

Role of Rumination in Adolescents’ Disruptive Behaviors in School

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The adolescent stage of development is usually met with behavioral challenges. A behavior that is undesirable by the social norms is termed as externalizing problem behavior, constituting the central theme of investigation in this study. The purpose of the present study is to examine the role of rumination and its two distinct forms, reflection and brooding in contributing to adolescents’ disruptive behaviors in school. A sample of 249 adolescents, including both male and female students with the age range of 14-18 years, was selected from various educational institutions in Islamabad and Rawalpindi, Pakistan. Adolescents’ disruptive behavior in school and rumination were measured using the Disruptive Behavior Scale Professed by Students (DBS-PS; [Veiga, 2008](#)) and the Ruminative Response Scale (RRS; [Treyner et al., 2003](#)), respectively. The results supported the role of rumination in disruptive behavior among adolescents, whereby reflection, but not brooding, was significantly positively associated with disruptive behavior. The findings carry important implications for key stakeholders, including school counselors, social workers, parents, and educators, by providing valuable insights that can help in the early identification of psychological concerns and the development of evidence-based interventions to address disruptive behavior effectively.

Keywords. Rumination, externalizing behavior, school discipline, adolescents’ behavioral issues, adolescents’ mental health

The transition from junior high to high school is a critical developmental period marked by the onset of puberty, which brings about a series of biological, psychological, and social changes. These

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include physical maturation, the emergence of sexual identity, heightened susceptibility to peer influence, and a growing need for autonomy (Steinberg, 2020). Collectively, these shifts contribute to an increase in emotional and cognitive vulnerability, making adolescents more prone to behavioral problems and psychiatric issues (Arnett, 1999; Zahn-Waxler et al., 2000). A central developmental task during this stage is the formation of personal identity, which significantly shapes behavioral patterns and psychological adjustment (Erikson, 1950). Additionally, adolescence is often accompanied by challenges such as negative body image, depressive symptoms, rumination which is the tendency to focus on the causes and consequences of one's distress repetitively without moving toward resolution (Kostanski & Gullone, 1998; Sütterlin et al., 2012; You et al., 2017). All of these may further compound emotional difficulties, thereby leading to their disruptive behavior.

Adolescents spend a significant portion of their time in school, which functions as an environment where developmental markers can be noticed (Eccles & Roeser, 2009). Research findings indicate that disruptive behavior among adolescents in schools is quite prevalent, especially during the middle school years, possibly due to peer influence (Galván et al., 2011; Kaplan et al., 2002; Shin & Ryan, 2017). Given the rising concerns around adolescent mental health and school dropout rates, understanding cognitive contributors to disruptive behavior is critical for developing preventive strategies. This study examines the role of rumination in adolescents' disruptive behavior within the school environment. Its primary objective is to uncover the fundamental aspects of maladaptive behavioral issues among adolescents in educational settings. The specific focus is on investigating the impact of rumination on behavioral problems of adolescents, particularly their violations of school rules, aggression towards schoolmates, and aggression towards school authority.

Rumination is particularly relevant in Adolescence because it is a modifiable cognitive process, often overlooked in behavioral assessments, that may underlie externalizing issues. Despite extensive research in Western contexts, little is known about how rumination manifests behaviorally in school environments within South Asian cultures, particularly with regard to gender differences. The findings are expected to hold meaningful implications for various stakeholders, such as school counselors, social workers, parents, and educators, by offering insights that can inform the early identification of psychological issues and the implementation of evidence-based interventions. This knowledge may help reduce disruptive behavior and promote a healthier, more supportive school environment.

Rumination

Rumination is a maladaptive coping mechanism characterized by a pessimistic and passive pattern of repetitive thinking, wherein individuals dwell on their problems instead of engaging in active problem-solving (Nolen-Hoeksema, 1991). According to Nolen-Hoeksema's response style theory, rumination is both a symptom and a perpetuator of psychological distress. The theory outlines a three-fold impact of rumination on emotional distress. First, rumination intensifies the effects of a depressive mood on perception, making individuals more likely to interpret their current circumstances through the lens of past negative emotions and experiences. Second, it impairs decision-making by fostering fatalistic and negative thought patterns, thereby hindering effective problem-solving. Third, rumination disrupts goal-directed behavior, leading to an increase in adverse outcomes and further reinforcing the cycle of distress.

