

# The Relationship between Expression Style and Anger Management and the Level of Anxiety with Cardiovascular Response in 25-45 Years Adults in the City of Sanandaj

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**Abstract:** This study aimed to investigate the relationship between expression style and anger management and the level of anxiety with cardiovascular response in adults (25-45) in the city of Sanandaj. This is descriptive and correlational research. The study population included all individuals aged between 25 to 45 years who had referred to Tohid hospital in Sanandaj city. For this purpose, selected 200 subjects who have entry requirements to the study and research tools include Spielberger's State-Trait Anger Expression Inventory (STAXI-2), state-trait anxiety inventory (STAI-Y) and TFM device was conducted on them. The data were analyzed using Pearson correlation and regression analysis. The results showed that there is a significant and positive relationship between internal and external anger with trait anxiety and state anxiety and there is a significant and negative relationship between managing internal anger with trait and state anxiety ( $p < 0/01$ ). There is a significant and positive relationship between incidence of internal and external anger with heart rate, systolic and diastolic blood pressure ( $p < 0/01$ ). There is a negative and significant relationship between managing internal and external anger with heart rate and systolic and diastolic blood pressure ( $p < 0/01$ ). The results showed that there is a significant and positive relationship between trait anxiety with heart rate, systolic and diastolic blood pressure ( $p < 0/01$ ) and there is a significant and positive relationship between state anxiety with heart rate, systolic and diastolic blood pressure ( $p < 0/01$ ).

**Keywords:** Expression Style and Anger Management, Level of Anxiety, Cardiovascular Response.

## Introduction:

According to the bio-psycho-social model, the effect of biological, psychological and social factor determinants of health and illness of individuals. Evidence suggests that emotional states affecting on physical health (Futterman, Kemeny, Shapiro, Fahey, 1992; Armitage, Conner, Norman, 1999; Yu, Nelsen, Zigler, Dimsdale, 2001). Physiological devices that are health-related including, cardiovascular devices (Rafienia, Azadfallah, Fathi-Ashtiani, Rasoulzadeh Tabatabai, 2009). Heart disease is the most prevalent disease with a variety of signs and classifications in terms of pathological and epidemiological. Annually in most countries has led to many deaths of human beings and is allocated the first ranks in prevalence. These diseases in terms of Pathology are placed in psychosomatic disorders cluster. Thus is emphasis on the role of forming psychological factors (Curtis BM, Keefe, 2002). There are several cases that show depression, anxiety, helplessness, hopelessness and stressful life events causes illness in people by the changing the immune system (Smeltzer, 2004). The military immune system is not independent and its actions greatly influenced by individual attitudes, emotions and other personality characteristics as well as the interaction between organism and environment (Bol, Duit, Hupperts, Vlaeyen, and Verhey, 2009). In this study, due to the body and mind interaction, since the prevalence of cardiovascular disease has increased in recent years, and have tried to examine the expression style and anger management and the level of anxiety with cardiovascular response.

### Research Methodology

To select the sample was referred to Tohid hospital in Sanandaj city. Researcher after evaluating participating criteria in the research chose the sample (1) detection of cardiovascular disease; 2) age range 25-45 years; 3) lack of chronic diseases and another risky disease such as cancer, Multiple sclerosis and psychiatric disorders; 4) having at least fifth elementary degree and 5) willingness to participate in research). To the participants explained that the goal of the research, and that their information will remain strictly confidential. So they participated with the full consent. Then completed the Spielberger's State-Trait Anger Expression Inventory and Spiel Berger State-Trait Anger and Anxiety Inventory STAI-Y and in later stage, was measured cardiovascular reactions of the subjects with TFM device. Finally, all obtained data were analyzed. To analyze the obtained data from the indicators were used descriptive statistics and inferential statistics. In the descriptive part, was used of the mean and standard deviation for the research hypotheses, and Pearson correlation coefficient and stepwise regression analysis used with 22-spss software.

### Findings

The majority of subjects aged 36 to 45 years with frequency (percentage) of 65 (32/5). The majority of participants were women with frequency (percentage) of 110 (54/5). The mean and standard deviation age of subjects, respectively is 36/38 and 5/76.

Table. Descriptive indicators of cardiovascular response, control of anger expression styles and levels of anxiety in adults 45-25 years

Variable	mean	standard deviation	Minimum	Maximum
heart beat	80.35	6.56	67	97
Systolic blood pressure	135.93	17.29	97	180
Diastolic blood pressure	92.88	9.86	70	119
Exterior of anger	19.15	4.38	10	28
inner of anger	18.65	4.033	11	26
outer containment anger	21.13	4.80	10	32
Internal control anger	20.82	4.60	10	32
Trait Anxiety	40.040	7.84	64	20
State anxiety	42.055	9.044	67	20

To test the research hypotheses, Pearson correlation coefficient is used to evaluate the correlation coefficient, before evaluating the correlation coefficient test was performed normal distribution assumption (using the test (K-S) or (Kolmogorov -Smirnov Test). Since obtained significant levels in test (K-S), in the research variables, is more than 0/05, As a result, it can be said that, the distribution of examined variables in the sample are normally distributed and can evaluate research hypotheses through parametric test.

