

# The Relationship Between Breast Enlargement And Psychological Stress In Women: Mediating Effects Of Coping Styles

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## Abstract

**Aim:** To study the interactions between breast hyperplasia and psychological stress and coping styles in women.

**Methods:** A total of 230 women were examined, and 130 subjects with breast hyperplasia and 100 subjects without breast hyperplasia were selected and administered the Adult Version of the Coping Methods Questionnaire and the Health Perceptions and Behaviors Questionnaire.

**Results:** There was a significant positive correlation between breast hyperplasia and psychological stress scores in women ( $R=0.177$ ,  $P<0.01$ ), a significant negative correlation with positive coping style scores for coping methods ( $R=-0.153$ ,  $P<0.05$ ), and a significant negative correlation between psychological stress and positive coping style ( $R=-0.268$ ,  $P<0.01$ ). In the mediation effect test, it was found that women with breast enlargement not only acted directly on their psychological stress of health behaviors, but also indirectly through positive coping of coping styles.

**Conclusion:** The use of positive coping styles in patients suffering from breast enlargement is able to reduce their level of psychological stress.

**Keywords:** Breast Enlargement, Psychological Stress, Coping Styles, Mediating Effects

## Introduction

Mammary hyperplasia is a condition caused by the growth of the epithelium and mesenchyme of the mammary gland and its incomplete recuperation due to an imbalance of endocrine action [1]. Its pathogenesis is likely to be associated with abundant and disorganized endocrine adjustments, high estrogen and low luteinizing hormone relativity, and with the production of more reactive mammary glands. The prevalence of breast hyperplasia accounts for the first place of breast diseases, and there is a tendency to increase year by year. Breast hyperplasia also seriously threatens women's physical and mental health and the quality of their daily life [2-4]. The development of breast hyperplasia can also be a negative life event, causing patients to experience stress [5,6], which can aggravate the condition of breast hyperplasia, forming a vicious circle. In related studies, it has been found that patients with breast hyperplasia exhibit many mental health problems, mainly in terms of obsessive-compulsive, depressive, and anxious emotions [7]. The study by Chen Xianchun et al. specifically

found that the detection rate of anxiety in female patients with breast enlargement was 85.9%, and the detection rate of depressive symptoms was 81.63% [8]. These studies have demonstrated the poor mental health of patients with breast enlargement [8], which is likely to contribute to the fact that patients are usually under a state of psychological stress, which increases the growth of a negative state of mind and the probability of mental health problems.

Psychological stress refers to a state of physical and mental tension produced by psychological and physiological reactions when an individual feels or perceives a certain environmental stimulus [9], and psychological stress is also called psychological pressure [10]. A related study found that 117 out of 246 female college students suffering from breast hyperplasia had high psychological stress, accounting for 52.85% of the cases of breast hyperplasia [11]. This indicates that the probability of psychological stress in female patients with breast hyperplasia is higher than that of ordinary women. Therefore exploring how to alleviate the psychological

stress suffered by female patients with breast hyperplasia. This will be a matter of great concern.

Coping styles are explicit coping activities formed by individuals after cognitive evaluation of events, and they are also key triggers for individuals to integrate into the social environment and form a healthy psychology [12,13]. It has been found that individuals with low levels of mental health are more likely to choose negative coping styles, and those with high levels of mental health are more likely to choose positive coping styles [14]. Apparently, appropriate coping styles are likely to help improve the mental health of individuals. So is it possible for breast hyperplasia patients to use appropriate coping styles to alleviate their psychological stress and thus improve their psychological health? This is a question of great concern and it deserves to be explored.

A comprehensive analysis of the current literature reveals that women with breast enlargement are more prone to psychological stress than women in general, and that positive coping styles can improve an individual's psychological well-being; however, very few studies have focused on the possibility of alleviating psychological stress by way of coping styles in order to improve psychological well-being. Therefore, this study aims to understand

the interactions between breast enlargement, psychological stress, and coping styles to further validate the feasibility of alleviating psychological stress through coping styles to improve the psychological well-being of breast enlargement patients, and to help breast enlargement patients to maintain a better psychological state and to promote them to participate in a more positive way in their medical treatment.

## Objects and Methods

### Objects of the Study

Female patients, aged 20-50, who came to the hospital were selected as subjects, and were individually administered using the same written instructions, anonymous questionnaires were used, which were required to be answered independently and conscientiously on the spot, and the questionnaires were retrieved on the spot. Of the 260 questionnaires distributed, 230 were validly returned, with a validity rate of 88.5%. The 230 patients were then subjected to clinical breast palpation and infrared light mammography to differentiate between subjects with breast hyperplasia and subjects without breast hyperplasia. 130 subjects were found to have breast hyperplasia through palpation and infrared light examination, and 100 subjects were not found to have breast hyperplasia. The composition of the sample is shown in Table 1.