Rumination is characterized as a metacognitive activity, and maladaptive rumination is considered a dysfunctional coping strategy in relation to emotional regulation and metacognitive processes (Luca, 2019). Individuals who ruminate tend to focus on their distress, dwell on it, and allow it to intrude upon their thoughts and interfere with ongoing tasks (Ward et al., 2003). According to Ward and colleagues, this tendency amplifies negative affect and increases cognitive uncertainty. Conversely, individuals with lower levels of rumination are less likely to fixate on perceived minor distress caused by a situation. Compared to high ruminators, these individuals exhibit a greater ability to concentrate on immediate tasks without being disproportionately influenced by emotional distress.

Rumination has been linked to negative interpersonal relationship attitudes, as noted by Nolen-Hoeksema et al. (1999). Individuals who engage in persistent rumination may inadvertently provoke and alienate others (Schwartz & Thomas, 1995). In a related context, research suggests that individuals who ruminate extensively on provocation and anger-inducing events are more likely to harbor a desire for revenge and demonstrate aggressive behaviors following interpersonal transgressions (McCullough et al., 1997; McCullough et al., 2001). As a result, individuals with higher levels of rumination are more susceptible to exhibiting behavioral problems within interpersonal relationships.

Treynor et al. (2003) proposed a two-factor model of rumination, distinguishing between reflection and brooding, two cognitively distinct responses to distress. Reflection is characterized by a purposeful, introspective effort to cognitively analyze and resolve the underlying

causes of one's problems. While reflection may initially be associated with heightened depressive symptoms, it is generally considered an adaptive coping strategy. Over time, it can facilitate insight, emotional regulation, and personal growth, thereby predicting a decrease in depressive symptoms (Treyner et al., 2003; Verstraeten et al., 2010).

In contrast, brooding reflects a more passive, judgmental, and repetitive focus on one's distress, often involving negative comparisons between one's current situation and an unachieved ideal (Treyner et al., 2003). This tendency to dwell on perceived failures or shortcomings makes brooding a maladaptive component of rumination, consistently linked to increased depression both concurrently and longitudinally (Treyner et al., 2003; Verstraeten et al., 2010). Research by Burwell and Shirk (2007) further underscores the risks of brooding, showing that it significantly predicted depressive symptoms in adolescents, particularly among girls, who are more prone to adopting maladaptive coping strategies.

Disruptive Behavioral Problems

A behavioral problem is defined as actions that significantly impact the individual's quality of life or that of others, posing a risk to health and safety (O'Brien, 2003). Internalizing and externalizing problems serve as dimensional constructs to conceptualize adolescent behavioral problems (Achenbach & Rescorla, 2001). Internalizing problems manifest as anxious and affective symptoms, including worry, sadness, and physical symptoms (Deković et al., 2004). Externalizing problems involve aggressive and delinquent behaviors such as fighting, vandalism, stealing, lying, and rule-breaking (Achenbach & Rescorla, 2001). The manifestation of internalizing problems is expressed through inner distress, while externalizing problems manifest as conflicts with others (Achenbach & Rescorla, 2001).

Disruptive behavior in school primarily reflects externalizing problems, including violations of school rules, which are referred to as distraction transgressions and conflicts with both peers and school authorities (Veiga, 2008). In puberty, biological, social, and cognitive changes occur, which overwhelm adolescents and increase their vulnerability to behavioral problems and psychiatric issues (Steinberg, 2020; Zahn-Waxler et al., 2008). Considering these vulnerability, the present study focuses on selected externalizing behavioral problems observed among adolescents within the school context. These include distraction transgression, aggressive behavior toward schoolmates, and aggression directed at school authorities.

Theoretical Framework

The Response Style Theory

Nolen-Hoeksema's (1991) Response Style theory posits that maladaptive cognitive response styles, such as rumination, can act as precursors to psychological issues. According to this theory, engaging in rumination is likely to intensify depressive symptoms, whereas employing coping strategies like distraction and problem-solving is expected to alleviate them. This framework offers valuable insights into the effectiveness of various coping techniques and their implications for psychological well-being.

