

# **The Correlation between Affective Temperaments and Internalizing Problems Reported by Adolescents of Age 14-18 Years**

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## **Abstract**

Internalizing problems are characterized by anxiety, depressed mood, social withdrawal, and somatic complaints. Childhood internalizing problems are a concerning mental health issue due to their continuity into adolescence and associated functional impairment. This study focused on studying the relation between affective temperaments and internalizing problems, in a sample of adolescents in the community. There has been very little research in mental health problems in children and adolescents in Kosovo.

The aim of this study was to identify the link between affective temperaments with youth psychopathology, by measuring both temperament with Temperament Evaluation of Memphis, Pisa, Paris and San Diego (*TEMPS*) and youth psychopathology with Youth Self Report (YSR) in the Kosovo sample. Our study found that depressive, cyclothymic, anxious, and irritable temperaments were more displayed in female respondents. Meanwhile, hyperthermic temperament was not found to be reported as interrelated to gender.

However, gender related differences were significant on the YSR scales, with female respondents reporting higher values on those scales. The study found that there is a significant difference between the groups with normal scores on Depressive Temperament with group with high scores for all

scales of Internalizing problems. More scores in Depressive Temperament more scores in Internalizing Scales.

The same tendencies were found for Cyclothimic Temperament and Anxious temperament. Hyperthermic temperament was not found to have significant effect on Anxious/ Depressed, Withdrawn, Somatic Complaints, and Social Problem. Irritative temperament was found to have significant effect only in Anxious/ Depressed  $F(2) = 13.1, p < .01, \eta^2 = .03$ . The higher scores in Anxious/ Depressed scores were found in the group with high scores in Irritative Temperament.

The study concluded that temperament may only be one of several factors contributing to the development of psychopathology. This study found that the temperament, which is influenced by environment and biology, is a significant predictor for internalizing problems.

**Key Words:** Affective temperament, Depression, Anxiety, Adolescents, Internalizing.

### **1. The Correlation between Affective Temperaments and Internalizing Problems reported by Adolescents of age 14-18 years**

The empirical approach is often included in debates about the threshold of the psychopathology, especially in children and adolescents. Many disorders that occur in childhood have overlapping symptoms and are very difficult to pinpoint where the boundaries lie between one and another disorder. The complexity of this overlapping is closely connected with the Interaction of biological, environmental, and psychosocial factors (Rutter, Caspi, Moffitt, 2003). The interpretation of such information would be very simple if we consider only the profile of symptoms and not take into consideration the temperament dimensions and the interaction of such dimensions with emotional and behavioral symptoms. Psychopathological profile of an individual seems to be quite sensitive to many factors that moderate and assist in its development (Andreasen, 1997, Tsuang et al., 2000; Rutter, 2003) making it impossible to describe it through a single category.

Within this nature vs. nurture relation, temperament plays an important role. Temperaments are thought to be basic building materials of the human nature, inheritable and believed to be stable throughout the individual's life. The temperament includes the characteristic features

related to emotional state and reaction, which reflect on the psycho-motoric processes, i.e. on the general reaction and the behavior, including the speed and the strength, and the duration of the reaction, as well as the energy engaged and exposed. Identification and measurement of the temperament have numerous implications on various domains of interpersonal functions.

Internalizing problems are characterized by anxiety, depressed mood, social withdrawal, and somatic complaints. Childhood internalizing problems are a concerning mental health issue due to their continuity into adolescence and associated functional impairment (Bittner et al., 2007; Hammen, et al. 2008; Tram and Cole, 2006). Researchers have considered child temperaments as important factors associated with individual differences in children's adjustment.

Thomas and Chess in 1984 brought evidence through their studies indicating that there existed a strong link between temperament and later psychopathology. The question is not the interaction of temperament with psychopathology, but how these interactions occur and how much they influence each other. Nowadays we do have more information about genetic and environmental interaction. An important factor to understand in the assessment of the psychopathology in children is the link between genetic factors and environment with the development of the child. The impact of genetics is more influential during early childhood, with 50% of the variance compared with older children, with a reduction of genetic influence especially in psychopathology of aggression.

