Research Article

Received: 5 January 2025 / Accepted: 15 February 2025 / Published: 06 March 2025

Empathy and Aggression Among Adolescents in Kosovo: Exploring Gender, Age, and Socioeconomic Differences

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DOI: https://doi.org/10.36941/jesr-2025-0072

Abstract

This study examines the relationship between empathy and aggression among 646 adolescents aged 13–18 in Kosovo, with particular attention to gender, age, and socioeconomic status. Standardized self-report measures were used to assess empathy and aggression and to explore their associations. Results indicated that emotional aggression was the most frequently reported form of aggression, whereas physical aggression was the least common. Participants exhibited stronger affective and behavioral empathy than cognitive empathy. Overall, the correlation between empathy and aggression was weak and non-significant ($p = 0.233$). Gender analysis revealed no significant differences in aggression scores between males and females ($p = 0.298$), though females demonstrated significantly higher empathy than males ($p < 0.001$). Neither age ($p = 0.224$) nor socioeconomic status ($p = 0.285$) significantly influenced empathy, and neither variable significantly impacted aggression ($p = 0.057$ and $p = 0.512$, respectively). Principal component analysis identified three dimensions of aggression—general, relational, and emotional/physical—highlighting its multidimensional nature. These findings highlight the importance of tailored interventions for different forms of aggression and the promotion of empathy, particularly in Kosovo's cultural context.

Keywords: *Empathy, Aggression, Adolescents, Gender, Socioeconomic Status, Kosovo*

1. Introduction

Adolescence is a critical stage of development that bridges childhood and adulthood, marked by significant biological, cognitive, emotional, and social transformations (Berg, 1984; Sisk & Zehr, 2005). During this period, adolescents undergo rapid physiological changes, including the development of secondary sexual characteristics and hormonal shifts, alongside neurological maturation that influences behavior and decision-making (Arain et al., 2013; Coch et al., 2010; Giedd, 2004). Adolescents are also exposed to a wide range of social and emotional challenges, and the interplay between these factors and their developmental trajectory can shape their overall well-being and future life outcomes (Dumontheil, 2016; Eiland & Romeo, 2013). Empathy, a multifaceted construct, encompasses both cognitive and affective dimensions. The cognitive component involves understanding another person's internal state, while the affective component refers to emotionally resonating with that person's experience—often requiring individuals to move beyond self-focused perspectives (Hoffman, 2001; Overgaauw et al., 2017; Van der Graaff et al., 2012). Empathy development is influenced by social interactions, particularly during adolescence. A longitudinal study in Sweden, for example, found that adolescents with more empathic friends showed increased empathy levels over time, highlighting the critical role of peer relationships (Miklikowska et al., 2022). Empathic adolescents are also generally better at regulating emotions, including anger, and tend to display more prosocial behaviors. Gender differences are evident, with girls typically exhibiting higher levels of both cognitive and affective empathy compared to boys, whose empathy often declines with age (Overgaauw et al., 2017).

Aggression, broadly defined as behavior intended to harm another person physically or emotionally, is a significant concern during adolescence (Castillo et al., 2013; van Hazebroek et al., 2017). It has been linked to various negative outcomes, including school dropout and delinquency, and is influenced by a range of psychological and social factors. Gender differences in aggression are well documented: boys often display more physical aggression, whereas girls show higher levels of relational or verbal aggression (Batanova & Loukas, 2014). The General Aggression Model (GAM) offers a useful framework for understanding the mechanisms behind aggressive behavior, suggesting that aggression arises from individual knowledge structures that shape how social events are perceived and interpreted. These structures can become automatic, leading to biased interpretations of neutral situations as hostile, especially in emotionally charged contexts (DeWall & Anderson, 2011). According to social cognitive and social learning theories, empathy and aggression are behaviors acquired through observation and social interaction (Cosma et al., 2022). Problem behavior theory likewise explores problematic behaviors (e.g., aggression) by examining how factors such as personality, demographic variables (e.g., gender, age, socioeconomic status), and peer influence shape an individual's actions. Under this framework, risky or problematic behaviors are those that interfere with successful psychosocial development (Mckellar & Sillence, 2020a).

Extensive research has investigated the relationship between empathy and aggression, illustrating empathy's protective role in reducing aggressive behavior. For instance, Feshbach and Feshbach (1969) found that older boys with higher levels of empathy were less likely to act aggressively than their less empathic peers, though this effect was not observed in girls. Another study of 433 middle school students discovered that boys reported lower empathy and higher proactive and reactive aggression compared to girls (Mayberry & Espelage, 2007). Findings from Spain similarly indicated that males tend to be more aggressive, although verbal aggression was equally common across genders (Björkqvist, 2018; Toldos, 2005). Additional research highlights empathy's role as a protective factor for both sexes. For example, a study of 481 adolescents showed that empathy significantly reduced aggression, with strong family and school connections amplifying this effect—particularly among boys (Batanova & Loukas, 2016).

A study conducted in Colombia following five decades of armed conflict found that victims exhibited higher levels of arousal and lower levels of dominance than indirect victims and military personnel; it also revealed that victims had higher levels of aggressiveness, whereas the military group

reported lower levels of empathy (Gantiva et al., 2023). Another study of 1,162 adolescents in Kosovo showed that emotional difficulties during mid-adolescence were predicted by hopelessness and low self-esteem, with 16% of participants reporting abnormal levels of emotional difficulties—particularly among females (Fanaj et al., 2015). In a separate investigation involving 1,351 Kosovar adolescents, while average problem scores were within international norms, an unexpectedly large proportion of adolescents scored in the deviant range for Total Problems (31.2%), Internalizing (40.8%), and Externalizing (23.4%), and 23% had elevated Stress Problems, substantially higher than the expected 7% (Shahini et al., 2015). Similarly, a large-scale Chinese study of over 6,000 adolescents identified parental attachment and empathy as predictors of aggression, with perspective-taking negatively correlated with indirect aggression (Li et al., 2015). Intervention programs aimed at enhancing empathy have also yielded promising results: a study in Ireland involving 539 adolescents found that empathy training improved emotional understanding and social concern, although immediate decreases in aggression were not observed (Silke et al., 2024). Recent findings from China further support the empathy-aggression link, indicating that empathy may mediate aggressive tendencies (Lv et al., 2023).