Within this theoretical framework, rumination is theorized to influence distress through three distinct mechanisms (Nolen-Hoeksema, 1991). First, it amplifies the effect of a depressed mood on perception, thereby increasing the tendency to interpret present circumstances through the lens of negative feelings and past experiences. Second, rumination undermines constructive problem-solving by fostering pessimistic and fatalistic thinking. Third, it interferes with instrumental behavior, thereby contributing to worsening situational outcomes.

This framework allows us to study the manifestation of rumination in school settings, contributing to maladaptive behaviors, such as rule-breaking, aggression toward peers, and aggression directed at school authorities.

Rationale

Rumination has been linked to various aggressive behaviors, with studies, such as that by McLaughlin et al. (2014), revealing an association between rumination and an increase in aggression over time. Gender differences are noteworthy in the context of rumination and behavioral problems, as girls tend to ruminate more than boys, particularly during times of distress (Nolen-Hoeksema, 1991). In the school environment, girls often exhibit internalizing problems, while boys may display externalizing problems (Bertrand & Pan, 2013; Ermisch, 2008).

Despite the established link between rumination and emotional distress, limited research has explored how the two distinct components of rumination, i.e., reflection and brooding, affect behavioral outcomes in school settings. Most existing studies focus on emotional outcomes, leaving a gap in understanding behavioral manifestations, particularly in school settings. This study aims to address that gap by using psychometrically sound instruments to independently examine the

impact of rumination, with a specific focus on reflection, on adolescents' disruptive behavior in schools. The objectives of the current study are to find how rumination contributes to disruptive behavior problems and to identify whether girls and boys exhibit different behavior patterns in response to rumination. In the wake of previous literature, it is hypothesized that:

1. Higher levels of rumination are associated with increased disruptive behaviors among adolescents in schools.
2. The association between rumination and disruptive behavior is more pronounced in boys compared to girls.
3. Reflection, as compared to brooding, is more strongly associated with disruptive behaviors.

It is important to note that existing literature has largely characterized reflection as an adaptive form of rumination and brooding as maladaptive, particularly in the context of depression and over the long term (e.g., Burwell & Shirk, 2007; Treynor et al., 2003; Verstraeten et al., 2010). However, limited research has explored the distinct and immediate impacts of reflection and brooding on aggressive behaviors. Coping strategies employed during reflection may vary widely, ranging from adaptive behaviors such as exercising, walking, or watching a movie, to maladaptive responses including verbal or nonverbal aggression, reckless driving, and substance use. Considering the emotional volatility typical of adolescence, the third hypothesis assumes that adolescents may be more inclined to engage in maladaptive coping during reflection, which could result in higher levels of disruptive behavior compared to those who engage in brooding.

Method

Sample

The study's population was comprised of adolescents between 14 and 18 years of age. Data was collected in person using a convenience sampling technique by visiting various schools across Islamabad and Rawalpindi cities of Pakistan and administering survey questionnaires. A total of 249 adolescents from middle and high school participated, including 133 boys and 116 girls.

Measures

Ruminative Responses Scale (RRS)

The present study utilized the short form of the Ruminative Response Scale (RRS; Treynor et al., 2003), a self-report instrument

consisting of 10 items that assess two dimensions of rumination: Brooding and Reflection. Respondents rate each item on a 4-point Likert scale ranging from 1 (*Almost Never*) to 4 (*Almost Always*), with total rumination scores ranging from 10 to 40, and subscale scores ranging from 5 to 20. Higher scores indicate a greater tendency toward ruminative thinking. The RRS-short form has demonstrated adequate internal consistency for the reflection subscale ($\alpha = .72$) and brooding subscale ($\alpha = .77$; Treynor et al., 2003). In the current study, the overall rumination scale yielded a reliability coefficient of .70, while the brooding and reflection subscales had alpha values of .54 and .57, respectively.