As psychiatry increasingly begins to consider quantitative and dimensional models of psychopathology, the magnitude of these associations can only be expected to increase (Krueger et al. 2005).

In the model presented by Watson et al. (1995), depression and anxiety tend to co-exist, because together they share a high level of negative affect or neuroticism, including anxiety and fear. Depression is characterized by low levels of positive affect, while anxiety is specifically characterized by a state of increased psychological alert. In general, this model has encountered support in studying internalizing problems in adolescents (Loningan, et al 2004). Temperament was found to be associated with mood disorders such as mania, anxiety and depression in adults (Von Zerssen, 1996; Ampollini, et al., 1999). This study used Temperament Evaluation of Memphis, Pisa, Paris and San Diego (TEMPS) and Youth Self Report (YSR) questionnaire. TEMPS was developed as an instrument (Akiskal and

Mallya (1987); Akiskal and Akiskal (1992); Akiskal, et al. (2005) and for the purpose of studying the relations between temperament and mental disorders, such anxiety and depression. This questionnaire was operationalized by Akiskal et al. (1977, 1979) into four types of affective temperament: depressive, hyperthymic, cyclothymic, irritable, and an anxious type was added later based on the identification of four types of temperaments according to Kraepelin's theory (1921) and Kretschmer's concept (1936) on the continuity between temperament and affective disorders. *This study focused on studying the relation between affective temperaments and internalizing problems, in a sample of adolescents in the community. There has been very little research in mental health problems in children and adolescents in Kosovo. Those few studies have found that adolescents have more internalizing problems than children of age 6-11 (Shahini, 2011; Shahini et al. 2014)*

*The aims of the present study was to identify the link between temperament and character with youth psychopathology, by measuring both temperament with TEMPS and youth psychopathology with YSR in the Kosovo sample.*

## 2. Methods

Participants: Temps and YSR data were obtained for 200 children of age 12 to 18 years (boys = 47% and girls = 53%), with a mean age of 16 ( $SD = 1.4$ , range 4). Respondents were recruited from 4 schools in Prishtina. There were no significant gender based differences in the mean age (male, 15.9 years vs., female, 16.0 years),  $t = -.799$ ,  $df = 199$ ,  $p = 0.425$ .

### 2.1 Study Design

Prior to the collection of the survey data, translation and standardization of measures was conducted from January 2011 until May 2011. Consistent with guidelines outlined by Bracken & Barona (1991), the questionnaires were translated by a professional translator. An independent translator then performed a back-translation from the Albanian version. The original English and the back translation were reviewed by the linguists and researcher to revise ambiguous or misleading items. Following the translation and standardization, permission was requested from the Ministry of Education and the Medical University of Prishtina, which also granted the Ethical Review of the study.

During May-September 2011, the researcher and the team visited 4 schools that were selected from the list of the high schools provided by the Ministry of Education. The research team met with the school director or deputy director to explain the aim of the study and provided them with a copy of the permission from the Ministry of Education.

## **2.2 Data collection**

The assessment was conducted by a team of 4 persons, who were trained beforehand by the researcher on the content of the questionnaires. The interviewers were provided with written guidelines on how to address classrooms when they enter to administer TEMPS 12-18 R and YSR. All the questionnaires were self-administered and were given verbal consent. The team members, following each implementation in the school, provided written reports on the process and the number of students participating in the research. Overall, there were no problems or issues faced during the collection time.

## **2.3 Instruments**

1- TEMPS is a self-report consisting of 35 questions (5x7 questions, seven questions for each temperament). Questions 1-7 refer to the depressive temperament, 8-14 to the cyclothymic temperament, 15-21 to the hyperthymic temperament, 22-28 to the irritable temperament, and 29-35 to the anxious temperament.