Characteristic	n(%)
<b>age (n =230)</b>	
Mean (SD)	35.55(49.4)
<b>Genders (n =230)</b>	
Female	230(100.0)
Male	0(0.0)
<b>Educational level (n=230)</b>	
Secondary and below	42(18.3)
Three-year college	101(43.9)
Undergraduate	69(30.0)
Bachelor's degree	14(6.1)
PhD and above	4(1.7)
<b>Home location (n=230)</b>	
Countryside	35(15.2)
County seat	30(13.0)
Prefecture level city	22(9.6)
Provincial level city	140(60.9)
province level city	3(1.3)
<b>Family economic situation (n=230)</b>	
Needy families	6(2.6)
Poorer	12(5.2)
Ordinary	198(86.1)
Richer	14(6.1)
Well-to-do	0(0.0)

Mammary hyperplasia	
Have	130(56.5)
Not have	100(43.5)

**Table 1:** Structure of demographic variables of the subjects.

### Research Tools

Two measurement scales were used in this study to measure subjects' coping styles and psychological stress. The first part used the adult version of the Coping Questionnaire developed by Shi Chengsun, Hou Yubo et al. [15], which is divided into four dimensions, namely active coping with problems, denial and psychological relief, emotional help and catharsis, and shifting attention from avoiding problems, with a total of 50 questions. The internal consistency of the scale has a reliability alpha coefficient of 0.75-0.86, and at the same time the scale also has a better structural validity. The correlation analysis of the scores of each sub-scale with the EPQ dimensions found that they correlate significantly and with  $P < 0.01$ . The second part used Li Yanyang, Li Yanyang, and Hou Yubo, et al. [15] dimensions of the EPQ, it was found that they were significantly correlated, and  $P < 0.01$ . The second part of the scale was adopted from the Health Behavior Scale compiled by Li Yanyang [16], in which several health behavioral questions related to breast hyperplasia were added, which were divided into 3 dimensions, namely, having bad habits, participating in activities, and psychological stress, with a total of

41 questions. The reliability of the scale: the internal consistency alpha coefficient was 0.78 for participation in activities, 0.80 for psychological stress, 0.79 for living habits, and 0.73 for the total reliability of the 38 entries.

### Data Processing

All data were selected to be entered and processed by the statistical software spss 26.0, and the statistical analysis methods mainly included ANOVA, mean comparison analysis, correlation analysis and mediation effect test.

### Results

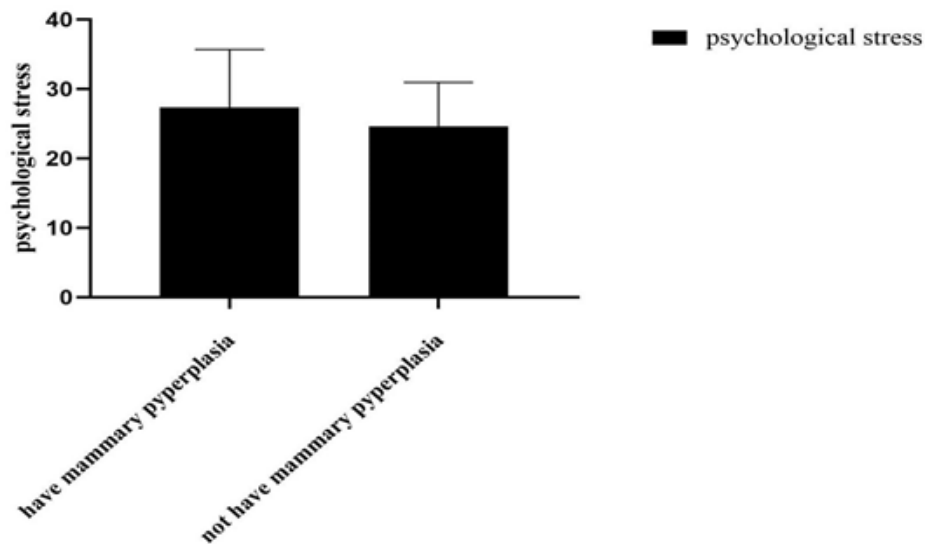
#### Comparison of Psychological Stress with and without Breast Enlargement

It was found that there was a significant difference in psychological stress between patients with breast enlargement and individuals without breast enlargement ( $t=2.718, P < 0.01$ ). The level of psychological stress was significantly higher in patients with breast hyperplasia than in individuals without breast hyperplasia, the results are shown in Table 2 and Figure 1.