Disruptive Behavior Scale Professed by Students (DBS-PS)

The present study employed the Disruptive Behavior Scale Professed by Students (DBS-PS) developed by Veiga (2008), a 16-item instrument designed to assess disruptive behaviors in school settings. Each item is rated on a 6-point Likert scale ranging from 1 (*Strongly Disagree*) to 6 (*Strongly Agree*). The scale comprises three subscales: Distraction Transgression, Aggression Toward Schoolmates, and Aggression Toward School Authorities. Total scores on the DBS-PS range from 16 to 96, with higher scores indicating a greater prevalence of aggressive behavior. The scale has demonstrated high internal consistency in previous research, with an overall reliability coefficient of .84. The subscales also exhibit good reliability, with Cronbach's alpha values of .78 for distraction transgression, .75 for schoolmates' aggression, and .77 for school authority aggression (Veiga, 2008). In the current study, the Cronbach's alpha coefficients were .77 for overall disruptive behavior, .53 for distraction transgression, .55 for schoolmates' aggression, and .63 for school authority aggression.

Procedure

The participants were administered questionnaires from the Ruminative Response Scale and the Disruptive Behavior Scale Professed by Students. Clear verbal and written instructions were provided to ensure clarity and reduce potential response ambiguities. The study adhered to all ethical considerations outlined in the research protocol of the respective institutions for research involving human subjects. Before conducting the study, Institutional Review Board (IRB) approval from the concerned institution was obtained. Informed consent was also obtained from the participants before data collection. For participants under the age of 18, assent forms were signed by their parents, ensuring that the ethical standards and guidelines for research involving minors were diligently followed.

Results

The data analysis for this study was conducted using IBM SPSS Statistics (Version 26; IBM Corp., 2019) and R's *lavaan* package (Rosseel, 2012). The significance level (p -value) for all statistical tests was set at .05. First, a Separate linear regression analysis was performed to assess the impact of rumination on overall disruptive behavior. This was followed by a multiple regression analysis, assessing the unique effects of the two subscales of rumination—reflection and brooding—on overall disruptive behavior. Gender was tested as a moderator in these relationships by creating interaction terms between gender and rumination, as well as between gender and each rumination subcomponents, i.e., reflection and brooding. All predictors were mean-centered before creating their interaction term to reduce multicollinearity.

Additional regression analyses were conducted in which the three subscales of disruptive behavior, i.e., Distraction Transgression, Aggression Toward Schoolmates, and Aggression Toward School Authorities, were separately regressed on rumination and its subcomponents. Gender was tested as a potential moderator in each model. Finally, independent samples t -tests were used to examine gender differences across all measured variables, including rumination, reflection, brooding, and the three subtypes of disruptive behavior.

Table 1: *Gender Differences in Rumination, Disruptive Behaviors, and Their Subscales (N = 249)*

Variables	Male ($n = 133$)		Female ($n = 136$)		$t(247)$	p	Cohen's d
	M	SD	M	SD			
Disruptive Behavior	38.92	13.34	34.54	10.68	2.87	.00	0.36
Distraction Transgression	16.66	6.04	16.65	5.36	0.02	.98	0.00
Schoolmate Aggression	12.71	5.37	9.74	4.21	4.88	.00	0.61
Authority Aggression	9.55	4.52	8.16	4.12	2.53	.01	0.32
Rumination	23.35	5.63	25.85	5.32	-3.59	.00	0.46
Brooding	12.14	3.07	13.16	3.00	-2.65	.01	0.34
Reflection	11.21	3.46	12.69	3.22	-3.48	.00	0.44

The gender-based comparison using independent sample *t*-test indicated that boys, as compared to girls, reported significantly higher overall disruptive behavior ($t(247) = 2.87, p < .01$) as well as schoolmate's aggression ($t(247) = 4.88, p < .00$) and school authority aggression ($t(247) = 2.53, p < .05$). Conversely, girls reported higher levels of rumination ($t(247) = -3.59, p < .00$) as well as brooding ($t(247) = -2.65, p < .01$) and reflection ($t(247) = -3.48, p < .01$) as compared to the boys. A detailed summary of gender-based differences is presented in [Table 1](#).

Disruptive Behavior Predicted by Rumination and its Subscales

A linear regression using the *lavaan* package in R examined the association between rumination and disruptive behavior. Rumination significantly predicted disruptive behavior, accounting for 8.9% of the variance, $R^2 = .089, F(1, 247) = 24.09, p < .00$. Higher rumination was associated with increased disruptive behavior, $B = 0.66, p < .00, 95\% \text{ CI } [0.39, 0.92]$. However, the moderating effect of gender on this relationship was not significant ($p > .05$; see [Table 2](#)).