**First hypothesis: "there is a relationship between expression style and anger management and the level of anxiety."**

To investigate the correlation between the expression style and anger management and the level of anxiety was used of the Pearson correlation coefficient.

Table 2. Correlation matrix between the styles of expressing anger and anxiety levels

Variable	Exterior anger	of inner anger	of Internal control anger	outer containment anger	Trait Anxiety	State anxiety
Exterior of anger	1					
inner of anger	0.548**	1				
outer containment anger	-0.246**	-0.164**	1			
Internal control anger	-0.294**	-0.259**	0.703**	1		
Trait Anxiety	0.200**	0.262**	-0.269**	-0.296**	1	
State anxiety	0.236**	0.227**	-0.233**	-0.238**	0.652**	1

\*\*Significant correlation 0/01

\* Significant correlation 0/05

Table 2 shows the correlation matrix between the expression style and anger management and the level of anxiety. Table 2 shows a significant positive correlation between the external expression of anger with trait anxiety ( $p < 0/01$ ,  $r = 0/200$ ) and State anxiety ( $p < 0/01$ ,  $r = 0/236$ ). The results showed that there is positive and significant correlation between the incidence of internal expression of anger and trait anxiety ( $p < 0/01$ ,  $r = 0/262$ ) and state anxiety ( $p < 0/01$ ,  $r = 0/227$ ). The table also shows significant and negative correlation between managing internal anger and trait anxiety ( $p < 0/01$ ,  $r = -0/269$ ) and state anxiety ( $p < 0/01$ ,  $r = -0/233$ ). As well as there is a significant and negative correlation between managing external anger and trait anxiety ( $p < 0/01$ ,  $r = -0/296$ ) and state anxiety ( $p < 0/01$ ,  $r = -0/238$ ).

**The second hypothesis: "there is a relationship between expression styles with cardiovascular responses."**

To investigate the correlation between types of expression styles with cardiovascular response was used of the Pearson correlation coefficient. Table 3 shows correlation coefficients between expression styles with cardiovascular reactions.

Table 3. The correlation coefficient between the styles of expressing anger and cardiovascular reactions

Variable	heart beat	Systolic blood pressure	Diastolic pressure	blood
Exterior of anger	0.333**	0.204**	0.242**	
inner of anger	0.347**	0.220**	0.233**	
outer containment anger	-0.377**	-0.202**	-0.289**	

Internal control anger	-0.413**	-0.262**	-0.283**
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\*\* Significant correlation 0/01

Table 3 shows a significant positive correlation between the external expression of anger with heart rate ( $p < 0/01$ ,  $r = 0/333$ ) systolic blood pressure ( $p < 0/01$ ,  $r = 0/204$ ) and diastolic blood pressure ( $p < 0/01$ ,  $r = 0/242$ ). It also represents significant positive correlation between the internal expression of anger with heart rate ( $p < 0/01$ ,  $r = 0/347$ ), systolic blood pressure ( $p < 0/01$ ,  $r = 0/220$ ) and diastolic blood pressure ( $p < 0/01$ ,  $r = 0/233$ ) and there is a significant negative correlation between the managing external anger with heart rate ( $p < 0/01$ ,  $r = -0/377$ ) systolic blood pressure ( $p < 0/01$ ,  $r = -0/202$ ) and diastolic blood pressure ( $p < 0/01$ ,  $r = -0/289$ ) and significant negative correlation between managing internal anger and heart rate ( $p < 0/01$ ,  $r = -0/413$ ) systolic blood pressure ( $p < 0/01$ ,  $r = -0/262$ ) and diastolic blood pressure ( $p < 0/01$ ,  $r = -0/238$ ).

**The third hypothesis: "There is a relationship between anxiety level and cardiovascular response."**

To investigate the relationship between anxiety levels with cardiovascular response was used of the Pearson correlation coefficient. Table 4. Show Correlation coefficients between anxiety level and cardiovascular response.

