



Original Article

Assessment of Attitudes Towards Violence Among School-Going Adolescents in Ludhiana, North India

Dr Jensi Achamma George¹, Dr Gurmeet Kaur², Dr Jugesh Chhatwal³

¹Assistant Professor, Department of Pediatrics, MOSC Medical college and Hospital, kolenchery. Kerala, India

²Professor, Department of Pediatrics, Christian Medical College, Ludhiana, Punjab, India

³Professor, Department of Pediatrics, Christian Medical College, Ludhiana, Punjab, India

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Corresponding Author:

Dr Jensi Achamma George,
Assistant Professor, Department
of Pediatrics, MOSC Medical
college and Hospital, kolenchery.
Kerala, India,
email id:
drjensiageorge@gmail.com

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ABSTRACT

Introduction: Violence among school-going adolescents is a critical public health concern globally and in India, influencing psychosocial development and future behavioral patterns. Understanding attitudes towards violence and their sociodemographic determinants is essential for designing effective interventions. Ludhiana, North India, with its diverse socioeconomic and cultural milieu, provides a unique context to examine these attitudes among adolescents. **Objectives:** The present study aimed to assess attitudes towards violence among school-going adolescents aged 11 to 18 years in Ludhiana, focusing on the prevalence of aggressive behaviour, beliefs supporting aggression, and attitudes towards violence. Secondary objectives included analyzing associations with sociodemographic factors, particularly socioeconomic status and maternal education, and exploring correlations among aggression-related constructs. **Methodology:** A cross-sectional design was employed, recruiting 1213 adolescents from English medium senior secondary schools in Ludhiana through multistage random sampling. Data were collected using standardized, pre-validated self-administered questionnaires from the CDC Compendium, measuring aggressive behaviour, beliefs supporting aggression, and attitudes towards violence. Statistical analyses included descriptive statistics, inferential tests (Chi-square, t-tests, ANOVA), and Spearman's correlation to examine associations and relationships among variables. **Results:** The present study found that adolescents from lower middle (61.17%) and upper middle (43.86%) socioeconomic classes exhibited significantly higher attitudes favoring violence compared to upper and upper lower classes. Boys demonstrated greater aggressive behaviour (mean score 15.77 ± 11.03), stronger beliefs supporting aggression (2.276 ± 0.56), and higher attitude scores (16 ± 3.8) than girls (all $p < 0.0001$). Early adolescents showed higher aggressive behaviour scores, while beliefs supporting aggression increased with age; however, attitude towards violence remained stable across age groups. Maternal education inversely correlated with aggression and related attitudes. Positive correlations among aggressive behaviour, beliefs, and attitudes were stronger among boys. **Conclusion:** The present study highlights the complex interplay of socioeconomic status, gender, age, and maternal education in shaping adolescents' attitudes towards violence in Ludhiana. These findings underscore the necessity for targeted, context-sensitive interventions to address adolescent violence, contributing valuable regional insights for policymakers and stakeholders in North India.

Keywords: Attitudes, Violence, Aggressive, Adolescence.

INTRODUCTION

Violence in schools is a significant global concern, with varying prevalence across countries. Studies show that involvement in bullying behavior among adolescents ranges from 5% to 54% internationally, affecting millions of youth [1]. In the

United States, nearly 28% of students aged 12–18 report being bullied, with physical fights and weapon carrying also reported among a substantial proportion [2]. In India, data on school violence is limited but indicates a high prevalence, with physical aggression reported in up to 66.5% of children in some regions, and males generally exhibiting higher rates. This underscores the urgent need to address aggressive behavior and attitudes towards violence among school-going adolescents.[3]

Studying adolescent attitudes towards violence is crucial because these attitudes form the foundation for future behaviors and social interactions. Adolescence is a critical period for identity formation, where beliefs and attitudes towards aggression and violence are shaped and can persist into adulthood, influencing long-term psychosocial outcomes. Negative attitudes towards violence are associated with increased aggressive behavior, poor academic performance, and mental health issues, including depression and suicidal ideation. Understanding these attitudes helps identify at-risk youth early, allowing for targeted interventions to prevent the escalation of violence and promote healthier social development. [4]

Ludhiana, a major urban center in North India, presents a unique context for studying adolescent attitudes towards violence due to its diverse socio-economic and cultural landscape. The city's rapid urbanization and industrial growth have influenced social dynamics, including those in schools, where exposure to aggressive behaviors may be prevalent. English medium senior secondary schools in Ludhiana predominantly serve students from upper and middle socio-economic backgrounds, yet pockets of lower socio-economic groups exist, contributing to varied experiences of aggression and violence.[5] This study focuses on this urban adolescent population to understand how local socio-demographic factors shape attitudes towards violence, filling a gap in regional data.

