

# The Mechanism of Body Awareness on Anxiety: The Mediating Role of Emotion Regulation\*

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Amid the shift in emotion research from a cognition-centered paradigm to an integrative mind-body perspective, body awareness, as a crucial mechanism linking physiological signals to emotional experience, has gradually emerged as a new pathway for explaining anxiety. Existing studies have primarily explained anxiety from the perspectives of external stressors or cognitive appraisal biases, paying insufficient attention to the somatic basis of emotional experience. Based on this, this paper systematically reviews the multidimensional sources of anxiety, integrates theories of body awareness with models of the emotion regulation process, and constructs a mediating mechanism framework of “body awareness → emotion regulation → anxiety”. The study indicates that body awareness, as a prerequisite variable for emotion recognition, indirectly affects anxiety levels by enhancing individuals’ sensitivity to internal physiological signals, promoting the use of adaptive regulation strategies such as cognitive reappraisal, and reducing the use of maladaptive strategies like expressive suppression. Furthermore, the mechanism is elaborated from three levels: signal identification, strategy selection, and feedback regulation, proposing a “cyclical reinforcement mechanism” that reveals anxiety as the result of the dynamic interaction between somatic perception and emotion regulation. Theoretically, this paper expands the explanatory dimensions of anxiety research. Methodologically, it proposes testable empirical pathways. Practically, it provides a basis for shifting psychological interventions from a “cognition-oriented” to a “mind-body integrated” approach.

*Keywords:* body awareness, emotion regulation, anxiety, mediating mechanism, mind-body integration

## Introduction

### Research Background

Against the backdrop of increasing uncertainty and intensifying competitive pressure in modern society, anxiety has gradually evolved from a transient situational reaction to a psychological state characterized by chronicity and generalization. Extensive research shows that anxiety not only affects an individual’s emotional stability but also has profound impacts on their cognitive processing, behavioral decision-making, and social adaptation. For instance, under sustained anxiety, individuals are more prone to imbalanced attentional resource allocation and hypersensitivity to threatening information, thereby reinforcing negative emotional experiences.

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Among youth populations, this anxiety exhibits more complex structural features. On one hand, individuals facing uncertainty about future development are prone to persistent worry; on the other hand, in highly comparative social environments, comparing one's abilities and achievements with others often exacerbates self-doubt and insecurity. Furthermore, individuals with lower intolerance of uncertainty are more likely to interpret ambiguous situations as threatening, thereby maintaining anxiety responses.

These factors interact, making anxiety no longer a psychological phenomenon with a single source but rather the result of the interplay of multiple mechanisms. However, traditional research has predominantly approached anxiety from a cognitive appraisal perspective, explaining it as the outcome of an individual's subjective interpretation of external threats. Although this approach has strong explanatory power, it struggles to answer a key question: Why do different individuals exhibit significantly different emotional reactions in similar situations?

### **Research Shift: From Cognition to the Body**

In recent years, emotion research has gradually shown an “embodied” turn, shifting from a purely cognitive explanation to an integrative perspective emphasizing the interaction between the body and cognition. Related studies point out that emotional experience is not constituted solely by cognitive appraisal but is also fundamentally based on the individual's perception of their internal bodily state. This ability to perceive internal physiological signals, known as body awareness or interoception, is a crucial prerequisite for emotion generation.

Further research finds that body awareness not only influences the generation of emotions but is also closely related to mental health. For example, individuals with higher levels of body awareness typically possess more accurate emotion recognition abilities and are more inclined to adopt adaptive emotion regulation strategies, thereby reducing anxiety levels. Additionally, neuroscientific research indicates tight neural mechanism linkages between interoception and emotional experience.

### **Research Questions and Innovations**

Based on the aforementioned theoretical shift, this paper focuses on the following core questions:

- (1) Does body awareness influence anxiety levels through emotion regulation?
- (2) Are there specific mechanistic pathways in this process?
- (3) Does anxiety exhibit characteristics of dynamic, cyclical generation?