The present study aims to explore the relationship between empathy and aggression among adolescents in Kosovo, focusing on the potential moderating effects of gender and socioeconomic status. By examining these dynamics within a culturally and contextually relevant framework, our research seeks to inform interventions designed to foster emotional well-being and reduce aggression in Kosovar adolescents.

The study included a randomly selected sample of 646 adolescents aged 14–19 years from various schools across Kosovo. The sample comprised 388 females (60.1%) and 258 males (39.9%), reflecting the demographic distribution. Data collection was conducted between January and May 2024 in the regions of Prishtina, Peja, Mitrovica, Gjakova, Gjilan, Prizren, and Ferizaj

1.1 Data Collection

First, the principals of the participating schools were notified. Subsequently, the parents of the selected students were informed via telephone. During this process, they were provided with detailed information about the study's objectives and were assured that all collected data would remain confidential and be used solely for research purposes. Finally, parents were asked to give verbal consent for their child's participation. Participants were chosen from randomly selected classes, with no prior knowledge of their composition, ensuring an unbiased sampling process. Data were gathered during school hours in a classroom setting, under the supervision of trained researchers. To facilitate accurate and clear responses, researchers provided instructions and addressed any questions about the questionnaire. The questionnaires, which took approximately 30 minutes to complete, were distributed and collected directly by the researchers to ensure data reliability and minimize potential biases. Ethical standards were rigorously upheld throughout the study. Participants were informed about the purpose of the research, confidentiality was ensured, and informed consent was obtained prior to participation.

1.2 Data Analysis

Data were analyzed using IBM SPSS Statistics (Version 21). Descriptive statistics summarized demographic characteristics and the distribution of empathy and aggression scores. Independent samples t-tests examined differences by gender, age, and socioeconomic status, while Pearson correlation analysis explored the relationship between empathy and aggression. Multiple regression analysis assessed the predictive power of empathy, age, gender, and socioeconomic status on aggression. Principal component analysis (PCA) was conducted to identify dimensions of aggression, with eigenvalues and scree plots used to determine component retention.

The sample size for this study was determined using Yamane, (1967) (Yamane, 1967)formula for

finite populations:

$n=\frac{N}{1+N(e^2)}$	(1)

Where N=81,000 (population size) and e=0.05 (margin of error at 95% confidence level). Substituting these values:

$n=\frac{81.000}{1+81,000(0.05^2)}=398$	(2)

The sample size of 646 participants in this study exceeds the minimum requirement, ensuring higher precision and representativeness.

1.3 Questionnaire

This study employed two standardized instruments to assess empathy and aggression among adolescents:

1. *The Empathy Formative Questionnaire*

The Empathy Formative Questionnaire was developed by Gaumer Erikson, Soukup, Noonan & McGurn (2015) it is designed to measure proficiency in the two essential components of empathy,

1. Make efforts to understand others: their contexts, feelings, and behaviors.
2. Communicate your understanding of someone's personal situation.

It has 15 statements in which the students self-rate items on 0 to 5-point, Likert-type scale. This scale ranges from 1 (Not very like me) to 5 (Very like me). Empathy Formative Questionnaire was found to be moderately reliable (15 items; α = .812). The understand others subscale consisted of 8 items (α = .728), and the communicating understanding subscale consisted of 7 items (α = .666).

1.4 Aggression scale

The aggression scale is developed by Orpinas and Frankowski (Orpinas & Frankowski, 2001). The scale ranges from a minimum score of 0 to a maximum of 66. Scores range from 0 -never to 6 times or more. {score=0} never; {score=1} 1 time; {score=2} 2 times; {score=3} 3 times; {score=4} 4 times; {score=5} 5 times; C. Cronbach alpha of this scale is 0.74.

2. Results

Table 1 provides a comprehensive overview of the sample's demographic characteristics, including gender, age, and socioeconomic background. In total, 646 adolescents participated in the study, with 60.1% (n = 388) identifying as female and 39.9% (n = 258) as male. While this indicates a notable gender imbalance, it also ensures sufficient representation to examine gender-related differences in empathy and aggression. Participants ranged in age from 13 to 18 years, with the majority clustered at ages 15 (24.1%, n = 156) and 16 (36.8%, n = 238) (Table 1). These middle-adolescent years are often characterized by significant emotional and cognitive development. Smaller proportions of participants were 13–14 years old (11.6%, n = 75) and 18 years old (8.8%, n = 57), reflecting a focus on the critical developmental period of adolescence. Income data revealed a diverse socioeconomic background. The largest proportion of families reported monthly earnings between €501 and €1,000 (34.7%, n = 224), followed by those earning €1,001 to €4,999 (31.6%, n = 204) (Table 1). Fourteen percent (14.4%, n = 93) of families earned below €350, while 19.0% (n = 123) earned between €351 and €500. Only 0.3% (n = 2) reported incomes exceeding €5,000 (Table 1). Overall, these figures point to a predominance of middle-income households, mirroring the wider socioeconomic distribution within the region.

Table 1. Descriptive Statistics of Participant Demographics

Variable	Category	Frequency (n)	Percent (%)
Gender	Female	388	60.1
	Male	258	39.9
	Total	**646**	**100.0**
Age (Years)	13	13	2.0
	14	62	9.6
	15	156	24.1
	16	238	36.8
	17	120	18.6
	18	57	8.8
	Total	**646**	**100.0**
Monthly Income (€)	>350	93	14.4
	351–500	123	19.0
	501–1000	224	34.7
	1001– 4999	204	31.6
	5000 <	2	0.3
	Total	**646**	**100.0**

Source: Authors' own calculations

An analysis of self-reported aggressive behaviors among the participants (N = 646) revealed clear patterns in the prevalence and variability of emotional, verbal, and physical aggression. Emotional aggression emerged as the most frequently reported form. The statement "I have gotten easily irritated with some people" showed the highest mean (M = 3.51, SD = 1.53) (Table 2), indicating frequent irritability, while "I have been angry most days" was moderately common (M = 2.78, SD = 1.67). These items also exhibited the greatest variability, reflecting a wide range of individual experiences.