Table 2: *Disruptive Behaviors Predicted by Rumination with Gender as a Moderator (N = 249)*

Model	Predictor	<i>B</i>	<i>SE</i>	β	<i>p</i>	95% CI	
						<i>LL</i>	<i>UL</i>
Main effect	Rumination	0.65	0.13	0.30	.00	0.39	0.92
	Rumination	0.77	0.13	0.35	.00	0.51	1.03
Moderation (Gender)	Gender	-6.21	1.48	-0.25	.00	-9.13	3.29
	Interaction (Rum x Gender)	-1.33	0.75	-0.11	.08	-2.80	0.14

Note. Rum = Rumination.

A multiple regression analysis further explored the predictive roles of the rumination subscales, i.e., reflection and brooding, on disruptive behavior. Together, these subscales explained 11% of the variance, $R^2 = .11, F(2, 246) = 15.19, p < .00$. Reflection significantly predicted disruptive behavior, $B = 1.17, p < .00, 95\% \text{ CI } [0.67, 1.66]$, whereas brooding did not ($p > .05$). No significant moderating effects of gender were found in these relationships, as shown in [Table 3](#).

Table 3: *Disruptive Behaviors Predicted by Reflection and Brooding with Gender as a Moderator (N = 249)*

Model	Predictor	B	SE	β	p	95% CI	
						LL	UL
Main effect	Reflection	1.17	0.25	0.32	.00	0.67	1.66
	Brooding	0.07	0.28	0.02	.81	-0.48	0.61
	Reflection	1.32	0.24	0.37	.00	0.84	1.80
	Brooding	0.14	0.27	0.04	.59	-0.38	0.67
Moderation (Gender)	Gender	-6.40	1.47	-0.26	.00	-9.29	-3.51
	Interaction (Ref x Gender)	-0.16	0.84	-0.01	.85	-1.81	1.49
	Interaction (Brood x Gender)	-1.33	0.83	-0.11	.11	-2.95	0.29

Note. Ref = Reflection; Brood = Brooding.

Distraction Transgression Predicted by Rumination and its Subscales

A linear regression revealed that rumination significantly predicted distraction transgression, a subscale of disruptive behavior, accounting for 4% of the variance, $R^2 = .04$, $F(1, 247) = 10.60$, $p < .01$. Rumination was positively associated with distraction transgression, $B = 0.21$, $p < .01$, 95% CI [0.08, 0.33]. However, gender did not moderate this relationship ($p > .05$; see Table 4).

Table 4: *Distraction Transgression Predicted by Rumination with Gender as a Moderator (N = 249)*

Model	Predictor	B	SE	β	p	95% CI	
						LL	UL
Main effect	Rumination	0.21	0.06	0.20	.00	0.08	0.33
Moderation (Gender)	Rumination	0.21	0.06	0.21	.00	0.08	0.34
	Gender	-0.51	0.73	-0.04	.49	-1.95	0.93
	Interaction (Rum x Gender)	-0.57	0.37	-0.10	.12	-1.30	0.15

Note. Rum = Rumination.

A subsequent multiple regression analysis examined the association of reflection and brooding with distraction transgression. The model was significant, explaining 6.5% of the variance in distraction transgression, $R^2 = .065$, $F(2, 246) = 8.52$, $p < .00$. Reflection emerged as a significant positive predictor, $B = 0.46$, $p < .00$, 95% CI [0.22, 0.69], while brooding was not. Notably, gender

significantly moderated the relationship between brooding and distraction transgression, $B = -0.95$, $p < .05$, 95% CI $[-1.75, -0.16]$, indicating that brooding was negatively associated with distraction transgression among girls. No other significant moderation effects were observed, as shown in Table 5.

