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# Trait Anger and Mental Health in Primary School Teachers: A Chain Mediation Effect of Stress and Interpersonal Communication

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**Abstract Purpose:** Based on trait anger, this paper explored the relationship between trait anger and mental health of primary school teachers, and further examined the mediating role of stress and interpersonal communication ability. To explore the possible impact of the mechanism, call on the community to pay attention the mental health of primary school teachers, and enact corresponding assessment and intervention policies.

**Methods:** Primary school teachers in Guangzhou, Guangdong Province were investigated in this study, A total of 702 primary school teachers were investigated offline with GHQ12 general health questionnaire, trait anger scale, stress scale and interpersonal communication ability scale.

**Results:** ( 1 ) Primary School Teachers' mental health was in the middle level, the level of stress was generally high, interpersonal communication ability was strong. ( 2 ) Trait anger was significantly and negatively correlated with interpersonal communication ability and mental health, and positively correlated with stress. Stress was significantly and negatively correlated with interpersonal communication ability and mental health. ( 3 ) Trait anger significantly and positively predicted Mental health; Stress and interpersonal communication play partial mediating roles in the negative effects of anger traits on mental health of primary school teachers; Stress and interpersonal communication ability play a chain mediating role in the negative effects of trait anger on mental health of primary school teachers. **Conclusion:** Trait anger can not only directly predict teachers' mental health level, but also indirectly affect teachers' mental health level through the mediating effect of stress and interpersonal communication ability and their chain mediating effect.

**Keywords:** mental health, trait anger, stress, interpersonal communication ability

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## **I. Introduction**

In the daily work of teaching, teachers are faced with not only the pressure of students' entrance index and teaching, but also the pressure of communicating with students' parents and realizing self-improvement, which puts forward higher requirements for teachers' teaching ability and comprehensive quality. Under various pressures, teachers may be more prone to depression, anxiety and interpersonal problems. The "Report on the Development of National Mental Health in China (2019-2020)" points out that the depression detection rates of teachers and other scientific and technological workers in 2009, 2014, and 2017 were 17.7%, 24.2%, and 22.2%, respectively. In 2017, the detection rates of mild, moderate, and severe anxiety were 39.9%, 6.3%, and 1.9%, respectively. In the group of primary and secondary school teachers, the mental health level of teachers showed a decreasing trend year by year from 1991 to 2010. During the 11 years from 2010 to 2020, the mental health level of teachers was significantly lower than the national norm, and somatization and anxiety problems were the most severe.

A good mental health condition is an important guarantee for teachers to complete educational work and achieve personal development. Exploring the psychological health and stress status of teachers and their influencing factors has important practical significance.

### **1.1 Trait Anger and Mental Health**

Trait anger refers to the overall tendency of individuals to feel angry emotions, which is a stable personality trait. Specifically, it refers to the personality traits of individuals who are more likely to experience setbacks and develop anger when facing external environmental stimuli (Spielberger, 1988). Tobe et al. (2020) showed that trait anger can increase the incidence of depression by reducing the psychological resilience of individuals. Deffenbacher (1996) found that individuals with high trait anger are more likely to experience state anger, and experience greater intensity of anger. They tend to express their anger through inappropriate means, which in turn affects their mental health. In summary, this article proposes hypothesis 1: Trait anger has a negative effect on mental health.

### **1.2 The mediating role of stress between trait anger and mental health**

Individuals with high trait anger are less adept at regulating anger reasonably and tend to adopt negative coping styles, exacerbating their anger. The result is that coping failure leads to sadness, which eventually ends with depression and increases individual's sense of stress (Fei, Liang., 2022).

Stress is an important factor that affects an individual mental health, and studies have found that occupational stress reduces employees' mental health (Moreno Fortes A, 2020). In summary, this article proposes hypothesis 2: Stress plays a mediating role between trait anger and mental health.

### **1.3 The mediating role of interpersonal communication in the relationship between trait anger and mental health**

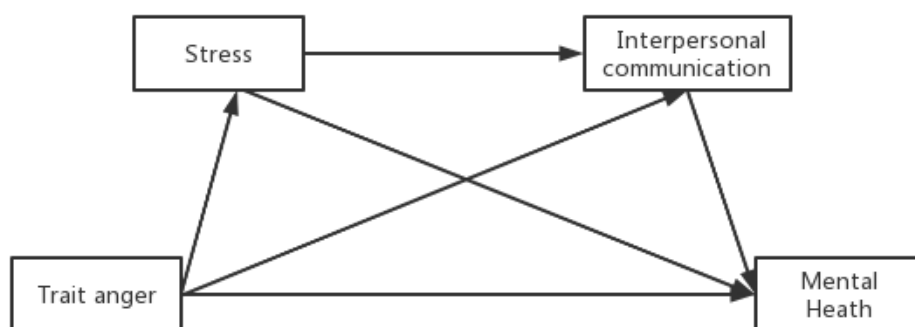
Song et al. (2005) found that inappropriate expression of anger can lead to difficulties in interpersonal