Verbal aggression occurred less often than emotional aggression but was still more frequent than physical aggression. "I have teased other students to make them annoyed" (M = 2.41, SD = 1.52) and "I have called other students by mocking names" (M = 1.94, SD = 1.39) were the most commonly reported verbal behaviors, both showing moderate variability. Physical aggression was the least prevalent overall. Items such as "I have gotten into a physical fight because I was angry" (M = 1.60, SD = 1.21) and "I have slapped or kicked others because I was angry" (M = 1.66, SD = 1.23) indicated relatively low levels of physical violence. Similarly, "I've been looking at others that I'll hit them or hurt them" (M = 1.62, SD = 1.23) suggested minimal aggressive intent. Overall, emotional aggression was the most dominant form, while physical aggression was rare. These findings underscore the importance of interventions aimed at improving emotional regulation to prevent the escalation of aggressive behaviors.

Table 2. Descriptive Statistics for Aggression -Related Responses

Item	N	Minimum	Maximum	Mean± Standard Deviation (SD)	Variance
I have teased other students to make them annoyed.	646	1.00	5.00	2.41±1.52	2.30
I have gotten easily irritated with some people.	646	1.00	5.00	3.51±1.53	2.33
I have fought back when someone punched me.	646	1.00	5.00	1.91±1.45	2.11
I have mocked others to make other students laugh.	646	1.00	5.00	1.69±1.19	1.43
I have encouraged other students to fight.	646	1.00	5.00	1.62±1.20	1.44
I have pushed or knocked over other students.	646	1.00	5.00	1.63±1.19	1.41
I have been angry most days.	646	1.00	5.00	2.78±1.67	2.78
I have gotten into a physical fight because I was angry.	646	1.00	5.00	1.60±1.21	1.47
I have slapped or kicked others because I was angry.	646	1.00	5.00	1.66±1.23	1.52

Item	N	Minimum	Maximum	Mean± Standard Deviation (SD)	Variance
I have called other students by mocking names.	645	1.00	5.00	1.94±1.39	1.92
I've been looking at others that I'll hit them or hurt them.	646	1.00	5.00	1.62±1.23	1.52

Source: Authors' own calculations

An analysis of empathy-related responses (N = 646) showed moderate to high levels of empathy across cognitive, affective, and behavioral dimensions. Participants reported strong agreement with affective and behavioral items, such as "When I know I've upset my friend, I try to talk to them to clear things up" (M = 4.08, SD = 1.22) and "When a friend is upset, I try to show them that I understand" (M = 3.92, SD = 1.21) (Table 3). By contrast, cognitive empathy items like "I try to see things from the perspective of others" (M = 3.10, SD = 1.18) were endorsed less frequently, indicating potential challenges with perspective-taking. Reflective empathy items also tended to score highly—for instance, "Sometimes I worry about how it would feel if I were in my parents' situation" (M = 3.86, SD = 1.23) (Table 3)—while moderate agreement levels were observed for "When I disagree, I find it hard to understand their viewpoint" (M = 3.33, SD = 1.22) (Table 3), underscoring occasional difficulties in empathizing during disagreements. Variability in responses was moderate (SD = 1.17–1.37) , suggesting consistent trends across the sample. Overall, participants demonstrated higher affective and behavioral empathy compared to cognitive empathy, highlighting the need for strategies aimed at strengthening perspective-taking skills.

A Pearson correlation analysis of empathy and aggression revealed a weak positive correlation (r = 0.047, p = 0.233), which was not statistically significant. This indicates no meaningful inverse relationship between the two variables, challenging the traditional view that higher empathy automatically reduces aggression. These findings underscore the importance of examining contextual or moderating factors—such as cultural norms or social dynamics—that may influence the empathy-aggression link. Additionally, the weak explanatory power of demographic predictors underscores the complexity of adolescent aggression and points to the need for more holistic models in future research.

Table 3. Descriptive Statistics for Empathy-Related Responses

Item	N	Min	Max	Mean± SD	Variance
I try to see things from the perspective of others.	646	1.00	5.00	3.10±1.18	1.39
When I don't understand someone's viewpoint, I ask questions.	646	1.00	5.00	3.54±1.21	1.47
When I disagree, I find it hard to understand their viewpoint.	646	1.00	5.00	3.33±1.22	1.48
I take into account others' situations when communicating with them.	646	1.00	5.00	3.86±1.17	1.37
I try to imagine how I would feel in someone else's situation.	646	1.00	5.00	3.94±1.19	1.43
When someone upsets me, I recall other times I felt the same way.	646	1.00	5.00	3.62±1.31	1.71
When I watch a movie or read a book, I think about how I would react.	646	1.00	5.00	3.59±1.37	1.87
Sometimes I worry about how it would feel if I were in my parents' situation.	646	1.00	5.00	3.86±1.23	1.52
When a friend is upset, I try to show them that I understand.	646	1.00	5.00	3.92±1.21	1.47
I say things like, "I can understand why you feel this way."	646	1.00	5.00	3.54±1.21	1.65
Others know me as a person who says, "You're wrong," when they share opinions.	646	1.00	5.00	2.95±1.34	1.79
When a friend is upset, my actions show that I understand.	646	1.00	5.00	3.83±1.26	1.58
I say things like, "Something similar happened to me, and I understand."	646	1.00	5.00	3.63±1.22	1.49
I've told my friends things like, "You shouldn't feel this way."	646	1.00	5.00	3.74±1.25	1.57
When I know I've upset my friend, I try to talk to them to clear things up.	646	1.00	5.00	4.08±1.22	1.48

Source: Authors' own calculations

3. Comparative Analysis of Gender, Age, and Income Differences in Aggression and Empathy

3.1 Gender Differences

The analysis revealed no statistically significant difference in aggression scores between females (M = 20.61, SD = 8.92) and males (M = 21.39, SD = 9.67), t = –1.042, p = 0.298 (Table 4). However, females (M = 53.24, SD = 9.69) displayed significantly higher empathy than males (M = 46.91, SD = 9.64), t = 8.158, p < 0.001 (Table 4). Thus, while gender differences in aggression appear minimal, females show notably higher empathy levels.

