



Social Sciences & Humanity Research Review



Gender Differences in Temperamental Traits and Behavioral Problems in Early Adolescents: A Comparative Analysis

Wajiha Ghazal^{1*}, Aisha Amin¹

¹ National University of Modern Languages (NUML), Islamabad
Emails: wajiha.ghazal@numl.edu.pk , aauk_29@hotmail.com

ARTICLE INFO

Keywords:

Temperament, Gender Differences, Behavioral Problems, Adolescents, Internalizing Behaviors, Externalizing Behaviors, Self-Regulation, Aggression, Early Adolescence

Corresponding Author:

Wajiha Ghazal,
National University of Modern Languages (NUML), Islamabad
Emails:
wajiha.ghazal@numl.edu.pk

Abstract

Background: The qualities of temperaments are the basis of emotional and behavioral state of adolescence development. These differences by gender tend to reveal their presence in the early adolescence years and may predict patterns of behavior disorders, including internalizing and externalizing symptoms. In order of personalization of interventions and the fostering of the psychological well-being, it is essential to be aware of such differences.

Aim: The aim of this study was to examine gender disparities in temperamental characteristics and how they related to behavioral disorders in young adolescents.

Method: It used a comparative cross-sectional design that involved a sample of 194 school going adolescents (97 male, 97 female) aged 12 - 15 years whose names were selected by convenience sampling in various schools in Rawalpindi, and Islamabad. The implementations of standardized tools were performed: the Early Adolescent Temperament Questionnaire-Revised (EATQ-R) to measure the temperament and the Functional Behavior Assessment Profiler to measure internalizing and externalizing behavior problems.

Results: The boys scored higher in surgency, aggression, and problems of the externalizing type whereas the girls got higher mean score in activation control, attention, inhibitory control, shyness, fear, and internalizing issues. There was statistically significant gender variation in traits including activity level, affiliation, frustration and inhibitory control. Boys had significantly higher externalizing behavioral problems as compared to girls, but they had non-significant more internalizing behaviors as compared to girls. The values of Cohen d backed up small to moderate effect sizes of traits and behaviors.

Conclusion: The results indicate that temperature gender disparities should not be ignored, and important to be notified in early intervention program and prevention techniques of the adolescents.

INTRODUCTION

Personalities take the format of temperamental qualities that are dimensionally basic in personality development, detectable at early life age, and which manifest fair invariances during development. Such traits as attention control, inhibitory control, fear, shyness, surgency are very important in determining behavioral Management and socio-emotional adaptation (Yan et al., 2021; Lunetti et al., 2022). In early adolescence, where there is greater independence and academic pressure as well as greater influence of peers, temperamental individual differences are greater and more indicative of future behaviors (Askari et al., 2022). The recent literature has paid more and more attention to gender disparities in such temperamental characteristics since one can learn more about different developmental pathways in behavioral functioning based on gender differences (Moreira et al., 2021; Gong et al., 2023). The temperament-in-the-light of gender provides an interesting paradigm in explaining the difference in the patterns of internalizing and externalizing problems of behavior amongst boys and girls.

It has always been demonstrated that girls always score higher in restraining control, quietness, and attention control, and boys tend to have a higher score in the hyperactive and surgency characters (Slobodskaya & Kornienko, 2021; Harvey et al., 2022). Such temperamental patterns might dispose both genders to various types of behavioral issues. As an illustration, an increased level of emotional sensitivity and inhibition in girls and more impulsivity and activity in boys could contribute to the differences in the internalizing behavior (anxiety, depression) and externalizing behavior (aggression, defiance) respectively (Arace et al., 2021; Amerio et al., 2023). With the help of these temperamental inclinations, a more complex picture of behavioral development and its gender-related manifestations of early adolescence can be created.;

Behavior problems are also different in terms of gender expression with boys being more likely to receive disruptive, aggressive, and oppositional behavior problems whereas a girl is more likely to receive internal distress, withdrawal, somatic complaints (Lambert et al., 2021). Such differences are also influenced by gender socialization whereby norms and expectations of society and parents exert different influences on embodied behaviors. As an example, boys are usually socialized as being competitive and aggressive, which promotes possible externalization issues, and girls are favored to be supportive and obedient, thus leading to internalization problems when the females are denied the means to express emotions freely (Brandlistuen et al., 2021; Winds et al., 2024).