Enterprise	Have mammary Hyperplasia (n=130)	Not have mammary hyperplasia(n=100)	t	P
Psychological stress	27.323±8.368	24.590±6.352	2.718**	0.007

Note: \* $P < 0.05$ , \*\* $P < 0.01$ .

**Table 2:** Comparison of psychological stress with and without breast enlargement ( $\chi \pm s$ ).



**Figure 1:** Differences in psychological stress levels with and without breast enlargement

### Comparison of Psychological Stress with Breast Enlargement in different Coping Styles

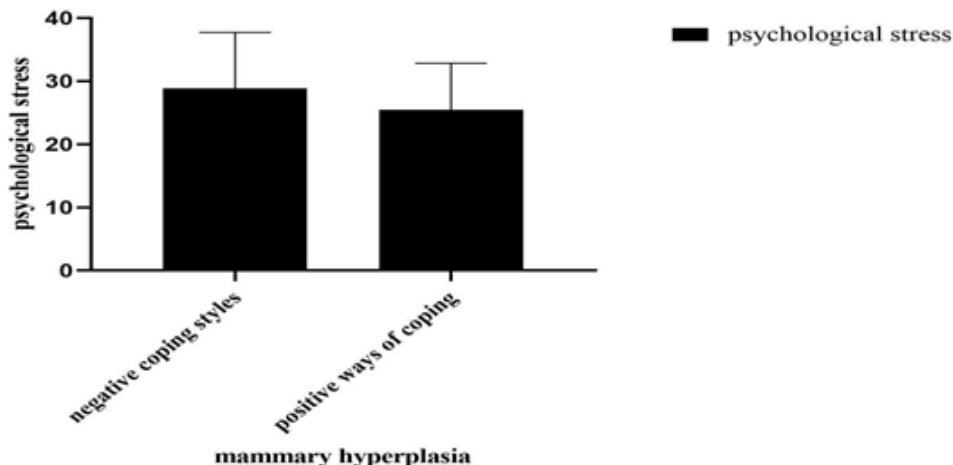
It was found that there was a significant difference between the psychological stress of patients with breast hyperplasia at the level

of positive and negative coping styles ( $F=5.665$ ,  $p<0.05$ ). It is that the level of psychological stress in the positive coping style of patients with breast hyperplasia was significantly lower than the level of psychological stress in their negative coping style, the results are shown in Table 3 and Figure 2.

Enterprise	Negative coping styles (n=71)	Positive ways of coping (n=59)	F	P
Psychological stress	28.888±8.836	25.441±7.410	5.665*	0.019

Note: \* $P < 0.05$ , \*\* $P < 0.01$ .

**Table 3:** Differences in psychological stress with breast enlargement across coping styles.



**Figure 2:** Differences in psychological stress levels across coping styles in those with breast enlargement.

### Analysis of Breast Enlargement Associated with Psychological Stress and Coping Styles

It was found that there was a significant positive correlation between the presence or absence of breast enlargement and psychological stress and a significant negative correlation between the presence or absence of breast enlargement and positive coping

in terms of coping styles and the negative correlation between psychological stress and positive coping was significant and the positive correlation between positive coping styles and negative coping styles was not significant and the results are shown in Table 4.

	M±SD	Mammary Hyperplasia	Psychological stress	Positive ways of Coping	Negative Coping Styles
Mammary Hyperplasia	1.565±0.497	-	-	-	-
Psychological Stress	26.135±7.663	0.177**	-	-	-
Positive ways of Coping	44.052±6.517	-0.153*	-0.268**	-	-
Negative Coping Styles	22.704±3.99	0.003	0.080	0.227	-

Note: \* $P < 0.05$ , \*\* $P < 0.01$ , Z-scores were used for the presence or absence of breast enlargement.

**Table 4:** Correlation analysis between the presence or absence of breast enlargement and dimensions of psychological stress and coping styles.

### Between Psychological Stress and Breast Enlargement: Mediating Effects of Coping Styles

Using PROCESS for SPSS prepared by Hayes, 95% confidence intervals for the mediation effect were estimated by replicating 5,000 Bootstrap samples, and mediation effect tests were conducted controlling for demographic variables such as gender, grade, major, and household registration.

The results of the regression analysis showed that the presence or absence of breast enlargement negatively predicted positive coping significantly in Model 1, and in Model 2, when both the presence or absence of breast enlargement and positive coping were entered into the regression analysis, both breast enlargement and positive coping significantly predicted psychological stress due to the presence or absence of breast enlargement. The results

are shown in Table 5.

between the presence or absence of breast enlargement and psychological stress, with Bootstrap 95% confidence intervals not containing 0. Detailed data are shown in Table 6.