2- YSR (Youth Self Report). The YSR (Achenbach and Rescorla, 2001) contains 105 problem items, plus 14 items tapping positive qualities. It is self-administered, with youth responding to the items on a three-point scale (0 = *not true, as far as you know*, 1 = *somewhat or sometimes true*, or 2 = *very true or often true*) based on the past six months. The YSR yields the same 17 scales: eight syndrome scales; Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule-Breaking Behavior, and Aggressive Behavior), three broad-band scales (Internalizing, Externalizing, and Total Problems). In addition, in 2007 (Achenbach and Rescorla, 2007), two new problem scales were derived for the YSR (Posttraumatic Stress Problems, and Obsessive-Compulsive Problems). Achenbach and Rescorla (2001) reported alphas from .90 to .95 for broad-band scales and from .67 to .90 for narrow-band scales scored from the YSR.

## 2.4 Data Analyses

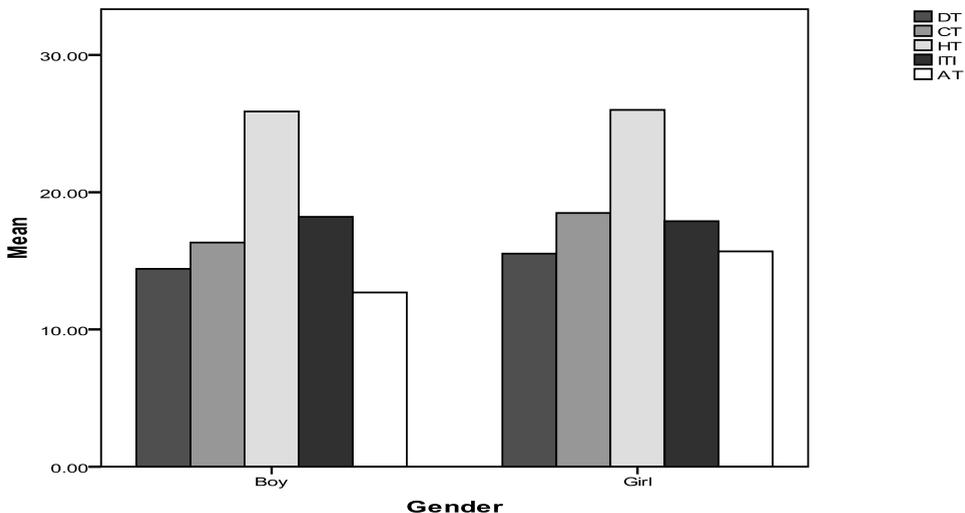
Cronbach's  $\alpha$  coefficient was used as an index of internal consistency for the TEMPS and YSR and scales. Statistical analyses were performed with SPSS version 20 for Windows.

Associations between nominal variables were analyzed with cross-tabulation (chi-square statistics), and between continuous variables Pearson product-moment correlations were used. Differences between group means were analyzed with t-tests or ANOVAs

## 3. Results

The results indicate that the highest mean was reported for the hyperthermic temperament ( $M = 25.9$ ,  $SD = 4.1$ ), followed by irritable temperament ( $M = 18$ ,  $SD = 5.5$ ) and cyclothymic temperament ( $M = 17.4$ ,  $SD = 5.5$ ), while the lowest mean was reported for the anxious temperament ( $M = 14.2$ ,  $SD = 4.4$ )

**Figure 1:** The mean distribution of dimensions of temperament according to gender



**Source:** Authors' own calculation

Notes: TEMPS-scales: DT= Depressive Temperament, CT= Cyclothymic Temperament, HT= Hyperthyhmic Temperament, IT= Irritable Temperament, AT= Anxious Temperament;

T test results show that significant differences in the mean scores were found in Cyclothemic Temperament [ $t(198) = -2.8, p = .006, \text{Girls} > \text{Boys}$ ] and in Anxious Temperament [ $t(566) = 3.1, p = .001, \text{Girls} > \text{Boys}$ ]. No significant differences were found in Hyperthermic Temperament  $t(198) = -.198, p < .843$  and Irritative Temperament  $t(198) = -5.1, p < .690$ . Differences were found in Depressive Temperament  $t(198) = -1.8, p < .06$ , between males ( $M = 14.4, SD = 4.6$ ) and females ( $M = 15.5, SD = 4.6$ ), but did not reach significance.