Gender temperament and behavior difference are also explained by neuroscientific and hormonal factors. Certain neuroimaging research is one of the pieces of evidence that neuroimaging studies may lead in this area because brain areas associated with the regulation of emotions and control over impulses differ in boys and girls during adolescence, which is likely to be the cause of age differences in behaviors and their emotional manifestations (Truhan et al., 2022). Besides this, hormonal changes of puberty may differ in the expression of emotional reactivity and behavioral self-regulation in both genders, further cementing temperamental differences.

School is an important arena, within which gender-differences in temperament and behavior adjustment are eminent (Bozzatello et al., 2024). Teachers have a tendency to mark greater rates of externalizing patterns in boys and voicing their anxiety over the emotional state of girls. Temperamental tendencies can be accelerated by academic stress and peer and classroom dynamics, and when unchecked may result in more long term behavioral problems (Ogden et al., 2023). Therefore, the determination of gender-based temperament profiles could

become an initial instrument of risk behavior screening and the basis of intervention measures (Patwardhan et al., 2021).

Because of psychological, educational, and social consequences of such differences in gender, the comparative study of temperamental features and behavioral problems in boys and girls has to be conducted (Webb et al., 2021; Babicka-Wirkus et al., 2023). Such similarity will contribute to a better comprehension of gender-based weaknesses and strengths of behavioral development at the beginning of adolescence. These findings could be used to develop gender-sensitive mental health, emotional regulation, and adaptive behavior promotion in prevention and interventions programs of both boys and girls (Exner-Cortens et al., 2021).

Problem Statement

Although so much research has been carried out on the developmental process among adolescents, little research has rigorously examined the moderating role of gender in the association of temperament traits with adolescent behavioral problems manifested early in the legion of adolescence. There is no comparative nature in its development, which negatively affects the creation of gender-sensitive approaches to recognize those at-risk youth and offer them specialized help. This paper fills this gap by discussing the differences between boys and girls as far as temperaments in children are concerned and how temperament varies with internalizing and externalizing behavior problems.

Significance of the Study

This research can be considered important because it can improve critical knowledge gap in terms of the gendered performance of temperamental traits and behavioral problems in early adolescence. The results can be used to offer educators, clinicians, and parents more indicators of risk and protective factors associated with each gender. The relationship between behavior problems and particular temperament profiles will allow improving the effectiveness of interventions that should target the healthy development of emotions and behavior in boys and girls, thus, positively affecting school and clinical outcomes.

Aim of the Study

This research will be used to compare gender difference in temperament character traits and relate them with internalizing and externalizing sanctions of behavioral problems in early adolescents. The aim of the study is to present a study in terms of different patterns among boys and girls as a contribution to development of gender-informed assessment and intervention strategies upholding better psychological and behavioral outcomes.

METHODOLOGY

The current study used a quantitative and comparative cross-sectional research design aiming to compare gender differences in temperamental abilities and how both are connected to behavioral issues during early adolescence. One hundred and ninety four school-going children (97 boys and 97 girls) aged between 12 to 15 years were studied and schools with the same age group and genders were chosen in Rawalpindi and Islamabad, Pakistan. The participants were selected using a convenient sampling method, but there was equal composition of both sexes. Respondents were advised about the nature and objective of the study and informed consent was taken of the children as also their parents or guardians. This was professionally signed by the ethical review board, and all the activities were conducted in line with the ethical standards to develop the element of confidentiality and voluntary engagement.