3.2 Age Differences

No significant age-related differences were found for aggression or empathy. Younger participants (Group I: 13–15 years) had a mean aggression score of 20.03 (SD = 8.32), while older participants (Group II: 16–18 years) averaged 21.42 (SD = 9.67), t = –1.906, p = 0.057 (Table 4). Similarly, empathy scores between Group I (M = 51.36, SD = 9.90) and Group II (M = 50.35, SD = 10.28) were comparable, t = 1.230, p = 0.224 (Table 4). These findings suggest that age does not significantly influence aggression or empathy in the studied population.

3.3 Income Differences

Analyses also showed no significant differences in aggression or empathy based on income. Participants from the lower-income group (>€300–€500) had a mean aggression score of 20.88 (SD = 9.94), while those from the higher-income group (<€5001+) averaged 20.29 (SD = 8.92), t = –1.906, p = 0.512 (Table 4). Likewise, empathy scores for lower-income participants (M = 50.28, SD = 11.48) and higher-income participants (M = 51.38, SD = 10.09) did not differ significantly, t = 1.230, p = 0.285 (Table 4).
Overall, although gender appears to influence empathy, other demographic factors—such as age and income—have minimal impact on aggression or empathy levels in this sample.

Table 4. Comparative Analysis of Gender, Age, and Income Differences in Aggression and Empathy

Gender	**Female Mean ± SD**	**Male Mean ± SD**	**Mean Difference**	**t-value**	**p-value**	**Cohens`*d***
Aggression	20.61 ± 8.92	21.39 ± 9.67	-0.785	-1.042	0.298	-0.08
Empathy	53.24 ± 9.69	46.91 ± 9.64	6.34	8.158	<0.001	0.65
Age	**Grup I Mean ± SD**	**Grup II Mean ± SD**	**Mean Difference**	**t-value**	**p-value**	
Aggression	20.03 ± 8.32	21.42 ± 9.67	-1,38	-1.906	0.057	-35.50
Empathy	51.36± 9.90	50.35± 10.28	1.01	1.230	0.224	0.10
Income	**Lower income Mean ± SD**	**Higher income Mean ± SD**	**Mean Difference**	**t-value**	**p-value**	
Aggression	20.88 ± 9.94	20.29± 8.92	0.592	-1.906	0.0.512	0.06
Empathy	50.28± 11.48	51.38± 10.09	-1.104	1.230	0.285	-0.10

Source: Author calculation

The results indicate that gender has a notable effect on empathy, with females showing higher levels than males, as evidenced by a medium-to-large effect size (d=0.65). In contrast, differences in aggression between genders are minimal, with a very small effect size (d=–0.08). Age and income have a limited influence on both empathy and aggression, with small effect sizes observed for empathy in relation to age (d=0.10) and income (d=–0.10), as well as negligible differences in aggression for income (d=0.062). An unusually large effect size for age-related aggression (d=–35.50)

suggests possible inconsistencies in the data that require further examination. Overall, these findings highlight that gender plays a more significant role in empathy, while age and income have minimal impact on the measured traits.

A multiple regression analysis examined empathy, age, monthly income, and gender as predictors of aggression. The model showed a weak overall fit (R^2 = 0.009, Adjusted R^2 = 0.003) (Table 5), indicating that these variables collectively explained only 0.9% of the variance in aggression. This low explanatory power highlights the limited influence of these predictors on aggression in this sample. Additionally, the overall model approached marginal significance (p = 0.069). Empathy emerged as the only significant predictor of aggression (B = 0.077, β = 0.085, t = 2.036, p = 0.042) (Table 5), suggesting that higher empathy scores are associated with slightly higher aggression—contrary to theoretical expectations. This outcome may reflect complex or contextual factors, where heightened sensitivity to others' emotions could inadvertently increase interpersonal conflicts. By contrast, age did not significantly predict aggression (B = 0.267, β = 0.033, t = 0.839, p = 0.402) (Table 5), implying that aggression levels remain relatively stable across the sampled age range (mean age = 15.87 years). Monthly income also showed no significant effect on aggression (B = 0.120, β = 0.013, t = 0.340, p = 0.734) (Table 5), indicating that economic status does not substantially influence aggression in this context. Gender demonstrated a small positive effect (B = 1.294, β = 0.069, t = 1.649, p = 0.100), with males potentially exhibiting slightly higher aggression scores than females; however, this relationship was not statistically significant and had a negligible effect size.

Table 5. Regression Analysis Summary for Predictors of Aggression

Predictor	Unstandardized Coefficients (B)	Standard Error	Standardized Coefficients (Beta)	t	p-value
Constant	10.640	5.843	-	1.821	0.069
Age	0.267	0.318	0.033	0.839	0.402
Monthly income	0.120	0.354	0.013	0.340	0.734
Gender	1.294	0.785	0.069	1.649	0.100
Empathy	0.077	0.038	0.085	2.036	0.042*
	Statistic Value $R^2$0.009 Adjusted R^2 0.003 Standard Error 9.214 p-value 0.069				

The model's R^2 value of 0.009 indicates that the predictors collectively account for less than 1% of the variance in aggression. The adjusted R^2 of 0.003, which considers the number of predictors, confirms the model's weak explanatory power. The standard error of the estimate (SE = 9.21406) further highlights the substantial variability in aggression scores that remains unexplained. We also examined whether gender moderates the relationship between empathy and aggression and extended the model to include age as an additional moderator. The initial plot illustrates how empathy correlates with aggression when categorized by gender, revealing significant overlap between males and females. This overlap suggests no distinct pattern based on gender, a finding supported by statistical results showing that the main effect of gender is not significant (β = −0.453, p = 0.234). Thus, gender does not appear to exert an independent influence on aggression in this sample.