Table 5: *Distraction Transgression Predicted by Reflection and Brooding with Gender as Moderator (N = 249)*

Model	Predictor	<i>B</i>	<i>SE</i>	β	<i>p</i>	95% CI	
						<i>LL</i>	<i>UL</i>
Main effect	Reflection	0.46	0.12	0.27	.00	0.22	0.69
	Brooding	-0.08	0.13	-0.04	.53	-0.34	0.18
	Reflection	0.47	0.12	0.28	.00	0.24	0.71
	Brooding	-0.08	0.13	-0.04	.56	-0.34	0.18
	Gender	-0.61	0.72	-0.05	.40	-2.03	0.81
Moderation (Gender)	Interaction (Ref x Gender)	0.31	0.41	0.05	.46	-0.50	1.12
	Interaction (Brood x Gender)	-0.95	0.40	-0.16	.02	-1.75	-0.16

Note. Ref = Reflection; Brood = Brooding.

Aggression Towards Schoolmates Predicted by Rumination and its Subscales

A linear regression analysis between rumination and aggression towards schoolmates, a subscale of disruptive behavior was statistically significant, accounting for 4.1% of the variance, $R^2 = .041$, $F(1, 247) = 10.69$, $p < .01$. Rumination was significantly positively associated with adolescents' aggression towards schoolmates, $B = 0.18$, $p < .01$, 95% CI $[0.07, 0.29]$. Further analysis revealed that this relationship was not moderated by gender ($p > .05$), as shown in Table 6.

Table 6: *Aggression Towards Schoolmates Predicted by Rumination with Gender as Moderator (N = 249)*

Model	Predictor	<i>B</i>	<i>SE</i>	β	<i>p</i>	95% CI	
						<i>LL</i>	<i>UL</i>
Main effect	Rumination	0.18	0.06	0.20	.00	0.07	0.29
	Rumination	0.25	0.05	0.28	.00	0.14	0.36
Moderation (Gender)	Gender	-3.57	0.61	-0.35	.00	-4.77	-2.37
	Interaction (Rum x Gender)	-0.35	0.31	-0.07	.25	-0.95	0.25

Note. Rum = Rumination

A follow-up multiple regression analysis examining reflection and brooding as predictors of aggression towards schoolmates was also significant, $F(2, 246) = 5.81$, $p < .01$, accounting for 4.5% of the variance ($R^2 = .045$). Reflection significantly predicted aggression toward schoolmates, $B = 0.27$, $p < .05$, 95% CI [0.06, 0.48], whereas brooding did not. No moderation effect of gender was observed in these relationships ($p > .05$), as shown in Table 7.

Table 7: *Aggression Towards Schoolmates Predicted by Reflection and Brooding with Gender as Moderator (N = 249)*

Model	Predictor	B	SE	β	p	95% CI	
						LL	UL
Main effect	Reflection	0.27	0.11	0.18	.01	0.06	0.48
	Brooding	0.08	0.12	0.05	.48	-0.15	0.32
	Reflection	0.36	0.10	0.24	.00	0.16	0.56
	Brooding	0.13	0.11	0.08	.25	-0.09	0.35
	Gender	-3.61	0.61	-0.35	.00	-4.81	-2.41
Moderation (Gender)	Interaction (Ref x Gender)	-0.26	0.35	-0.05	.46	-0.94	0.43
	Interaction (Brood x Gender)	-0.14	0.34	-0.03	.69	-0.81	0.54

Note. Ref = Reflection; Brood = Brooding.

Aggression Towards School Authority Predicted by Rumination and its Subscales

A linear regression analysis revealed that rumination significantly predicted aggression toward school authority—a subscale of disruptive behavior—explaining 11.5% of the variance ($R^2 = .115$, $F(1, 247) = 32.05$, $p < .001$). Rumination was positively associated with aggression, $B = 0.26$, $p < .001$, 95% CI [0.17, 0.36]. No significant moderation by gender was observed ($p > .05$; see Table 8).

Table 8: *Aggression Towards School Authority Predicted by Rumination with Gender as Moderator (N = 249)*

Model	Predictor	B	SE	β	p	95% CI	
						LL	UL
Main effect	Rumination	0.26	.05	0.34	.00	0.17	0.36
	Rumination	0.30	.05	0.39	.00	0.21	0.39
	Gender	-2.13	0.52	-0.24	.00	-3.15	-1.10
Moderation (Gender)	Interaction (Rum x Gender)	-0.41	.26	-0.09	.12	-0.92	0.11

Note. Rum = Rumination

A follow-up multiple regression analysis using reflection and brooding as predictors of adolescents' aggression towards school authority was also significant, $R^2 = .134$, $F(2, 246) = 19.04$, $p < .001$. Reflection significantly predicted aggression toward school authority, $B = 0.44$, $p < .001$, 95% CI [0.26, 0.61], whereas brooding did not. Gender did not moderate these relationships ($p > .05$) as shown in Table 9.