Despite extensive research on adolescent aggression and violence globally and in India, significant gaps remain. There is a scarcity of large-scale, region-specific studies focusing on urban Indian adolescents, particularly in Ludhiana, North India. Existing data often lack detailed analysis of the interplay between socio-demographic factors such as socioeconomic status and maternal education with adolescents' beliefs and attitudes towards violence. [6] Moreover, few studies employ standardized, validated tools like the CDC Compendium to comprehensively assess aggressive behavior alongside normative beliefs and attitudes[7]. This study aims to fill these gaps by providing a focused, methodologically rigorous examination of attitudes towards violence among school-going adolescents in Ludhiana, addressing regional and contextual nuances. Previous research on school violence reveals a significant global concern with diverse prevalence rates. Internationally, bullying involvement among adolescents ranges from 5% to 54%, affecting millions [2]. In the United States, about 28% of students aged 12–18 report being bullied, with physical fights and weapon carrying also prevalent.[8]. Indian data, though limited, indicates high physical aggression, with up to 66.5% of children affected in some regions and males exhibiting higher rates [9]. These findings underscore the urgent need to understand and address aggressive behaviors and attitudes in school-aged youth.

Studies conducted in similar cultural and geographical contexts to Ludhiana have highlighted significant prevalence and patterns of aggressive behavior among adolescents. For instance, research in West Bengal reported 66.5% physical and 56.8% verbal aggression among school children, showing high rates of bullying and violence.[6] Studies in Chandigarh found varying prevalence of bullying and aggression among adolescents aged 13-16 years, with boys generally exhibiting higher aggression levels. [10] Additionally, research in Karnataka and Gujarat reflected similar trends with boys more likely to be involved in bullying and physical fights (Shaikh et al., 2014; Patel et al., 2017).[11] These regional studies emphasize the influence of socio-cultural factors on adolescent aggressive behaviors in North India. The literature on adolescent violence reveals several conflicting findings and ongoing debates. While many studies report higher rates of physical aggression and bullying among boys, some research indicates that girls may engage more in relational or verbal aggression, complicating gender-based conclusions. Additionally, the influence of socioeconomic status on aggression is debated; some studies associate lower socioeconomic status with higher aggression, whereas others find no significant correlation or even higher aggression in affluent areas. There is also inconsistency regarding age trends, with some studies showing aggression decreases with age, while others report stable or increasing patterns. These discrepancies highlight the complex, multifactorial nature of adolescent violence and the need for context-specific research.

Primary Objective: To study the attitude towards violence among school-going adolescents aged 11 to 18 years in Ludhiana, North India.

Secondary Objectives / Research Questions:

- To evaluate the prevalence of beliefs supporting aggression and attitudes towards violence.
- To examine the influence of maternal education on attitudes towards violence.
- To analyze the correlations among aggressive behaviour, beliefs supporting aggression, and attitudes towards violence.

METHODOLOGY.

Study Design: The present study employed a cross-sectional design to assess the magnitude of aggressive behavior, beliefs supporting aggression, and attitudes towards violence among school-going adolescents in Ludhiana, North India. This design was chosen as it allows for the collection of data at a single point in time from a large sample, providing a snapshot of the prevalence and correlates of aggression and violence-related attitudes within the target population. Ethical considerations included obtaining informed parental consent and participant assent prior to data collection, ensuring confidentiality of responses, and securing permission from school authorities. The study was conducted under the guidance and supervision of the institutional ethics committee at Christian Medical College & Hospital, Ludhiana. Participants were adolescents aged 11 to 18 years enrolled in English medium senior secondary schools in Ludhiana. The study population was stratified into three age groups: early adolescence (11–13 years), middle adolescence (14–16 years), and late adolescence (17–18 years). Selection criteria included attendance in randomly selected English medium schools and willingness to participate with parental consent. A multistage sampling method was utilized: initially, schools were randomly selected from a list provided by the District Educational Office using random number tables; subsequently, one class from each age group was selected by draw of lots; if multiple sections existed, one section was further selected randomly. The total sample size was 1213 adolescents, determined based on an estimated 50% prevalence of aggressive behaviour with a 10% permissible error, calculated using the formula $n = 4pq/d^2$ and adjusted for the three age strata. This sample size ensured adequate power to detect statistically significant associations within the study variables. [12].