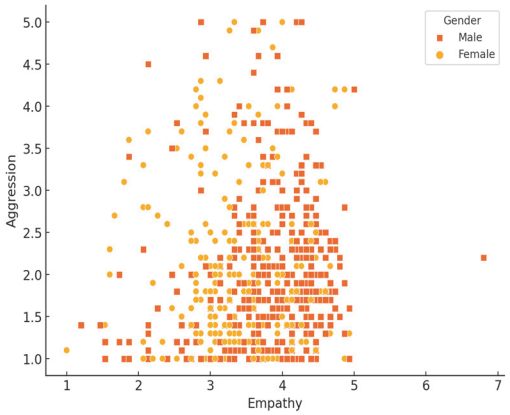

Figure 1. Relationship between empathy, gender and aggression

The second plot depicts regression lines for empathy as a predictor of aggression, analyzed separately for males and females. The lines have nearly identical slopes, indicating that there is no significant interaction between empathy and gender in predicting aggression. This aligns with the statistical evidence, where the interaction term (β=0.095, p=0.366) is not significant, as p>0.05. This means the relationship between empathy and aggression does not vary substantially between genders. Furthermore, empathy itself does not significantly predict aggression (β=0.046, p=0.572), emphasizing the weak association between these variables in the dataset.

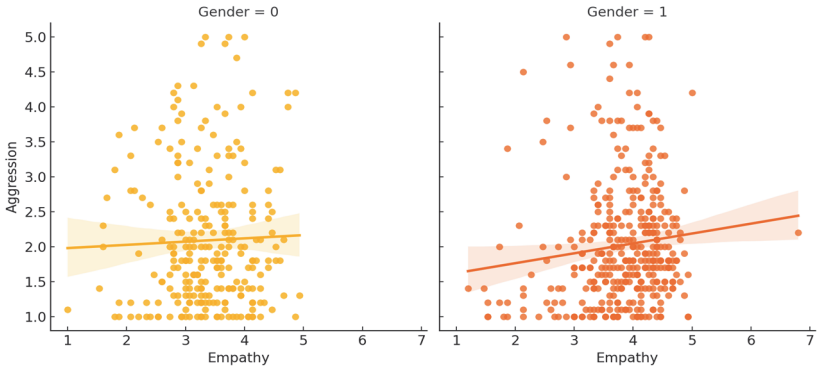

Figure 2. Interaction of empathy and gender on aggression

3.4 Principal Component Analysis Results

To investigate the underlying dimensions of aggression-related behaviors, a Principal Component Analysis (PCA) was conducted on eleven items designed to measure various facets of aggression. Prior to analysis, the dataset was preprocessed to ensure consistency and address any missing or invalid entries, providing a robust foundation for the PCA. The analysis identified three principal components (PCs) as key factors underpinning the aggression items. Together, these components explained 66.31% of the total variance: PC1 accounted for 47.13%, PC2 contributed an additional 11.91%, and PC3 added 8.13%. A scree plot (Figure 3) visually confirmed the appropriateness of

retaining three components, evidenced by the "elbow" point and eigenvalues exceeding 1. These findings suggest that the aggression items naturally cluster into three distinct constructs.

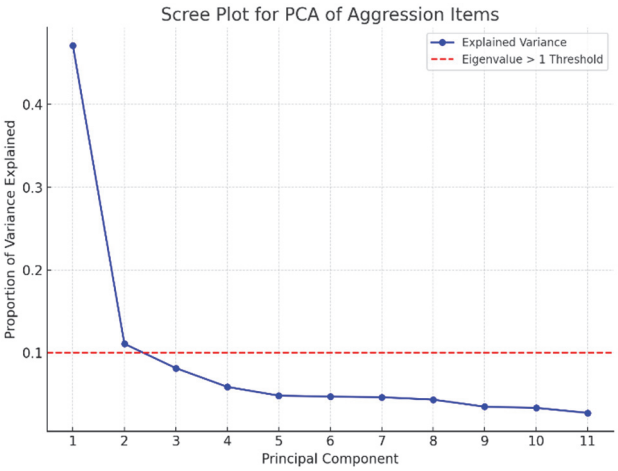

Figure 3. Scree Plot for Principal component analysis of aggression items.

3.5 *Loadings of Items on Principal Components*

The loadings of individual items on the three principal components are presented in Table 1. Items with loadings greater than 0.40 were deemed significant contributors to their respective components, in line with established statistical guidelines. **PC1: General Aggression.** High-loading items such as "I have slapped or kicked others because I was angry" (0.349), "I've been looking at others that I'll hit them or hurt them" (0.339), and "I have encouraged other students to fight" (0.312) (Table 6) capture a wide spectrum of aggressive behaviors. **PC2: Relational Aggression.** PC2 reflects aggression aimed at harming social relationships. High-loading items—such as "I have mocked others to make other students laugh" (0.606) and "I have called other students by mocking names" (0.678) (Table 6)—align with relational aggression frameworks. **PC3: Emotional/Physical Aggression.** This component highlights emotionally driven physical aggression. High-loading items include "I have gotten into a physical fight because I was angry" (0.499), "I have fought back when someone punched me" (0.440), and "I have pushed or knocked over other students" (0.319) (Table 6), underscoring the role of emotional dysregulation in fueling physical aggression.

