacy Levels

The total social support score was ( ) points with an item average of ( ) points. The total self-efficacy score was ( ) points with an item average of ( ) points. See .

### 2.4 Correlation Analysis Between Self-Efficacy, Social Support, and Resilience

Analysis revealed that self-efficacy, overall social support, and all dimensions of social support were positively correlated with resilience among physically restrained ICU patients, with statistically significant differences ( $P < .$ ). presents these correlations.

### 2.5 Multiple Regression Analysis of Social Support and Self-Efficacy on Resilience

To further analyze the impact of self-efficacy and social support on resilience, multiple regression analysis was conducted with self-efficacy, subjective support, objective support, and support utilization scores as independent variables and resilience score as the dependent variable. Results indicated that general self-efficacy and subjective support were significant influencing factors for resilience in physically restrained ICU patients. shows the regression results ( $R^2 =$  , adjusted  $R^2 =$  ).

### 2.6 Mediating Effect of Self-Efficacy Between Social Support and Resilience

Mediation analysis demonstrated that self-efficacy played a partial mediating role between social support and resilience among physically restrained ICU patients. presents the mediation analysis results, including BOOT standard error, BOOT upper limit, and BOOT lower limit calculated through bias-corrected percentile Bootstrap method. Social support positively predicted resilience both directly and indirectly through self-efficacy. Patients with higher social support demonstrated better psychological adjustment capabilities and adapted more effectively to environmental changes compared to those with lower social support.

## 3. Discussion

### 3.1 Low Resilience Levels Among Physically Restrained ICU Patients

Our findings show that the mean resilience score among physically restrained ICU patients was ( ) points, which is lower than that reported for Chinese trauma patients ( ) and consistent with research by Lin Yang et al. ICU patients are critically ill, mostly elderly with underlying comorbidities and often multiple organ dysfunction. The dual impact of critical illness and physical restraint reduces psychological endurance and resilience. Clinicians should recog-

nize the protective role of resilience for mental health and implement strategies to enhance resilience, reduce negative emotions, and promote better adaptation.

### 3.2 Positive Correlation Between Self-Efficacy and Resilience

Self-efficacy is a crucial factor regulating individual mental health. Our results demonstrate a significant positive correlation between self-efficacy and resilience ( $r =$ ) among physically restrained ICU patients, consistent with findings by Liu Lili et al. Patients with higher self-efficacy adopt positive attitudes toward physical restraint, believing in their capacity to overcome associated psychological challenges, thereby enhancing resilience and promoting recovery.

### 3.3 Positive Correlation Between Social Support and Resilience

Social support was positively correlated with resilience ( $r =$ ) among physically restrained ICU patients, aligning with international research findings. Social support is an important external factor affecting mental health. A robust social support system can effectively reduce psychological stress and enhance resilience. ICU's closed management model, combined with critical illness and lack of family companionship, increases feelings of loneliness and fear. Research indicates that social support provides buffering and protective effects, particularly family encouragement and support, which can significantly improve psychological status, reduce anxiety and depression, and enhance disease coping capacity. Therefore, nursing practice should encourage family involvement, provide spiritual encouragement, and help patients feel supported rather than abandoned. Additionally, nurses should actively facilitate patients' initiative in seeking social support to improve adaptive capacity. Standardized training on physical restraint practices should be strengthened to establish appropriate attitudes and behaviors, minimizing unnecessary restraint-related harm.

### 3.4 Mediating Role of Self-Efficacy

Self-efficacy partially mediated the relationship between social support and resilience. Social support directly influenced resilience while also exerting indirect effects through self-efficacy. Self-efficacy serves as an important internal force enabling individuals to face environmental changes. Patients with low self-efficacy often exhibit pessimism and lack confidence when confronting the stressor of physical restraint, especially when combined with low social support, leading to self-doubt, resistance, and inability to regulate psychological responses. Conversely, patients with high self-efficacy and adequate social support can better assess their emotional status, exercise emotional control, and successfully adapt to new challenges, thereby promoting resilience.

### 3.5 Strategies to Enhance Resilience

**Strengthen Self-Efficacy Training:** Self-efficacy can be enhanced through direct experience, vicarious experience, and verbal persuasion. ICU nurses should

prioritize patient complaints during restraint, understand psychological states, and provide comfort. After restraint removal, techniques such as psychological suggestion, success case demonstration, and verbal encouragement can be used to train self-efficacy, boost confidence in overcoming restraint-related psychological issues, and promote recovery. Upon transfer to general wards, comprehensive handover should be provided to facilitate continuity of psychological care.

**Establish Effective Social Support to Reduce Anxiety and Depression:** The closed ICU environment and critical illness status, combined with physical restraint and lack of family presence, increase loneliness and fear. Social support provides buffering and protective effects. Family encouragement and support can significantly improve psychological status, reduce anxiety and depression, and enhance coping capacity. Nursing practice should encourage family involvement and spiritual support while helping patients actively seek social support to improve adaptive capacity.

## Conclusion

Physically restrained ICU patients exhibit poor psychological resilience influenced by multiple complex factors. Healthcare providers should implement targeted psychological counseling after restraint removal, address internal psychological factors, strengthen external family support and companionship, enhance self-efficacy, and encourage positive attitudes toward overcoming restraint-related psychological trauma. These interventions can improve psychological status, promote recovery, and enhance nursing care quality.

**Conflict of Interest Statement:** The authors declare no conflicts of interest.

## References

[References are preserved exactly as in the original text]

*Note: Figure translations are in progress. See original paper for figures.*

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