Table 1 shows that significant differences were found in all scales of YSR: Anxious/ Depressed, Withdrawn, Somatic Complaints, Social Problems according to gender. According to the results of the independent T- test, significant differences are found in Anxious/ Depressed  $t(199) = -5.1, p < .001$ , females ( $M = 7.1, SD = 3.8$ ) having higher scores than males ( $M = 4.5, SD = 3.1$ ); Withdrawn  $t(199) = -3.4, p < .001$ , females ( $M = 4.4, SD = 2.4$ ),  $>$  males ( $M = 3.2, SD = 2.4$ ); Somatic Complaints  $t(199) = -4.5, p < .001$ , females ( $M = 5.5, SD = 3.2$ )  $>$  males ( $M = 3.6, SD = 2.7$ ); Social Problems  $t(199) = 2.7, p < .007$ , females ( $M = 4.5, SD = 2.6$ )  $>$  males ( $M = 3.6, SD = 2.4$ ). Significant differences were found in Internalizing problems  $t(199) = -5.1, p < .001$  (females  $>$  males).

**Table 1:** T test results for internalizing scales according to gender

-----	t	p	Male		Female		95% Confidence Interval of the Difference	
			M	SD	M	SD	Lower	Upper
Anxious/ Depressed	-5.128	.000	4.5	3.1	7.1	3.8	-3.48555	-1.54937
Withdrawn/ Depressed	-3.474	.001	3.2	2.4	4.4	2.4	-1.90493	-.52542
Somatic Complaints	-4.520	.000	3.6	2.7	5.5	3.2	-2.80113	-1.09931
Social Problems	-2.718	.007	3.6	2.4	4.5	2.6	-1.67229	-.26588
Internalizing Problems	-5.046	.000	12.6	7.1	18.1	7.9	-7.51118	-3.29010

**Source:** Authors' own calculation

*Notes: t- coefficient; p- coefficient of significance; M- Mean; SD- Standard Deviation*

A Pearson correlation matrix was created for Anxious/ Depressed, Withdrawn, Somatic Complaints, Social Problems and five temperament dimensions. The Table shows that four scales of YSR were significantly positively correlated with four temperament dimensions (depressive, cyclothemic, irritative and anxiety) and not significantly with hyperthermic temperament. Only the withdrawn was not significantly correlated with irritative temperament. The positive correlation shows that the higher scores on temperament dimensions, the higher scores in Anxious/ Depressed, Withdrawn, Somatic Complaints, Social Problem, and contrary for hyperthermic temperament when higher scores of this temperament the lowest scores on Anxious/ Depressed, Withdrawn, Somatic Complaints, Social Problem. Tables show the full correlation matrix.

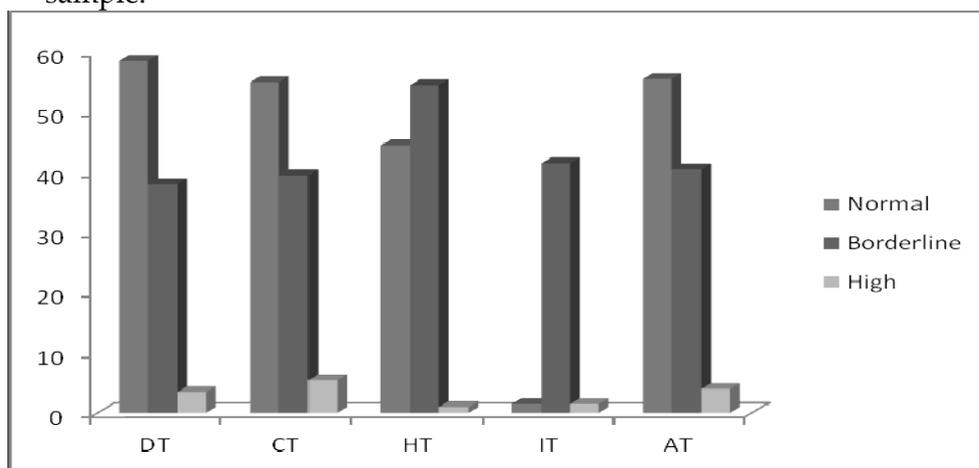
**Table 2:** Correlations between the temperament dimensions and the first order scales of the YSR assigned with internalizing problems (n=200)