Table 6. PCA Loadings for Aggression Items

	I have teased other students to make them annoyed.	I have gotten easily irritated with some people.	I have fought back when someone punched me.	I have mocked others to make other students laugh.	I have encouraged other students to fight.	I have pushed or knocked over other students.	I have been angry most days.	I have gotten into a physical fight because I was angry.	I have slapped or kicked others because I was angry.	I have called other students by mocking names.	I've been looking at others that I'll hit them or hurt them.
PC1: General Aggression	0.300362	0.339013	0.316666	0.349141	0.311531	0.238067	0.306464	0.319359	0.305735	0.286148	0.218367
PC2: Relational Aggression	0.111811	0.167677	0.052359	0.133406	0.091116	0.606448	0.256607	0.13868	0.079301	0.106604	0.678256
PC3: Emotional/Physical Aggression	0.485589	0.016648	0.380516	0.26719	0.499103	0.128279	0.087428	0.193744	0.205675	0.440078	0.032126

4. Discussion

This study examined the relationship between empathy and aggression among 646 adolescents aged 13–18 years in Kosovo, focusing on gender, age, and socioeconomic status. Findings revealed variability in aggression types: emotional aggression was the most common, whereas physical aggression was the least frequent. Participants also showed higher affective and behavioral empathy than cognitive empathy, suggesting potential challenges in perspective-taking. Contrary to theoretical expectations, the empathy-aggression relationship was weakly positive and not statistically significant. These results are consistent with Li et al. (2015), who similarly reported no significant link between empathy and aggression. In contrast, a meta-analysis by Lovett and Sheffield (2007) demonstrated a negative relationship, indicating that higher levels of empathy typically correspond to lower aggression. The emphasis on reactive aggression in the present study aligns with Euler et al. (2017), who found a negative correlation between empathy and proactive aggression but no significant link to reactive aggression. Likewise, studies by Ritchie et al. (2022) and Vachon et al. (2014) identified weak relationships between empathy and aggression, highlighting the complexity of these behaviors. Conversely, Miller and Eisenberg (1988) reported stronger negative correlations, emphasizing the variability in research findings. With respect to gender, there were no statistically significant differences in aggression scores between males and females—an outcome that diverges from studies such as Euler et al. (2017) and Wang and Wang (2024), which identified higher aggression levels among males. Cultural or contextual factors may explain these discrepancies, given that aggression expression and reporting can vary by setting. On the other hand, empathy scores revealed significant gender differences, with females showing higher empathy than males. This result aligns with previous studies by Garaigordobil Landazabal (2009) and O'Neill (2020), which consistently reported greater empathy among adolescent females. However, some research, such as Claudel and García González (2024), found no notable gender differences, suggesting that cultural or methodological factors may shape these observed variations.

An analysis of 76 studies (2010–2022) revealed that Europe and America tend to have lower levels of relational aggression, while Asia exhibits higher levels, with mixed findings reported for Africa and Australia. About one-third of the studies found no gender differences in aggression; however, most research in Africa, Asia, Australia, and Europe indicated higher aggression among males, whereas studies conducted in the United States showed higher aggression among females (Voulgaridou & Kokkinos, 2023). Another study compared empathy differences between participants from collectivist (China) and individualist (Australia) cultures, finding that individuals from collectivist backgrounds typically exhibit higher levels of empathy and compassion (Zhu, 2023). Kosovo has historically been more collectivist, though recent shifts toward individualistic norms may account for pronounced gender differences in empathy and aggression noted in our study—particularly because collectivist ideals are still strongly encouraged for females. Social structural theory further explains gender differences in aggression by emphasizing the role of power dynamics. Males, who generally occupy higher societal positions, may demonstrate more overt forms of aggression to assert or maintain dominance. In contrast, females, who often have lower societal status, may engage in more indirect forms of aggression, such as relational aggression (Eckes & Trautner, 2012). Given that Kosovo is still developing—having experienced conflict just two decades ago—and is gradually adopting Western cultural influences, its emerging patterns of adolescent aggression may differ from those observed in more stable or culturally homogeneous regions. No significant age-related differences were found in aggression or empathy scores, indicating that adolescents of varying ages displayed similar levels of these behaviors. This contrasts with studies suggesting a decline in empathy with age (Ziaei et al., 2021) and a reduction in physical aggression over the course of adolescence (Tsorbatzoudis et al., 2013). Melchers et al. (2016) also reported a negative correlation between age and empathy across various cultures (e.g., China, Spain, and the United States), implying that cultural and contextual factors may shape developmental trajectories. Additionally, no significant differences emerged based on socioeconomic status, suggesting that,

within this Kosovar sample, economic background had limited influence on aggression or empathy. Future research could examine other socioeconomic indicators, such as parental education or neighborhood characteristics, to better understand how these variables might affect adolescent behavior. Principal component analysis identified three dimensions of aggression-related behaviors—general aggression (47% of the variance), relational aggression (11%), and emotional/physical aggression (8%)—underscoring the multidimensional nature of aggression. The distinct focus on relational aggression highlights the importance of social dynamics, while the emotional/physical dimension underscores the need for interventions targeting emotional regulation and conflict resolution.

5. Conclusions

This study enhances our understanding of empathy and aggression among Kosovar adolescents. The findings underscore the prevalence of emotional aggression, the minimal association between empathy and aggression, and noteworthy gender differences in empathy levels. By contrast, age and socioeconomic status showed little influence on these variables. Identifying distinct aggression dimensions and pinpointing areas for future investigation provides a foundation for culturally sensitive interventions that promote emotional well-being and mitigate aggressive behaviors in adolescents. These findings underscore the importance of integrating empathy-building and emotional regulation strategies into school-based interventions. Policymakers and educators can collaborate to develop programs that foster prosocial behavior and reduce aggression, emphasizing support for students' emotional well-being in Kosovo's evolving cultural context.