Compared to existing research, the innovations of this paper are mainly reflected in three aspects: First, introducing body awareness as a precursor variable to emotion regulation; second, explicitly incorporating emotion regulation into a mediating mechanism framework; third, proposing a “Cyclical Reinforcement Model” to explain the generation and maintenance of anxiety from a dynamic systems perspective.

## **Literature Review**

### **The Cognitive Pathway: Traditional Explanations of Anxiety**

Traditional anxiety research is primarily based on cognitive appraisal theories, positing that an individual's interpretation of situational threats determines their emotional response. Intolerance of uncertainty is one important predictor of anxiety, with low-tolerance individuals more inclined to interpret ambiguous information as threatening. Social comparison similarly increases anxiety by reinforcing negative self-evaluation. Furthermore, decreased self-efficacy can reduce coping capacity, thereby heightening anxiety reactions.

Although the cognitive pathway can explain some sources of anxiety, it neglects the somatic basis of emotional experience.

### **The Somatic Pathway: The Embodied Basis of Emotion**

As research deepens, scholars have increasingly recognized the foundational role of bodily signals in emotion generation. Interoception theory holds that individuals construct emotional experiences by perceiving their internal bodily states (e.g., heart rate changes, respiratory rhythm).

Body awareness, as the core variable in this process, is closely related to emotion recognition ability. Research shows that higher levels of body awareness are associated with more accurate emotion recognition, increasing the likelihood of effective regulation. Moreover, body awareness correlates with various mental health indicators and is considered a significant influencing factor for anxiety.

Additionally, domestic research also points out that body awareness plays an important role in the emotion regulation process, serving as a key mechanism connecting physiological signals to psychological experience.

### **The Integrative Pathway: Body Awareness and Emotion Regulation**

Recent research has begun attempting to integrate somatic and cognitive pathways, suggesting that body awareness may indirectly influence emotional outcomes by affecting emotion regulation strategies. Emotion regulation is defined as the process by which individuals influence the generation, experience, and expression of their emotions. Among strategies, cognitive reappraisal helps reduce emotional intensity, while expressive suppression may increase psychological burden.

Research finds that body awareness can influence the selection of emotion regulation strategies; individuals with high body awareness are more inclined to adopt adaptive strategies, thereby lowering anxiety levels. Domestic research also indicates that emotion regulation plays a mediating role between body awareness and anxiety.

## **Research Design and Methods**

### **Conceptual Model**

Based on the preceding theoretical elaboration, this paper constructs the following research model:

Core pathway:

Body Awareness → Emotion Regulation → Anxiety

Extended pathway (feedback mechanism):

Emotion Regulation ↔ Body Awareness (Cyclical Feedback)

Model description:

Body awareness serves as the exogenous variable, influencing the individual's ability to perceive internal physiological signals.

Emotion regulation serves as the mediating variable, connecting body awareness and anxiety.

Anxiety serves as the outcome variable, while potentially inversely affecting body awareness and emotion regulation capacity.

The overall model presents a dynamic structure of “mediation + feedback”.

### **Variable Definitions and Measurement**

To ensure the testability of the model, this paper provides operational definitions for core variables and selects established scales for measurement.

(1) Body awareness (independent variable):

Body awareness refers to an individual's ability to perceive and attend to internal physiological states, constituting an important component of interoception.

Measurement tool:

Multidimensional Assessment of Interoceptive Awareness (MAIA-2)

Main dimensions include:

Noticing;

Emotional Awareness;

Body Listening;

Trusting.

Scoring: Uses Likert five- or six-point scales. Higher total scores indicate higher levels of body awareness.

(2) Emotion regulation (mediating variable):

Emotion regulation refers to the process by which individuals influence the generation, experience, and expression of their emotions.

This paper focuses on two strategies:

Cognitive reappraisal: Regulating emotion by changing cognitive interpretation. It is an adaptive strategy.

Expressive suppression: Inhibiting the outward expression of emotion. It is a maladaptive strategy.

Measurement tool:

Emotion Regulation Questionnaire (ERQ)

(3) Anxiety (dependent variable):

Anxiety refers to the state of tension, worry, and physiological arousal an individual experiences when facing threatening or uncertain situations.