	Anxious/ Depressed	Withdrawn	Somatic Complaints	Social Problem
<b>DT</b>	.442**	.477**	.337**	.272**
<b>CT</b>	.411**	.440**	.367**	.292**
<b>HT</b>	-.054	-.092	-.027	.039
<b>IT</b>	.253**	.135	.198**	.161*
<b>AT</b>	.428**	.315**	.526**	.268**

**Source:** Authors' own calculation

Notes: TEMPS-scales: DT= Depressive Temperament, CT= Cyclothymic Temperament, HT= Hyperthymic Temperament, IT= Irritable Temperament, AT= Anxious Temperament; \*\* $p < .001$ , \*  $p < .05$

We used as a cutoff 2sd for grouping high score groups for dimensions of temperament. According to results in this sample adolescents with high scores in Depressive Temperament were (3.5%); Cyclothymic Temperament (5.5%); Hyperthymic Temperament (1%); Irritable Temperament (1.5%); Anxious Temperament (4%).

**Figure 2:** Prevalence rate of dimensions of affective temperament on our sample.

**Source:** Authors' own calculation

Notes: TEMPS-scales: DT= Depressive Temperament, CT= Cyclothymic Temperament, HT= Hyperthymic Temperament, IT= Irritable Temperament, AT= Anxious Temperament;

ANOVA results show that groups with different rates of Depressive Temperament have a significant effect on differences between means in Anxious/ Depressed  $F(2)= 18.7$ ,  $p<.001$ ,  $\eta^2= .16$ ; Withdrawn  $F(2)= 19.6$ ,  $p<.001$ ,  $\eta^2= .17$ ; Somatic Complaints  $F(2)= 8.1$ ,  $p<.001$ ,  $\eta^2= .07$  and Social Problem (2)= 6.6,  $p<.002$ ,  $\eta^2= .06$ . Using Post hoc analysis and Bonferroni's correction, we found that there is a significant difference between the groups with normal scores on Depressive Temperament with group with high scores for all scales of Internalizing problems. More scores in Depressive Temperament more scores in Internalizing Scales. The same tendencies were found for Cyclothymic Temperament and Anxious temperament. Hyperthermic temperament was not found to have significant effect on Anxious/ Depressed, Withdrawn, Somatic Complaints, and Social Problem. Irritative temperament was found to have significant effect only in Anxious/ Depressed  $F(2) = 13.1$ ,  $p<.01$ ,  $\eta^2= .03$ . The higher scores in Anxious/ Depressed scores were found in the group with high scores in Irritative Temperament.

#### 4. Conclusions

The goal of this study was to explore the correlation between temperaments and internalizing problems. Participants reported that affective temperaments were significantly correlated with the problems of anxiety, depression, somatic and social problems. Individuals who reported mean values over the second standard deviation in depressive, cyclothymic and anxious temperaments were found to have more internalizing problems. As in many other studies, our study found that depressive, cyclothymic, anxious, and irritative temperaments were more displayed in female respondents. Meanwhile, hyperthermic temperament was not found to be reported as interrelated to gender. However, gender related differences were significant on the YSR scales, with female respondents reporting higher values on those scales.

The data obtained in this study are valuable for understanding the link between the temperament and emotional disorders in adolescence. Temperament research has indicated that different children may respond to

similar environmental challenges in predictably divergent ways, with the individual characteristics of the child influencing pathways to both successful and maladaptive outcomes. Internalizing problems include physiological symptoms, such as changes in weight and sleep and mood which are integrative part of temperament. Overall, temperament may only be one of several factors contributing to the development of psychopathology. This study found the temperament, which is influenced by environment and biology, to be a significant predictor of the emergence of internalizing problems.

Prevention programs and youth intervention programs should be shaped by an integration of techniques promoting mental health, which included the temperament.

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