The results also showed that active coping mediated significantly

	Predictor Variable	Outcome Variable	R	R <sup>2</sup>	β	Bootstrap lower	Bootstrap cap	t
Model 1	Mammary Hyperplasia	Positive ways of Coping	0.153	0.024	-1.000	-1.841	-0.160	-2.345*
Model 2	Mammary Hyperplasia	Psychological Stress	0.301	0.091	1.068	1.008	2.035	2.176*
	X Positive ways of Coping				-0.290	-0.438	-0.141	-3.848**

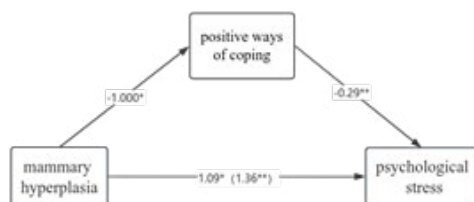
Note: \*P<0.05, \*\*P<0.01, Z-scores were used for the presence or absence of breast enlargement.

**Table 5:** Regression analysis for mediation analysis.

Trails	Indirect Effect	95% Confidence Interval	Measures of Intermediary Effect
Mammary Hyperplasia—Positive ways of coping—Psychological stress	0.290	(0.052;0.566)	21%

The mediation model of active coping is shown in Figure 3.

**Table 6:** Test of the mediating role of coping styles in the association between breast enlargement and health behaviors.



**Figure 3:** Model of the mediating effect of positive coping styles between the presence or absence of breast enlargement and psychological stress.

### Discussion

This study found a positive correlation between the presence or absence of breast hyperplasia and psychological stress, which suggests that an increase in the prevalence of breast hyperplasia also elevates the psychological stress suffered by patients. It has been found that breast hyperplasia is a condition caused by multiple factors that lead to endocrine disorders resulting in incomplete recuperation of breast tissue after proliferation, and that psychology such as irritation, depression, nervousness, and anxiety are the most common states of mind accompanying patients with breast growth [17]. At the same time, it has also been found that the breeding of negative emotions such as anxiety and depression is also related to the level of individual stress response, which is determined by two levels, i.e., the level of the individual's intrinsic stress response and the level of the individual's extrinsic stress response; The level of intrinsic stress is determined by aspects such as personality traits, while the level of extrinsic stress is determined by the daily life events suffered by the individual [5,6]. Furthermore, it has been found that patients with breast

enlargement have high neuroticism, which makes them more prone to psychological stress, adverse thoughts that are contrary to reality, sensitivity to external stimuli, and lower social integration, which makes them more prone to elevated levels of intrinsic stress [18]. This is why breast enlargement is positively associated with psychological stress.

In this study, the presence or absence of breast hyperplasia was found to be significantly and negatively correlated with positive coping styles of coping styles, which is consistent with the results of the study of logical thinking, daily life, and coping styles of female patients with breast hyperplasia by Lili Chen (2016) [19]. The reason for the negative correlation between positive coping styles and breast hyperplasia may be due to the fact that the mammary gland as one of the target organs of the female gonadal endocrine axis, and the relationship with psycho-psychological factors is extremely closely related, which makes the psycho-psychological factors can affect the health of the body through the central nervous system, the endocrine system, and the body's

immune system, and once the loss of balance of the psychological state, it will make the women stay in the state of mental tension, anxiety, depression, and other psychological imbalances for a long time. Once the psychological state is out of balance, women will be under prolonged mental stress, anxiety, depression and other psychological imbalances, which will cause dysfunction of the central nervous system and endocrine imbalance, thus weakening the immune system, resulting in women's diseases [20]. This makes it easier for their endocrine system to recover, which in turn improves the recovery rate of their breast enlargement. Thus, there is a negative correlation between breast enlargement and positive coping styles.

Psychological stress is negatively correlated with positive coping styles, which is consistent with the results of Li Yonghui's (2021) study of college students' coping styles and mental health levels [21]. The reason for the negative correlation between positive coping styles and psychological stress is likely to be related to the quality of individual mental health, when the lower the quality of individual mental health, the more negative their mindset of seeking help, which in turn increases psychological stress; and when the higher the quality of individual mental health, the more likely they are to seek help due to mental health problems, which reduces psychological stress [22,23], so psychological stress is would be negatively associated with positive coping styles.

Breast enlargement not only acts directly on psychological stress, but also indirectly through positive coping. This suggests that when breast enlargement occurs, it already contributes to psychological stress and increases the amount of psychological pressure on the patient, but if the patient chooses to adopt a positive coping style, it is likely to reduce the amount of psychological pressure on the patient by reducing the amount of psychological pressure on the patient.

In conclusion, the incidence of breast enlargement can be a key indicator of a woman's mental health.

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#### Declaration of Conflicting Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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