Data collection was achieved through three standardized tools. To evaluate some temperamental characteristics, such as activation control, affiliation, attention, fear, frustration,

surgency, inhibitory control, shyness, and others, the Early Adolescent Temperament Questionnaire-Revised (EATQ-R) created by Ellis and Rothbart (1999) was utilized. Muris (2001) Child Self-Efficacy Scale was applied to evaluate beliefs of the children in academic self-efficacy, social self-efficacy, and the self-efficacy in emotional domain. The Functional Behavior Assessment (FBA) Profiler created by Scott (2007) was used to measure behavior problems by taking into consideration that the measure splits into internalizing (e.g., social withdrawal, somatic complaints) and externalizing problem behavior (e.g., aggression, defiance). The reliability levels of the three questionnaires used in studies in the past had been accepted to be good with the three questionnaires considered culturally acceptable to the target population. Independent samples t-tests were selected to analyze the data conducted on the mean differences between boys and girls regarding temperament and behavior problems, and Pearson correlation was applied in examining the relationship between the study variables.

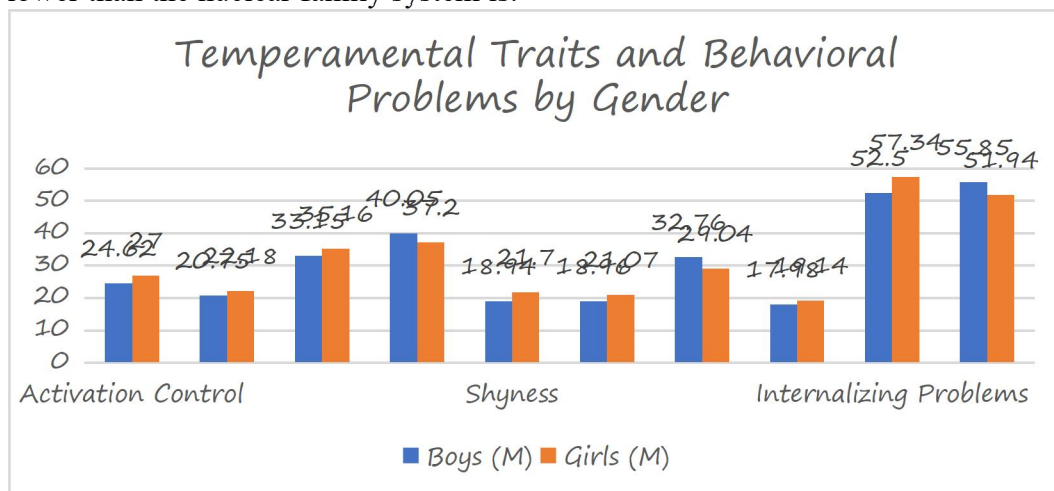
Results

Table 1

Percentages (%) values for demographic variables in terms of gender, age and family system (N= 194)

Demographics		f(%)
Age		
	12	52(26.8)
	13	41(21.1)
	14	41(21.1)
	15	60(30.9)
Gender		
	Male	97(50.0)
	Female	97(50.0)
Family system		
	Nuclear	132(68.0)
	Joint	62(32.0)

Table 1 displays forms of demographic information of the sample. Out of 194 participants the majority fell in the scope of 12-15. Participants were five in number; half of them were Male and half of them were Female. The number of children that belong to joint family system is lower than the nuclear family system is.



Boys attained more points when the questions were based on surgency, aggression and externalizing behaviors and girls registered increased mean scores on activation control, attention, inhibitory control, fear, shyness and internalizing issues. What is implied in these results is that boys are susceptible to externalized symptoms, as compared to girls, who have more internalized signs and regulatory characteristics.