Measurement tools:

Generalized Anxiety Disorder Scale (GAD-7) or State-Trait Anxiety Inventory (STAI)

Scoring: Higher scores indicate higher anxiety levels.

### **Research Design**

This study employs quantitative research methods, testing the theoretical model based on questionnaire survey data.

(1) Research participants:

Suggested participant pool: University students/youth population/general population.

Suggested sample size:  $\geq 200$

(2) Data collection method:

Online questionnaire platforms (e.g., Wenjuanxing/Qualtrics)

Use anonymous completion. Exclude invalid questionnaires (e.g., consecutive identical responses)

(3) Hypothesis testing for variable relationships:

Based on the preceding assumptions:

H1: Body Awareness  $\rightarrow$  Anxiety (Negative)

H2: Body Awareness  $\rightarrow$  Emotion Regulation

H3: Emotion Regulation  $\rightarrow$  Anxiety

H4: The Mediating Effect is established.

### **Data Analysis Methods**

(1) Descriptive statistical analysis:

Used to understand basic sample characteristics (means, standard deviations, etc.)

(2) Reliability and validity tests:

Cronbach's  $\alpha$  (Internal Consistency)

KMO and Bartlett's Test of Sphericity

Confirmatory Factor Analysis (CFA)

(3) Correlation analysis:

Test preliminary relationships between variables (Pearson correlation)

(4) Mediation effect test:

Employ the following methods:

Bootstrap method (resampling)

Structural Equation Modeling (SEM)

Judgment criteria:

Significant indirect effect.

Confidence interval does not include 0.

(5) Structural Equation Modeling (SEM):

Used to simultaneously test:

Direct effects

Indirect effects

Overall model fit

Common fit indices:

CFI, TLI, RMSEA, SRMR

### **Path Relationships Expressed by the Model**

Body Awareness  $\rightarrow$  Emotion Regulation (Positive)

Emotion Regulation  $\rightarrow$  Anxiety (Negative)

Body Awareness  $\rightarrow$  Anxiety (Direct Negative Path)

Body Awareness  $\rightarrow$  Emotion Regulation  $\rightarrow$  Anxiety (Mediated Path)

Simultaneously consider the feedback mechanism:

Anxiety may inversely affect body awareness and emotion regulation capacity, forming a dynamic cyclical system.

## **Theoretical Model and Mechanism Elaboration**

### **Model Construction**

This paper constructs a mediation model: Body Awareness  $\rightarrow$  Emotion Regulation  $\rightarrow$  Anxiety.

On this basis, a dynamic cyclical model is proposed to explain the generation and maintenance process of anxiety.

### **Research Hypotheses**

H1: Body awareness negatively predicts anxiety levels.

H2: Body awareness positively predicts cognitive reappraisal and negatively predicts expressive suppression.

H3: Emotion regulation mediates the relationship between body awareness and anxiety.

H4: The outcomes of emotion regulation influence body awareness through a feedback mechanism.

### **Three-Stage Mechanism**

(1) Signal identification stage:

Body awareness enhances an individual's sensitivity to internal physiological signals, enabling emotions to be identified at an early stage.

(2) Strategy selection stage:

Based on more accurate emotion identification, individuals are more likely to employ cognitive reappraisal strategies, thereby reducing emotional intensity.

(3) Feedback regulation stage:

The outcomes of emotion regulation react back on the bodily state, subsequently influencing the level of body awareness, forming a feedback loop.

### **Cyclical Reinforcement Mechanism**

Anxiety is not a linear outcome but a dynamic system:

Low Awareness → Inefficient Regulation → Increased Anxiety

High Awareness → Effective Regulation → Alleviated Anxiety

This cyclical mechanism explains the persistence and fluctuation of anxiety.

## **Discussion**

### **Theoretical Significance**

Starting from the somatic basis, this paper reconstructs the mechanism of anxiety, breaking through the traditional cognition-centered pathway and emphasizing the embodied nature of emotion.