relationships, and high trait anger stimulates internalized irrational thinking, which transforms into reverse functional communication, leading to poor interpersonal relationships. Interpersonal communication is the foundation and necessary condition for the development of an individual's mental health. The crowd relations theory proposed by Harvard professor E. Mayo believes that Interpersonal communication permeates all levels of social relations, and Interpersonal communication is a cross section of social relations, which reacts on social relations and directly affects individual psychology and social environment. Jorard S. M, an American humanistic psychologist, pointed out that self-exposure is an important manifestation of Interpersonal communication ability and personality health, and closely related to individual mental health. In summary, this article proposes hypothesis 3: Interpersonal communication plays a mediating role between trait anger and mental health.

#### **1.4 The chain mediation effect of stress and interpersonal communication ability**

When people deal with the effects of stress brought about by problems, individuals hope to be accepted and recognized by others. Therefore, when solving problems, it is common to unconsciously produce gestures for self-protection. Based on the three elements of communication: self, others, and context, Satya proposed five communication postures: pleasing, accusing, hyper rational disruptive, and consistent. The first four of these communication modes have certain defects and are not conducive to interpersonal interaction and personal growth. Therefore, this article proposes hypothesis 4: Stress and interpersonal communication ability play a chain mediating role in the impact of trait anger on mental health.

In summary, the hypothetical model constructed in this study is shown in Figure 1.



**Figure 1 A chain mediated hypothesis model of trait anger influencing mental health**

## **II. Objects and methods**

### **2.1 Objects**

The sample for this paper was selected from a total of 702 serving primary school teachers in Guangzhou, of whom 78 (11.1%) were male and 624 (88.9%) were female. The proportion of female teachers is generally high, the gender proportion of men and women in this survey is quite different, and the sample gender

distribution is uneven. 16.7% of the surveyed teachers were under 25 years old, 29.8% were 26 to 30 years old, 26.4% were 31 to 40 years old, 22.6% were 41 to 50 years old and 4.6% were 51 to 60 years old.

## **2.2 Methods**

### **2.2.1 12-item general health questionnaire (GHQ-12)**

The GHQ12 General Health Questionnaire, developed by Goldberg (1997), is a scale that reflects the general mental health status of the respondents over the past month. There are 12 items in the questionnaire, scored by Likert four-point method. The higher the total score, the lower the mental health level of the subjects, and the more serious the psychological problems. Individuals with a general mental health score of 24-35 in GHQ12 may have mental health issues. Individuals with a general mental health score of 36 or above in GHQ12 need immediate attention to their mental health. In this study, the Cronbach's alpha of this scale was 0.908.

### **2.2.2 The trait anger scale**

The trait anger scale used in this paper is the Chinese version revised based on Spielberger's (1995) State-trait Anger Scale (Tao Linjin, 2011). The total score ranges from 10 to 50, using Likert five-point scoring method (5=very consistent, 4=relatively consistent, 3=moderately consistent, 2=relatively inconsistent, 1=very inconsistent). The higher score indicates the higher level of trait anger. In this study, the Cronbach's alpha coefficient of this scale was 0.906.

### **2.2.3 Stress Scale**

The stress scale consists of seven questions. The total score ranges from 7 to 36, using the Likert five-point scoring method (1=strongly disagree, 2=disagree, 3=average, 4=agree, 5=strongly agree). The higher the score, the greater the pressure the individual is under. In this study, the Cronbach's alpha coefficient of this scale was 0.880.

### **2.2.4 Interpersonal communication ability scale**

The interpersonal communication ability scale consists of eight questions. The total score ranges from 8 to 40, using five-point Likert scoring method (1=strongly disagree, 2=disagree, 3=average, 4=agree, 5=strongly agree). The higher the score, the better the interpersonal communication skills. In this study, the Cronbach's alpha coefficient of this scale was 0.887.

## **2.3 Statistical processing**

This study used SPSS 26.0 and the SPSS Process 3.3 macro program provided by Hayes to statistically analyze the data. SPSS 26.0 was used for common method deviation test and investigated the relationship between variables. Model 6 in Process was used to test the chain mediation effect.

## **III. Result**

### **3.1 Common method deviation test**

This article used Harman's single factor test method for common method deviation testing. The results show that there are 6 factor results with feature roots greater than 1, and the maximum factor variance explanatory percentage is 34.644%, which is less than 40%. Therefore, it can be considered that there is no serious common method bias in this scale used in the article.