Table 2 Comparison for childhood temperamental traits among male and female ($N=194$)
 $df=194$

Variables	Gender	N	M	SD	T	P	Cohen's d	95% CI	
								LL	UL
Activation Control	male	97	25.79	4.01	.03	.97	.01	1.13	1.09
	female	97	25.81	3.87					
Affiliation	male	97	27.57	5.57	3.14	.00**	.045	3.90	.89
	female	97	29.97	5.04					
Activity Level	male	97	22.94	4.04	3.42	.00**	.49	.79	2.94
	female	97	21.08	3.51					
Attention	male	97	21.55	3.74	.33	.74	.05	.91	1.28
	female	97	21.37	4.02					
Fear	male	97	19.63	3.99	1.32	.19	.19	1.84	.35
	female	97	20.38	3.78					
Frustration	Male	97	31.78	5.68	2.59	.01**	.37	3.73	.51
	female	97	33.90	5.70					
Surgency	Male	97	38.31	7.01	.70	.48	.10	2.36	1.12
	female	97	38.93	5.14					
Inhibitory Control	Male	97	33.24	4.81	2.76	.00**	.39	3.10	.52
	female	97	35.06	4.29					
Pleasure Sensitivity	Male	97	22.19	5.29	3.97	.00**	.57	4.11	1.30
	female	97	24.94	4.30					
Perceptual Sensitivity	Male	97	19.51	3.71	2.87	.00**	.41	2.65	.49
	female	97	21.09	3.93					
Shyness	Male	97	20.04	4.66	.81	.42	.12	1.94	.81
	female	97	20.60	5.07					
Aggression	Male	97	31.59	6.43	1.40	.16	.20	.55	3.31
	female	97	30.21	7.22					
Depressive Mood	male	97	18.17	3.55	1.51	.13	.22	1.77	.23
	female	97	18.94	3.55					

Note: CI= Confidence Interval; LL= Lower Limit; UL= Upper Limit

Table 2 illustrates childhood temperament trait mean difference. The mean scores of the traits are Activation Control (25.79, 25.81), Affiliation (27.57,29.97), Activity Level(22.94,21.08), Attention (21.55,21.37),Fear(19.63,20.38),Frustration (31.78, 33.90), Surgency (38.31, 38.93), Inhibitory Control (33.24 It also points out that the difference in means in Activation Control ($t=2.19$, $p<.05$) Affiliation($t=3.14$, $p<.001$) activity level($t=3.43$, $p<.001$)

frustration($t=2.59$, $p<.01$) inhibitory control ($t=2.76$, $p<.05$) pleasure sensitivity ($t=3.97$, $P<.05$) are statistically significant, and in the case of Shyness($t=0.81$) The values of activation Control($d=.01$), Attention($d=.05$), fear($d=.19$), surgency ($d=.10$), shyness($d=.12$), depression mood($d=.22$) and aggression($d=.20$) indicate small practical significance and those of affiliation($d=.45$), activity level($d=.49$), inhibitory control($d=.39$), Frustration($d=.37$), Perceptual Sensitivity($d=.41$) and Pleasure

Table 3 Comparison for Internalizing and Externalizing behavior problems among male and female (N=194)

Variables	Gender	N	M	SD	T	P	Cohen's d	95% CI	
								LL	UL
Internalizing	male	97	55.84	10.50	1.33	.19	.19	-.89	4.58
	female	97	54.00	8.65					
Externalizing	male	97	55.67	12.11	2.31	.02*	.03	.51	6.56
	female	97	52.13	9.01					

$df=194$

Note: CI= Confidence Interval; LL= Lower Limit; UL= Upper limit

The mean difference between males and females on internalizing and externalizing with the problem of behavior is illustrated in Table 3. An average score of each sub scale of behavior problems is Internalizing (55.84, 54.00) and Externalizing (55.67, 52.13). It further shows that the means difference of Internalizing ($t=1.33$, $p>.05$), and Externalizing ($t=2.31$, $p>.05$) are also statistically significant. The value of Cohen d in the case that internalizing ($d=.19$) and Externalizing ($d=.03$) behavior problems occur, is representing a small practical importance.