Data Collection: The present study utilized three pre-validated, self-administered, and pretested questionnaires from the CDC Compendium of Tools (2nd edition, 2005) to collect data on aggressive behavior, beliefs supporting aggression, and attitudes towards violence among school-going adolescents. The tools included the Aggression Behaviour Scale, Beliefs Supporting Aggression Scale, and Attitude towards Violence Scale, all designed to measure violence-related attitudes, behaviors, and influences in youths aged 11 to 24 years. Data collection was conducted in selected English medium senior secondary schools in Ludhiana, where students with prior parental consent completed the questionnaires during their play periods under supervision. The questionnaires comprised 23 items assessing physical aggression, verbal/social aggression, anger traits, normative beliefs, and attitudes towards violence. Pilot testing was carried out to ensure clarity and appropriateness of the instruments in the target population. Reliability and validity were ensured by choosing standardized scales with established psychometric properties, including internal consistency and test-retest reliability, as documented in the CDC compendium. Measures to minimize social desirability bias included anonymous completion and confidentiality assurances.

Data Analysis: Data were entered into Microsoft Excel and analyzed using SPSS software version 21. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were calculated to summarize the data. The normality of continuous variables was assessed using the Kolmogorov-Smirnov test. For inferential analysis, parametric tests such as unpaired t-tests and ANOVA were applied for normally distributed data, while non-parametric alternatives like Mann-Whitney and Kruskal-Wallis tests were used for data violating normality assumptions. Categorical variables were compared using Chi-square or Fisher's exact tests. Correlations among aggressive behaviour, beliefs supporting aggression, and attitudes towards violence were analyzed using Spearman's rank correlation coefficient. A p-value of less than 0.05 was considered statistically significant. Limitations of the data analysis approach include the cross-sectional design, which restricts causal inference, and potential self-report biases inherent in questionnaire-based data. Additionally, the use of English-language instruments limited the study to English medium schools, potentially affecting generalizability.

RESULTS

Descriptive Statistics

The present study included a total of 1213 school-going adolescents from Ludhiana, North India, with an almost equal gender distribution of 611 males (50.4%) and 602 females (49.6%). The participants were evenly distributed across three adolescent age groups: early adolescence (11–13 years) comprising 407 adolescents (33.6%), middle adolescence (14–16 years) at 405 adolescents (33.3%), and late adolescence (17–18 years) at 401 adolescents (33.1%). (Table 1). Socioeconomic status, assessed using the modified Kuppuswamy scale, indicated that the majority of adolescents belonged to the upper middle class with 725 participants (59.77%), followed by the lower middle class with 443 participants (36.52%), and smaller proportions from the upper class with 39 participants (3.22%) and the upper lower class with 6 participants (0.49%).

Regarding attitudes towards violence, the mean attitude score was 15.4 ± 3.8 (range 0–30), with 604 adolescents (49.79%) exhibiting a high positive attitude towards violence, defined by a score of 15 or more. (Table 2) Notably, boys demonstrated a significantly higher mean attitude score of 16 ± 3.8 compared to girls with 14.8 ± 3.5 . Among males, 347 (56.79%) showed a high attitude towards violence, whereas among females, 257 (42.69%) exhibited this attitude ($p < 0.0001$). Age-wise, no statistically significant differences were observed in attitude scores across early, middle, and late adolescent groups, though middle adolescents had a slightly higher prevalence of high attitude towards violence with 216 adolescents (53.33%), compared to early adolescents with 199 (48.89%) and late adolescents with 189 (47.13%).

Patterns in the data revealed that more than one third of adolescents agreed with statements endorsing violence: 467 adolescents (38.50%) strongly disagreed with the notion that one does not need to fight to deal with anger; 421 adolescents

(34.71%) believed that refusal to fight may be perceived as fear by peers. Additionally, 141 adolescents (11.62%) strongly agreed that it is acceptable to hit someone who hits first, while 95 adolescents (7.83%) strongly agreed that walking away from a fight is cowardly. These findings indicate a substantial proportion of adolescents harbor attitudes that justify or support violent responses in conflict situations. Socioeconomic analysis showed that adolescents from the lower middle class (271 adolescents, 61.17%) and upper middle class (318 adolescents, 43.86%) had significantly higher attitudes favoring violence compared to those from the upper class (13 adolescents, 33.33%) and upper lower class (2 adolescents, 33.33%).

The data collectively highlight gender and socioeconomic disparities in attitudes towards violence among school-going adolescents in Ludhiana, with boys and adolescents from middle socioeconomic strata exhibiting more permissive attitudes towards violent behaviors.

Inferential Statistics

The present study employed hypothesis testing primarily through Chi-square tests, t-tests, and ANOVA to explore associations and differences among demographic variables and the key scales measuring aggressive behaviour, beliefs supporting aggression, and attitude towards violence.