### 3.2 Descriptive statistics and correlation analysis of each variable

By analyzing the scores of the General Mental Health Scale, the average score of the 702 primary school teachers surveyed was 23.447, with a standard deviation of 5.700, slightly lower than 24 points. Among them, 374 people had a general mental health with score below 24, accounting for 53.28% of the total sample; The number of people with a score of 24-35 is 308, accounting for 43.87% of the total sample, indicating that 43.87% of primary school teachers have potential mental health problems; There are 20 primary school teachers with a general mental health score of 36 or higher, accounting for 2.85% of the sample. Their mental health issues require immediate attention.

From Table 1, it can be seen that the mean of teacher trait anger is 16.174, and the standard deviation is 4.366; The mean of the Interpersonal communication ability is 32.671, and the standard deviation is 4.821; The average stress level of teachers is 19.865, which is at a relatively high level, indicating that primary school teachers are facing high pressure.

The total score of general mental health is significantly positively correlated with trait anger ( $r=.603, P<0.001$ ) and stress levels ( $r=.562, P<0.001$ ), but significantly negatively correlated with Interpersonal communication ability ( $r=-.532, P<0.001$ ); Trait anger is significantly positively correlated with stress level ( $r=.469, P<0.001$ ), and significantly negatively correlated with Interpersonal communication ability ( $r=-.488, P<0.001$ ); There is a significant negative correlation between stress level and Interpersonal communication ability ( $r=-.404, P<0.001$ ).

**Table 1 Descriptive statistics and correlation analysis of each variable**

variable	M	SD	1	2	3	4
1 Mental health	23.447	5.700				
2 Trait anger	16.174	4.366	.603***			
3 Stress	19.865	5.283	.562***	.469***		
4 Interpersonal communication	32.671	4.821	-.532***	-.488***	-.404***	

\*\*\* $P < 0.001$

### 3.3 A chain mediation model for the impact of trait anger on mental health

Spss process was used to conduct hierarchical multiple regression analysis of the relationship among variables, and Baron and Kenny's stepwise method was used to test the chain mediation effect. The analysis results are shown in Table 2. As can be seen from Table 2, trait anger has a significant positive predictive effect on mental health score ( $\beta=.788, P < 0.001$ ) and stress level ( $\beta=.567, P < 0.001$ ), but has a significant negative predictive effect on interpersonal communication ability ( $\beta=-.539, P < 0.001$ ); Stress level has a significant negative predictive effect on Interpersonal communication ability ( $\beta=-.369, P < 0.001$ ).

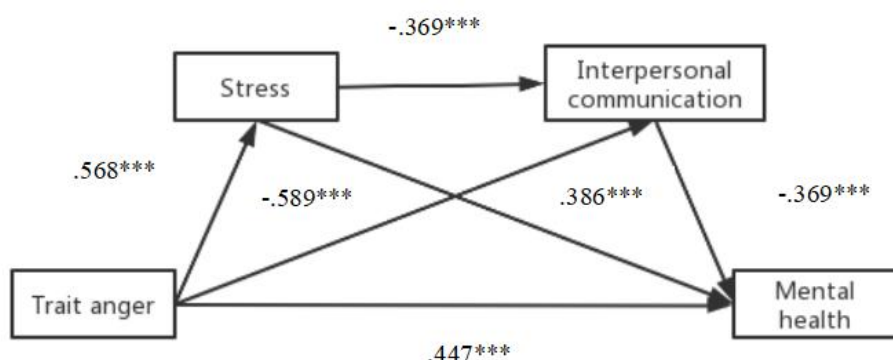
**Table 2 Hierarchical multiple regression analysis of each variable**

	Independent variable	Dependent variable	$R^2$	$F$	Sig	Non-standardized coefficients $\beta$
Equation 1	Trait anger	Mental heath	.364	400.663***	0.000	.788***
Equation 2	Trait anger	Mental heath	.464	302.566***	0.000	.568***
	Stress				0.000	.386***
Equation 3	Trait anger	Mental heath	.438	272.785***	0.000	-.589***
	Interpersonal communication				0.000	-.369***
Equation 4	Trait anger	Mental heath	.504	238.812***	0.000	.447***
	Stress				0.000	.327***
Equation 5	Interpersonal communication	Mental heath	.504	238.812***	0.000	-.287***
	Trait anger				0.000	.567***
Equation 6	Trait anger	Interpersonal communication	.238	218.866***	0.000	-.539***
Equation 7	Stress	Interpersonal communication	.164	136.896***	0.000	-.369***