Table 9: Aggression Towards School Authority Predicted by Reflection and Brooding with Gender as Moderator ($N = 249$)

Model	Predictor	<i>B</i>	<i>SE</i>	β	<i>p</i>	95% CI	
						<i>LL</i>	<i>UL</i>
Main effect	Reflection	0.44	0.09	0.34	.00	0.26	0.61
	Brooding	0.06	.10	0.04	.56	-0.12	0.26
Moderation (Gender)	Reflection	0.49	0.09	0.38	.00	0.32	0.66
	Brooding	0.09	.09	.06	.33	-0.09	0.28
	Gender	-2.19	.52	0.25	.00	-3.20	-, -1.17]
	Interaction (Ref x Gender)	-0.21	.29	0.05	.47	-0.79	0.37
	Interaction (Brood x Gender)	-0.24	.29	0.05	.41	-0.81	0.33

Note. Ref = Reflection; Brood = Brooding.

Discussion

The present study sought to determine the association between rumination and adolescents' disruptive behavior. Results from the regression analysis revealed that rumination was positively associated with disruptive behaviors and all of its subscales, including distraction transgression, aggression towards schoolmates, and aggression towards school authority. This confirms our first hypothesis. Students who engaged in higher levels of rumination were more likely to be involved in rule violations (distraction transgression) and interpersonal behaviors such as aggression towards schoolmates and aggression towards school authority. This aligns with the assertions of McLaughlin et al. (2014), who contended that rumination is linked to aggressive behavior. These findings are also parallel with the response style theory of Nolen-Hoeksema (1991), which posits that rumination distorts perception, hinders constructive problem-solving, and consequently affects instrumental behavior.

While rumination emerged to be positively associated with disruptive behavior among adolescents, the brooding component of rumination did not show any association with disruptive behavior or its specific domains. This suggests that brooding, primarily linked to depression (Treynor et al., 2003; Verstraeten et al., 2010), may not be connected to externalized behavior problems, such as disruptive behavior. This could be attributed to the nature of expression manifestation in brooding, wherein individuals compare their current situation with an unachieved standard without actively resolving it (Treynor et al., 2003; Verstraeten et al., 2010).

The reflective component of rumination was associated with higher levels of disruptive behaviors and all its domains, thereby confirming our third hypothesis. Although reflection is believed to be the adaptive component of rumination in the context of depression (Treynor et al., 2003; Verstraeten et al., 2010) as it could be associated with reduced levels of depression over time, it might be the contributing factor to externalizing behavior problems such as disruptive behavior in school, as indicated by the current findings. This suggests that these adolescents may have employed negative coping and distraction as a form of reflection. This insight raises questions about the presumed adaptiveness of reflection and underscores its potential maladaptive nature, which may contribute to externalized behavior problems among adolescents.

Notably, the hypothesized moderating effect of gender in the relationship between rumination and disruptive behavior was not supported, indicating that rumination impacts disruptive behavior similarly across genders. However, a significant negative association emerged between brooding and transgression of rules for girls, indicating that girls who engage in brooding are less likely to violate school rules. These findings suggest that girls, in general, and those who engaged in brooding in particular, were more cautious about school rules, possibly avoiding any further conflicting problems. This insight contributes to understanding potential gender-related factors influencing disciplinary outcomes in educational settings. This aligns with gender socialization norms in Pakistan, where girls are often taught to comply with authority figures unconditionally (Rizvi et al., 2014).