DISCUSSION

The given study examined whether or not there was gender-related disparity in temperamental characteristics, along with behavioral issues in early adolescents. Girls outperformed boys on regulatory features (activation control, attention, inhibitory control, and fear), which is in line with other studies highlighting more cognitive control and emotional sensitivity in females at an early stage of adolescence (Di Giunta et al., 2022). Instead, boys showed greater mean scores of surgency and aggression, just as decades of developmental research indicate that boys are increasingly exorbitant with externalizing characteristics, including hyperactivity, risk-seeking, and impulsivity (Larsen et al., 2023). These sex-specific patterns in temperament can have a response in the expression and treatment of behavioral issues in instructive or clinical settings.

Meaningful gender variations occurred on the dimensions of temperament (both the affiliation and activity level, frustration, inhibitory control, or pleasure sensitivity). Mostly, girls had an affiliative, regulatory behavior and boys had high physical energy and frustration reactivity. These results are in line with the recent data that highlights divergences between genders in biological and socially-oriented self-regulation and sociability (Tang et al., 2024). Frustration might also be more emotionally salient and girls in the sampled population may be more vulnerable to interpersonal stressors, which can be suggested by the higher mean scores of frustration in girls observed in this sample (Zhu et al., 2021).

These temperament patterns were also reflected by the behavioral outcomes. The boys had somewhat more externalizing behavior problems than girls, confirming a prior finding that males more than females are predisposed to overt behavior problems such as aggression and

defiance (Sisk et al., 2022). Conversely, the groups never differed significantly in terms of internalizing behavior with girls recording a slightly higher result than boys. However, it still corresponds to the evidence showing that internalizing problems are quite universal among both genders but tend to manifest themselves more insidiously in girls (Kngesten et al., 2023). This emphasizes the need to have sensitive behavioral screening tools that would be able to sense internalized symptoms especially in females.

As the difference of means in most of the dimensions of temperament indicated moderate statistical significance and moderate practical significance, some characteristics such as the aggression, shyness, or depressive mood indicated small or no significant difference in their gender. These findings indicate that certain behavioral and emotional temperaments can be equally common in boys and girls at the early adolescence stage, and individual testing is preferable to gender-based presumptions (Gomez-Baya & Mendoza, 2021). The subtle picture arising in the findings indicates that treatment should be specific not only to gender, but to particular temperamental vulnerability and strength.

The last but not the least, academic and clinical implications of these findings are significant. The teachers and school psychologists will be able to help adolescents more effectively when they realize that behavior of boys and girls is affected by temperament in a dissimilar way. Self-regulation programs that seek to instill empathy and stress management could be gender-sensitive seeing that each gender has specific temperamental tendencies. Recognition and assistive methods based on temperament theory during the early years may have an enormous impact on the behavioral/emotional successes of both boys and girls in the school environment.

Future Direction

A future study needs to take into account longitudinal designs to observe the transitions of the gender based differences in temperament through adolescence and how this impacts the long-term behavioral and academic performance. The addition of parent and teacher reports to self-reports can provide more complete vision. Further, the analysis on the moderating impact of the cultural, socioeconomic and environmental factors may enlighten more on the effects of gender interacting with temperament and behavior across cultures.

Limitations

The limitation of this study is its cross-sectional design that limits the inference of causation. Self-report measures could be biased because of social desirability or the lack of introspective ability of adolescents. Moreover, the sample was the one with limited geographic region, which can be seen as a barrier to generalizability of research to most populations. External validity would be increased by a higher sample size and a broader range of diversity of sampled population.

CONCLUSION

This research adds value to the mounting body of literature on both temperament and behavior during the teenage years given the fact that ginormous differences were found concerning definite temperament dimensions and externalizing behavior in adolescence along gender lines. Boys were more surgent and aggressive as compared to the girls who presented better self-regulation and affiliative behaviors. These disparities between the genders confirm the need to implement specific intervention measures and the possible role of temperament-based interventions in enhancing the well-being of adolescents.

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