References

Arain, M., Haque, M., Johal, L., Mathur, P., Nel, W., Rais, A., Sandhu, R., & Sharma, S. (2013). Maturation of the adolescent brain. *Neuropsychiatric Disease and Treatment*, *9*, 449–461. https://doi.org/10.2147/NDT.S39776

Batanova, M., & Loukas, A. (2014). Unique and Interactive Effects of Empathy, Family, and School Factors on Early Adolescents' Aggression. *Journal of Youth and Adolescence*, *43*(11), 1890–1902. https://doi.org/10.1007/s10964-013-0051-1

Batanova, M., & Loukas, A. (2016). Empathy and Effortful Control Effects on Early Adolescents' Aggression: When Do Students' Perceptions of Their School Climate Matter? *Applied Developmental Science*, *20*(2), 79–93. https://doi.org/10.1080/10888691.2015.1067145

Berg, I. (1984). Adolescence. *The British Journal of Psychiatry*, *144*(1), 94–97. https://doi.org/10.1192/S0007125000201566

Björkqvist, K. (2018). Gender differences in aggression. *Current Opinion in Psychology*, *19*, 39–42. https://doi.org/10.1016/j.copsyc.2017.03.030

Castillo, R., Salguero, J. M., Fernández-Berrocal, P., & Balluerka, N. (2013). Effects of an emotional intelligence intervention on aggression and empathy among adolescents. *Journal of Adolescence*, *36*(5), 883–892. https://doi.org/10.1016/j.adolescence.2013.07.001

Claudel, A., & García González, A. J. (2024). Students' Assertiveness and Empathy Social Skills and Gender at the University of Seville. *Education Sciences*, *14*(11), Article 11. https://doi.org/10.3390/educsci14111270

Coch, D., Fischer, K. W., & Dawson, G. (2010). *Human Behavior, Learning, and the Developing Brain: Typical Development*. Guilford Press.

Cosma, A., Bjereld, Y., Elgar, F. J., Richardson, C., Bilz, L., Craig, W., Augustine, L., Molcho, M., Malinowska-Cieślik, M., & Walsh, S. D. (2022). Gender Differences in Bullying Reflect Societal Gender Inequality: A Multilevel Study With Adolescents in 46 Countries. *Journal of Adolescent Health*, *71*(5), 601–608. https://doi.org/10.1016/j.jadohealth.2022.05.015

DeWall, C. N., & Anderson, C. A. (2011). The general aggression model. In *Human aggression and violence: Causes, manifestations, and consequences* (pp. 15–33). American Psychological Association. https://doi.org/10.1037/12346-001

Dumontheil, I. (2016). Adolescent brain development. *Current Opinion in Behavioral Sciences*, *10*, 39–44. https://doi.org/10.1016/j.cobeha.2016.04.012

Eckes, T., & Trautner, H. M. (2012). *The Developmental Social Psychology of Gender*. Psychology Press.

Eiland, L., & Romeo, R. D. (2013). Stress and the developing adolescent brain. *Neuroscience*, *249*, 162–171. https://doi.org/10.1016/j.neuroscience.2012.10.048

Erickson, N. G. (n.d.). *AMY GAUMER ERICKSON, Ph.D.*

Euler, F., Steinlin, C., & Stadler, C. (2017). Distinct profiles of reactive and proactive aggression in adolescents: Associations with cognitive and affective empathy. *Child and Adolescent Psychiatry and Mental Health*, *11*(1), 1. https://doi.org/10.1186/s13034-016-0141-4

Fanaj, N., Melonashi, E., & Shkëmbi, F. (2015). Self-esteem and Hopelessness as Predictors of Emotional Difficulties: A Cross-sectional Study among Adolescents in Kosovo. *Procedia - Social and Behavioral Sciences*, *165*, 222–233. https://doi.org/10.1016/j.sbspro.2014.12.626

Feshbach, N. D., & Feshbach, S. (1969). The relationship between empathy and aggression in two age groups. *Developmental Psychology*, *1*(2), 102–107. https://doi.org/10.1037/h0027016

Gantiva, C., Suárez-Pico, P., Aristizabal-Gómez, P., Granada-Aguirre, N., Suárez-Lara, O., Tenorio-Quiñones, L., Arias-Higuera, M., Guzmán-Durán, A., Castiblanco-Durán, C., & Hurtado-Parrado, C. (2023). The emotional fallout of armed conflict in Colombia: Emotions, empathy, and aggression in victims, indirect victims, and members of the military. *Psychology of Violence*, *13*(4), 267–276. https://doi.org/10.1037/vio0000471

Garaigordobil Landazabal, M. (2009). A comparative analysis of empathy in childhood and adolescence: Gender differences and associated socio-emotional variables. *International Journal of Psychology and Psychological Therapy*, *9*(2), 217–235.

Giedd, J. N. (2004). Structural Magnetic Resonance Imaging of the Adolescent Brain. *Annals of the New York Academy of Sciences*, *1021*(1), 77–85. https://doi.org/10.1196/annals.1308.009

Hoffman, M. L. (2001). *Empathy and Moral Development: Implications for Caring and Justice*. Cambridge University Press.

Li, X., Bian, C., Chen, Y., Huang, J., Ma, Y., Tang, L., Yan, Q., Ye, X., Tang, J., & Yu, Y. (2015). Indirect aggression and parental attachment in early adolescence: Examining the role of perspective taking and empathetic concern. *Personality and Individual Differences*, *86*, 499–503. https://doi.org/10.1016/j.paid.2015.07.008

Lovett, B. J., & Sheffield, R. A. (2007). Affective empathy deficits in aggressive children and adolescents: A critical review. *Clinical Psychology Review*, *27*(1), 1–13. https://doi.org/10.1016/j.cpr.2006.03.003

Lv, M., Zhang, M., Huang, N., & Fu, X. (2023). Effects of Materialism on Adolescents' Prosocial and Aggressive Behaviors: The Mediating Role of Empathy. *Behavioral Sciences*, *13*(10), Article 10. https://doi.org/10.3390/bs13100863

Mayberry, M. L., & Espelage, D. L. (2007). Associations Among Empathy, Social Competence, & Reactive/Proactive Aggression Subtypes. *Journal of Youth and Adolescence*, *36*(6), 787–798. https://doi.org/10.1007/s10964-006-9113-y