Regarding gender difference, girls consistently reported significantly higher levels of rumination and its components, namely brooding and reflection, compared to boys. These findings align with Nolen-Hoeksema's (1991) research, which also indicated higher levels of rumination among women. Conversely, boys reported higher levels of overall disruptive behaviors, including aggression towards

schoolmates and school authority. These findings align with previous studies ([Bertrand & Pan, 2013](#); [Ermisch, 2008](#); [Kaplan et al., 2002](#)), which consistently show that boys tend to exhibit more externalizing behavior problems in school settings. This pattern may also help in understanding the gender disparities in school disciplinary action. Some of these differences may stem from the cultural and social fabric of Pakistan. For instance, girls reported more limited access to socialization opportunities, less awareness of physical and mental health issues, and greater exposure to gender inequality ([Rizvi et al., 2014](#)), all of which may contribute to heightened negative emotional experiences. Another plausible explanation is reporting bias, i.e., boys may underreport ruminative thoughts due to social norms discouraging emotional expression among men in Pakistani society ([Rehman & Hossain, 2024](#)). Regardless of these factors, the observed gender disparity in rumination appears to be a robust and cross-cultural phenomenon.

Implications

From a practical perspective, this research offers important insights for educators, school administrators, and mental health professionals. By highlighting the role of rumination in students' behavioral issues, the findings emphasize the need to prioritize emotional well-being as a key component of school mental health programs. Understanding how ruminative thinking contributes to disruptive behavior can guide the development of proactive, student-centered interventions and policies aimed at fostering healthier school environments. The results also underscore the significance of early identification and support for students with high levels of rumination. School counselors, teachers, and parents can benefit from incorporating assessments of emotional coping strategies, particularly rumination, into their behavioral management and support frameworks.

Furthermore, the observed gender differences in rumination and disruptive behaviors suggest a pressing need for gender-sensitive interventions. Tailoring strategies to the distinct emotional and behavioral needs of male and female students can enhance the effectiveness of school-based mental health programs. In particular, such efforts may help reduce school dropout rates and disciplinary infractions, especially among boys, who appear to be at greater risk for disengagement and behavioral problems. By addressing these issues through targeted, inclusive approaches, schools can foster more equitable and supportive learning environments for all students.

Strengths and Limitations

The unique aspect of this research is addressing gaps in existing literature. Unlike many previous studies that qualitatively measured disruptive behavior using customized questionnaires (Veiga, 2008), this study employed psychometrically valid measures for a quantitative assessment of disruptive behavior. Notably, the study went beyond a holistic examination of rumination, shedding light on its distinct yet interconnected components, namely reflection and brooding, and their roles in school-based disruptive behaviors. Additionally, the examination of rumination, especially reflection, as contributing factors to disruptive behavior in schools is a novel aspect that adds depth to the theoretical understanding of these dynamics. This specific contributing factor to disruptive behavior has been underexplored in the broader research literature, particularly in non-Western societies like Pakistan. Moreover, the research brought attention to the mental health of students within Pakistan's collectivist culture, highlighting the prevalent harsh disciplinary methods that often overlook students' mental well-being when drawing conclusions about their behavioral issues.

While the study made strides in addressing certain research gaps, it is essential to interpret the findings with caution due to several limitations that hinder their generalizability to the broader public. The reliance on a convenient sampling technique restricts the extent to which the findings can be generalized. Furthermore, the data collection was confined to the cities of Islamabad and Rawalpindi in Pakistan, posing limitations on the representation of diverse cultural and ethnic groups. Additionally, the internal consistency of some scales was relatively low due to the small sample size and fewer items in the subscales.

Conclusion

This study sheds light on the significant role of rumination, particularly its reflection component, in predicting disruptive behaviors among adolescents in school settings. The findings consistently demonstrated that higher levels of rumination are positively associated with various forms of disruptive behavior, including distraction transgressions and aggression towards schoolmates and authority figures. Notably, reflection emerged as a stronger predictor of these behaviors than brooding, suggesting that even cognitively oriented forms of rumination may have maladaptive behavioral consequences in school contexts.

While gender did not moderate the overall association between rumination and disruptive behaviors, a nuanced pattern emerged in one

domain: brooding was negatively associated with distraction transgression among girls, indicating that gender-specific socialization may influence how internal thought processes manifest in outward behavior. Overall, boys reported more externalizing behaviors, while girls consistently reported higher levels of rumination, in line with established literature.

These findings offer important theoretical and practical implications, particularly for developing school-based mental health interventions. By recognizing rumination as a cognitive vulnerability linked to behavioral problems, especially when left unaddressed, educators and mental health professionals can more effectively identify at-risk students and implement preventative strategies.

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