### **Mechanistic Innovation**

Placing emotion regulation in the mediating position and introducing a cyclical model shift the explanation from "linear causality" to a "dynamic system".

### **Differences From Existing Research**

Unlike single cognitive or somatic explanatory pathways, this paper emphasizes their interaction, providing a more comprehensive explanation for differences in anxiety.

### **Practical Implications**

This study has important implications for psychological intervention. Traditional interventions often focus on cognitive restructuring while neglecting the somatic level. Based on the model in this paper, anxiety intervention should integrate body awareness training (e.g., breath awareness, mindfulness practice) with emotion regulation strategy training to achieve more stable emotional improvement.

## **Conclusion**

This paper constructs a mediating mechanism model in which body awareness influences anxiety through emotion regulation and proposes a "Cyclical Reinforcement Mechanism" to explain the generation, maintenance, and alleviation of anxiety. Compared to traditional explanatory pathways centered on cognitive appraisal, this paper starts from the somatic basis, emphasizing the embodied and dynamic nature of emotional experience, providing a new integrative perspective for anxiety research. Simultaneously, the theoretical framework proposed offers a clear pathway for subsequent empirical research and provides actionable directions for psychological intervention practice.

## **Theoretical Expansion and Model Deepening**

### **The Hierarchical Structure of Body Awareness**

Body awareness is not a unidimensional variable but encompasses multiple levels: the basic perception layer (e.g., heartbeat, breath), the emotion connection layer (linking bodily sensations to emotional labels), and the metacognitive layer (reflection on and evaluation of bodily experience). Different levels of body awareness may play differentiated roles in emotion regulation. For example, basic perceptual ability aids early emotion identification, while the metacognitive layer influences the selection and adjustment of regulation strategies.

### **The Dynamic Process of Emotion Regulation**

Emotion regulation is not the static use of strategies but a dynamic adjustment process. Individuals may flexibly switch strategies across different situations, and the level of body awareness determines the sensitivity and effectiveness of this switching. Therefore, viewing emotion regulation as a “process variable” rather than an “outcome variable” helps to more accurately understand its role in the anxiety mechanism.

### **A Dynamic Systems Explanation of Anxiety**

From a systems perspective, anxiety can be understood as a complex system composed of cognition, emotion, and bodily signals. Body awareness influences system input (bodily signal identification) and system regulation (emotion regulation strategies), thereby altering system output (anxiety level). This perspective helps explain the fluctuation and individual differences in anxiety.

## **Practical Implications and Intervention Pathways**

### **Body Awareness Training**

Based on the theory in this paper, enhancing body awareness levels can serve as an important pathway for anxiety intervention. For example, methods such as breath awareness training, mindfulness training, and body scanning can enhance an individual’s sensitivity to internal signals, thereby improving emotion recognition ability.

### **Emotion Regulation Capacity Training**

Building on improved body awareness, further training in individuals’ emotion regulation capacity is warranted, especially in cognitive reappraisal strategies. Simultaneously, reliance on expressive suppression should be reduced to lower emotional burden.

### **Mind-Body Integrated Intervention Model**

Future anxiety interventions could adopt a dual-path model of “body awareness + emotion regulation” to achieve more stable and lasting intervention effects.

## **Research Limitations and Future Directions**

### **Theoretical Limitations**

This study is a theoretical construct and has not yet validated the proposed model with empirical data. Future research could further test the reliability and validity of the model using experimental or questionnaire survey methods. Furthermore, future studies could integrate neuroscience and brain imaging techniques to explore the mechanism of body awareness from a multi-level perspective, enhancing understanding of its underlying neural basis.

### Methodological Limitations

This study is primarily based on literature analysis and theoretical deduction, which may involve subjective interpretation bias. It requires revision through multi-method research.

### Future Research Directions

Future research could explore the following aspects:

- (1) Examining the differential effects of various dimensions of body awareness.
- (2) Investigating the influence of cultural factors on the model.
- (3) Validating the mechanistic pathways by combining neuroscientific methods.

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