Table 4. Correlation between anxiety and cardiovascular response

Variable	heart beat	Systolic blood pressure	Diastolic pressure	blood
Trait Anxiety	0.359**	0.247**	0.341**	
State anxiety	0.308**	0.319**	0.269**	

\*\* Significant correlation 0/01

Table 4 shows a significant positive correlation between trait anxiety and heart rate ( $p < 0/01$ ,  $r = 0/359$ ) systolic blood pressure ( $p < 0/01$ ,  $r = 0/247$ ) and diastolic blood pressure ( $p < 0/01$ ,  $r = 0/341$ ) and there is a significant positive correlation between state anxiety and heart rate ( $p < 0/01$ ,  $r = 0/308$ ), systolic blood pressure ( $p < 0/01$ ,  $r = 0/319$ ) and diastolic blood pressure ( $p < 0/01$ ,  $r = 0/269$ ).

**The fourth hypothesis: "cardiovascular responses forecast based on the expression style and anger management and anxiety levels."**

In order to predict heart rate based on the expression style and anger management and anxiety level were used simultaneous multiple regression analysis. Summary results of multivariate regression analysis using the simultaneous method is presented in Table 5.

Table 5: summarizes the meaningful results regression model to predict heart rate

Model	Source changes	SS	Df	MS	R	R <sup>2</sup>	Durbin-Watson	F	Sig
	Regression	2551.595	6	425.266	0.546	0.298	1.807	13.648	0.001
Simultaneous	Remaining	6013.905	193	31.160					
	Total	8565.500	199						

The results in Table 5 show that calculated R2 is 29/8 percent according to the common variance of predictor variables, between the style of expressing and anger management and anxiety levels in predicting heart rate. Since calculated F is significance at levels of less than 0/01 and the Durbin-Watson 1/807 indicative of the relative independence of residuals. In order to determine the contribution of predictor variables were calculated of regression coefficients and the results are presented in Table 6.

Table 6. Summary table of regression coefficients for the prediction of heart rate

Model	Variable	B	Sd	Beta	T-statistic	Sig	Tolerance	VIF
	Fixed	.7507	4.112	-	17.693	0.001	-	-
Simultaneous	outer expression	0.143	0.111	0.096	1.290	0.198	0.662	1.512
	inner expression	0.318	0.120	0.196	2.647	0.009	0.667	1.500
	Internal control	-0.321	0.125	-0.225	-2.576	0.011	0.475	2.105
	outer control	-0.087	0.117	-0.064	-0.745	0.457	0.496	2.015
	Trait Anxiety	0.134	0.068	0.160	1.955	0.052	0.544	1.839
	State anxiety	0.050	0.058	0.068	0.850	0.397	0.562	1.778

Calculated tolerance and VIF values for each independent variable, shows been observed the assumption of multivariate linear. Beta coefficients in expression style and anger management and anxiety level shows that Internal management ( $\beta=-0/225$ ) and significant negative predictor of heart rate and internal expression ( $\beta=0/196$ ) is a significant and positive predictor of heart rate.

In order to predict systolic blood pressure based on the expression style and anger management and anxiety level were used simultaneous multiple regression analysis. Summary results of multivariate regression analysis using the simultaneous method that is presented in Table 7.

Table 7: summarizes the significant results of the regression model to predict heart rate

Model	Source changes	SS	Df	MS	R	R <sup>2</sup>	Durbin-Watson	F	Sig
	Regression	9073.060	6	1512.177	0.390	0.152	1.408	5.786	0.001
Simultaneous	Remaining	50437.095	193	261.332					
	Total	59510.155	199						

The results in Table 7, show that calculated R2 is 15/2 percent of common variance of predictor variables, between the style of expressing and anger management and anxiety levels in predicting systolic blood pressure. Since calculated F is less than 0/01 is significant and Durbin Watson 1/807 indicative of the relative independence of residuals. In order to determine the contribution of predictor variables were calculated of regression coefficients and the results are presented in Table 8.

Table 8: Summary table regression coefficients for the prediction of systolic blood pressure

Model	Variable	B	Sd	Beta	T-statistic	Sig	Tolerance	VIF
Simultaneous	Fixed	117.716	11.908	-	9.886	0.001	-	-
	outer expression	0.176	0.321	0.045	0.547	0.585	0.662	1.512
	inner expression	0.412	0.348	0.096	1.184	0.238	0.667	1.500
	Internal control	-0.605	0.361	-0.161	-1.678	0.095	0.475	2.105
	outer control	-0.051	0.338	-0.004	-0.044	0.965	.0496	2.015
	Trait Anxiety	0.011	0.198	0.005	0.057	0.955	0.544	1.839
	State anxiety	0.467	0.169	0.244	2.763	0.006	0.562	1.778

Calculated tolerance and VIF values for each independent variable, shows been observed the assumption of multivariate linear. Beta coefficients in expression style and anger management and anxiety level shows that state anxiety ( $\beta=0/244$ ) and significant positive predictor of diastolic blood pressure. in order to predict diastolic blood pressure based on the expression style and anger management and anxiety level were used simultaneous multiple regression analysis. Summary results of multivariate regression analysis using the simultaneous method that is presented in Table 9.