\*\*\* $P < 0.001$

### 3.4 Test Results of Chain Mediation Path Coefficient of Stress and Interpersonal communication

This study found that the trait anger of primary school teachers directly affects their mental health level. The higher the trait anger level, the lower the mental health level. At the same time, anger trait can indirectly affect mental health through stress and interpersonal communication ability. Teachers with higher trait anger will have higher stress and negative consequences on their mental health. Trait anger can also lead to a lower level of interpersonal communication skills, resulting in interpersonal difficulties and obstacles, and further affect the level of individual mental health. Finally, stress and interpersonal communication play a chain mediating role in the model. Teachers' irritability will make them feel higher pressure. Under pressure, they tend to adopt inappropriate communication methods, resulting in interpersonal tension, which is not conducive to the smooth progress of work, and ultimately affects their mental health. The path coefficient of this model is shown in Figure 2.



**Figure 2 Path coefficient diagram of a chain mediated model for the impact of trait anger on mental health**

#### IV. Discussion

##### 4.1 The direct predictive effect of trait anger on mental health

The results of hierarchical multiple regression analysis showed that trait anger directly and negatively predicted the level of mental health, which is consistent with the results of Weiguang Deng(2022). Individuals with high trait anger have more experience of anger and are more likely to experience tension and anxiety, resulting in poorer mental health. Compared to individuals with high trait anger, individuals with low trait anger have lower emotional arousal towards setbacks and external stimuli, so are less likely to emerge tense and anxious emotions ( Spielberger&Sydeman,1995). At the same time, negative emotions will affect teachers' concentration in teaching work, resulting in low work efficiency and insufficient sense of self-control, which will produce a vicious circle for teachers' mental health. Trait anger is closely associated with episodes of anxiety disorders and depression (Nienke,2019).

##### 4.2 The mediating effect of stress

This study found that stress plays a mediating role between teachers' trait anger and mental health. Teachers who are nervous, irritable, and have excessive emotional reactions tend to adopt negative stress coping styles, which are not conducive to alleviating stress (Huihua Chen,2022). Excessive levels of stress can increase teachers' daily negative behavior. As various types of stress accumulate, teachers are more likely to experience frustration, which in turn affects their mental health (Xumin,Wu.,2018).

##### 4.3 The mediating effect of interpersonal communication ability

This study found that interpersonal communication ability played a mediating role between teachers' trait anger and mental health. Spielberger pointed out that individuals with high trait anger are more likely to feel provoked in situations such as rejection or neglect during interpersonal communication. Teachers who are prone to irascible will have more intense angry response to adverse stimuli around the

m, and their interpersonal communication ability will also be affected. One of Maslow's criteria for mental health is to maintain good interpersonal relationships, and the important indicators of interpersonal adaptation are interpersonal communication ability and interpersonal interaction ability (Feng hui,Lu.,2009). Interpersonal communication ability permeates all aspects of teachers' work and life. Good interpersonal communication ability can help teachers better complete teaching work, communicate effectively with students and their parents, and form good interpersonal interaction with colleagues.

#### **4.4 The chain mediating effect of stress and interpersonal communication ability**

This study found that stress and interpersonal communication played a chain mediating role between teachers' trait anger and mental health. This result indicates that trait anger can easily increase teachers' inner pressure, the emotional instability of irritable teachers in the face of various stressful events will further aggravate their negative feelings( Xing, He.,2018). When under great pressure, primary school teachers' interpersonal communication ability is easily blocked by pressure, and interpersonal communication initiative decreases, which makes it difficult for teachers to relieve tension and anxiety in a high-pressure environment, leading to poor mental health of teachers. Under high pressure, the initiative of individual interpersonal communication may decline. Communication initiative has a certain predictive effect on mental health. The higher the level of communication initiative, the better the mental health status (Xue,Huang.,2010).

### **V. Conclusion and inspiration**

The following conclusions are drawn from this study: (1) Trait anger has a significant negative predictive effect on interpersonal communication ability and mental health, and has a significant positive predictive effect on stress. (2) Stress and interpersonal communication play a partial mediating role between trait anger and mental health respectively. (3) Stress and interpersonal communication play a chain mediating effect between trait anger and mental health. Research suggests that education departments should attach great importance to the mental health of primary school teachers, formulate reasonable work systems and assessment indicators, and ensure the scientific and effective development of teaching work. Psychological education is effective in the development of individual positive behavior and is a social psychological care method that can effectively reduce anger levels(Gezgin Yazıcı & Batmaz,2021 ; Kayaoğlu & Şahin Altun,2021). Therefore, relevant departments also need to carry out mental health education and evaluation for teachers. Finally, teachers themselves should pay attention to the regulation of bad emotions, actively respond to pressure, improve interpersonal communication ability, build harmonious interpersonal relationships, and maintain physical and mental health.

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