Mckellar, K., & Sillence, E. (2020). Chapter 2—Current Research on Sexual Health and Teenagers. In K. Mckellar & E. Sillence (Eds.), *Teenagers, Sexual Health Information and the Digital Age* (pp. 5–23). Academic Press. https://doi.org/10.1016/B978-0-12-816969-8.00002-3

Melchers, M. C., Li, M., Haas, B. W., Reuter, M., Bischoff, L., & Montag, C. (2016). Similar Personality Patterns Are Associated with Empathy in Four Different Countries. *Frontiers in Psychology*, *7*. https://doi.org/10.3389/fpsyg.2016.00290

Miklikowska, M., Tilton-Weaver, L., & Burk, W. J. (2022). With a little help from my empathic friends: The role of peers in the development of empathy in adolescence. *Developmental Psychology*, *58*(6), 1156–1162. https://doi.org/10.1037/dev0001347

Miller, P. A., & Eisenberg, N. (1988). The relation of empathy to aggressive and externalizing/antisocial behavior. *Psychological Bulletin*, *103*(3), 324–344. https://doi.org/10.1037/0033-2909.103.3.324

O'Neill, K. K. (2020). Adolescence, Empathy, and the Gender Gap in Delinquency. *Feminist Criminology*, *15*(4), 410–437. https://doi.org/10.1177/1557085120908332

Orpinas, P., & Frankowski, R. (2001). The Aggression Scale: A self-report measure of aggressive behavior for young adolescents. *The Journal of Early Adolescence*, *21*(1), 50–67. https://doi.org/10.1177/0272431601021001003

Overgaauw, S., Rieffe, C., Broekhof, E., Crone, E. A., & Güroğlu, B. (2017). Assessing Empathy across Childhood and Adolescence: Validation of the Empathy Questionnaire for Children and Adolescents (EmQue-CA). *Frontiers in Psychology*, *8*. https://doi.org/10.3389/fpsyg.2017.00870

Ritchie, M. B., Neufeld, R. W. J., Yoon, M., Li, A., & Mitchell, D. G. V. (2022). Predicting youth aggression with empathy and callous unemotional traits: A Meta-analytic review. *Clinical Psychology Review*, *98*, 102186. https://doi.org/10.1016/j.cpr.2022.102186

Shahini, M., Rescorla, L., Wancata, J., & Ahmeti, A. (2015). Mental health problems in Kosovar adolescents: Results from a national mental health survey. *Neuropsychiatrie: Klinik, Diagnostik, Therapie Und Rehabilitation: Organ Der Gesellschaft Österreichischer Nervenärzte Und Psychiater*, *29*. https://doi.org/10.1007/s40211-015-0155-9

Silke, C., Davitt, E., Flynn, N., Shaw, A., Brady, B., Murray, C., & Dolan, P. (2024). Activating Social Empathy: An evaluation of a school-based social and emotional learning programme. *Social and Emotional Learning: Research, Practice, and Policy*, *3*, 100021. https://doi.org/10.1016/j.sel.2023.100021

Sisk, C. L., & Zehr, J. L. (2005). Pubertal hormones organize the adolescent brain and behavior. *Frontiers in Neuroendocrinology*, *26*(3), 163–174. https://doi.org/10.1016/j.yfrne.2005.10.003

Toldos, M. P. (2005). Sex and age differences in self-estimated physical, verbal and indirect aggression in Spanish adolescents. *Aggressive Behavior*, *31*(1), 13–23. https://doi.org/10.1002/ab.20034

Tsorbatzoudis, H., Travlos, A. K., & Rodafinos, A. (2013). Gender and Age Differences in Self-Reported Aggression of High School Students. *Journal of Interpersonal Violence*, *28*(8), 1709–1725. https://doi.org/10.1177/0886260512468323

Vachon, D. D., Lynam, D. R., & Johnson, J. A. (2014). The (non)relation between empathy and aggression: Surprising results from a meta-analysis. *Psychological Bulletin*, *140*(3), 751–773. https://doi.org/10.1037/a0035236

Van der Graaff, J., Branje, S., De Wied, M., & Meeus, W. (2012). The moderating role of empathy in the association between parental support and adolescent aggressive and delinquent behavior. *Aggressive Behavior*, *38*(5), 368–377. https://doi.org/10.1002/ab.21435

van Hazebroek, B. C. M., Olthof, T., & Goossens, F. A. (2017). Predicting aggression in adolescence: The interrelation between (a lack of) empathy and social goals. *Aggressive Behavior*, *43*(2), 204–214. https://doi.org/10.1002/ab.21675

Voulgaridou, I., & Kokkinos, C. M. (2023). Relational Aggression in Adolescents Across Different Cultural Contexts: A Systematic Review of the Literature. *Adolescent Research Review*, *8*(4), 457–480. https://doi.org/10.1007/s40894-023-00207-x

Wang, X., & Wang, W. (2024). Perceived Economic Stress and Adolescents' Bullying Victimization: The Roles of Self-Esteem and Student-Student Relationships. *The Journal of Early Adolescence*, *44*(2), 250–274. https://doi.org/10.1177/02724316231174560

Yamane, T. (with Internet Archive). (1967). *Statistics,an introductory analysis*. http://archive.org/details/statisticsanintrooootaro

Zhu, H. (2023). How Cultural Factors Influence Empathy Levels in Specific Contexts: A Comparision Between Individualism and Collectivism. *Journal of Education, Humanities and Social Sciences*, *10*, 169–175. https://doi.org/10.54097/ehss.v10i.6913

Ziaei, M., Oestreich, L., Reutens, D. C., & Ebner, N. C. (2021). Age-related differences in negative cognitive empathy but similarities in positive affective empathy. *Brain Structure and Function*, *226*(6), 1823–1840. https://doi.org/10.1007/s00429-021-02291-y