Table 9: Summary of significant regression model to predict diastolic blood pressure

Model	Source changes	SS	Df	MS	R	R <sup>2</sup>	Durbin-Watson	F	Sig
Simultaneous	Regression	3575.271	6	595.878	0.430	0.185	1.745	7.283	0.001
	Remaining	15791.084	193	81.819					
	Total	19366.355	199						

The results in Table 9, show that calculated R2 is 18/5 percent according to the common variance of predictor variables, between the style of expressing and anger management and anxiety levels in predicting diastolic blood pressure. Since calculated F is less than 0/01 is significant and Durbin Watson 1/745 indicative of the relative independence of residuals. In order to determine the contribution of predictor variables were calculated of regression coefficients and the results are presented in Table 10.

Table 10: Summary table of coefficients of the regression to predict diastolic blood pressure

Model	Variable	B	Sd	Beta	T-statistic	Sig	Tolerance	VIF
Simultaneous	Fixed	81.380	6.663	-	12.214	0.001	-	-
	outer expression	0.212	0.180	0.094	1.178	0.240	0.662	1.512

inner expression	0.185	0.195	0.076	0.950	0.343	0.667	10.500
Internal control	-0.133	0.202	-0.062	-0.657	0.512	0.475	2.105
outer control	-0.290	0.189	-0.141	-1.533	0.127	0.496	2.015
Trait Anxiety	0.279	0.111	0.222	2.515	0.013	0.544	1.839
State anxiety	0.041	0.095	0.038	0.434	0.665	0.562	1.778

Tolerance and VIF values calculated for each independent variable, shows the linear assumption is met. Beta coefficients in expression styles and anger management and anxiety levels shows that trait anxiety ( $\beta=0/222$ ) the significant positive predictor of diastolic blood pressure

### Discussion and Conclusion

This study aimed to investigate the relationship between expression style and anger management and the level of anxiety with cardiovascular response in adults (25-45) in the city of Sanandaj. Overall, findings showed that the results of the correlation coefficient clarified the results that there is a significant and positive relationship between external and internal expression of anger with trait and state anxiety and there is a significant negative relationship between managing internal anger and trait and state anxiety ( $p < 0/01$ ). There is a significant positive relationship between external and internal expression of anger with heart rate, systolic blood pressure and diastolic blood pressure ( $p < 0/01$ ). There is a significant and negative relationship between external and internal control of anger with heart rate and systolic blood pressure, diastolic blood pressure ( $p < 0/01$ ). The results also showed that there is a significant and positive relationship between trait anxiety and heart rate, systolic blood pressure and diastolic blood pressure ( $p < 0/01$ ) and there is a significant positive correlation between state anxiety with heart rate, systolic blood pressure and diastolic blood pressure ( $p < 0/01$ ). The results showed that among components of expression styles and anger management and levels of anxiety, predictor internal control is significant and negative in heart rate and predictor of external control is a significant and positive in heart rate. Predicted of state anxiety is positive and significant in systolic blood pressure and predictor of trait anxiety significant and positive in diastolic blood pressure. In the context of the relationship between anger and anxiety some of the approaches in cognitive psychology (Schachter & Singer, 1962) believed that physical symptoms of anxiety are similar and cognitions determine the emotional and physical experience. Based on these approaches, physical infrastructure, as well as other emotions, anger and anxiety are the same and hence, there is a relationship between anger and anxiety. About the positive correlation between the internal and external expression of anxiety with cardiovascular reactions can say that the dismal mood associated with the main social determinants of blood pressure and can affect heart rate and blood pressure through sympathetic activity and increase their cardiovascular response. It can also be concluded from these findings that anger management is healthier than anger expression (Negative relationship between anger management with anxiety and cardiovascular response); it should be noted that the suppression of anger is different with anger management. In repression, anger will be ignored by the unconscious mechanisms; but also has effects on their other way, While in anger management, consciously and actively individual reduce their reactions and reduce or eliminate its effects. About the positive relationship between anxiety and cardiovascular response can be said that physiological examine the physiological indicators of anxiety disorders shows that anxious people in heart rate, blood pressure and breathing are subject to change. This means that when a person is anxious, it increase their heart rate and blood pressure and occurs respiratory crisis. So we can expect a positive relationship between them. This study was an old and have emphasized in order to clarify studies on the relationship between anger, anxiety and depression with heart disease and has provided surveys field to learn more about the relationships and interactions of complex variables with heart disease.

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