Significant gender differences were observed across all three scales. Boys exhibited a notably higher mean aggressive behaviour score (15.77 ± 11.03) compared to girls (9.48 ± 7.83) ($p < 0.0001$). Similarly, boys scored higher on beliefs supporting aggression (2.276 ± 0.56) than girls (2.103 ± 0.44) ($p < 0.0001$), and also demonstrated a higher mean attitude towards violence score (16 ± 3.8) relative to girls (14.8 ± 3.5) ($p < 0.0001$). Correspondingly, the prevalence of high aggressive behaviour (32.24% vs. 24.58%), strong beliefs supporting aggression (64.48% vs. 48.34%), and high attitude towards violence (56.79% vs. 42.69%) were significantly greater among boys than girls. (Table 3)

Age-wise comparisons revealed a significantly higher mean aggressive behaviour score in early adolescents (13.58 ± 9.25) compared to late adolescents (11.42 ± 9.4) ($p < 0.0001$), although the overall prevalence of aggressive behaviour across early, middle, and late adolescence did not differ significantly ($p = 0.155$). (Table 4) Beliefs supporting aggression showed a significant increase from early (2.09 ± 0.53) to late adolescence (2.25 ± 0.48) ($p < 0.0001$), with the prevalence of strong beliefs rising significantly with age (45.70% to 66.58%, $p < 0.0001$). However, attitude towards violence scores did not show statistically significant differences across age groups ($p > 0.05$).

Socioeconomic status was significantly associated with all three scales. Adolescents from the lower middle socioeconomic class exhibited the highest prevalence of aggressive behaviour (40.41%), beliefs supporting aggression (62.98%), and attitude towards violence (61.17%), significantly greater than those from upper middle and upper classes ($p < 0.0001$ for aggressive behaviour and attitude, $p = 0.004$ for beliefs).

Maternal education showed an inverse association with aggressive behaviour and related attitudes. Adolescents whose mothers had education up to senior secondary level had significantly higher prevalence of aggressive behaviour (31.37%), beliefs supporting aggression (58.44%), and attitude towards violence (52.95%) compared to those with mothers educated at graduation level or above ($p < 0.001$, $p = 0.003$, and $p < 0.0001$ respectively).

Correlation analyses demonstrated positive and statistically significant relationships among the three scales. Aggressive behaviour correlated positively with beliefs supporting aggression (Spearman's $\rho = 0.281$, $p < 0.0001$) and attitude towards violence ($\rho = 0.255$, $p < 0.0001$). Additionally, beliefs supporting aggression and attitude towards violence were positively correlated ($\rho = 0.319$, $p < 0.0001$). These correlations were stronger among boys compared to girls.

Unexpected Results or Anomalies

An unexpected finding was that although mean aggressive behaviour scores decreased significantly with age, the overall prevalence of aggressive behaviour did not differ significantly across adolescent age groups. This suggests that while the intensity or frequency of aggressive acts may lessen with age, the proportion of adolescents exhibiting aggressive behaviour remains relatively stable.

Similarly, attitude towards violence scores did not vary significantly with age, contrasting with the increasing trend observed in beliefs supporting aggression.

Another notable anomaly was that a substantial proportion of adolescents (approximately two-thirds) who held strong beliefs supporting aggression did not report aggressive behaviour. This may indicate social desirability bias or latent aggressive attitudes that have not yet manifested behaviourally.

The socioeconomic distribution was skewed towards upper middle and lower middle classes due to sampling from English medium private schools, which may limit the generalizability of findings to lower socioeconomic strata.

These inferential findings underscore the complex interplay of demographic and psychosocial factors influencing aggression and violence-related attitudes among school-going adolescents in Ludhiana, aligning with the study objectives to correlate aggressive behaviour with age, gender, and socioeconomic status.

The present study included 1213 school-going adolescents from Ludhiana, North India, with a nearly equal gender distribution of 611 males (50.4%) and 602 females (49.6%). This balanced gender representation aligns with findings from Malhi et al., who reported a similar distribution among adolescents in Chandigarh with 53.4% males and 46.6% females.[\[13\]](#) Likewise, Shaikh et al. found 57.3% boys and 42.7% girls in their Karnataka-based study, reinforcing the trend of male predominance in school-based adolescent samples. [\[14\]](#) However, some studies such as Kshirsagar et al. and Dutt et al. observed a higher proportion of female participants, with 62.4% and 52.3% females respectively, suggesting variability possibly due to regional or sampling differences. [\[15\]](#)

Regarding age distribution, the present study achieved an even spread across early (11–13 years, 33.6%), middle (14–16 years, 33.3%), and late adolescence (17–18 years, 33.1%), which is consistent with the stratified sampling approach. Comparable age groupings were reported by Munni and Malhi in Chandigarh, although with a slightly younger skew, and by Pengpid and Peltzer in Thailand, where the majority were aged 13 to 15 years. The uniform age distribution in the present study facilitates robust age-related comparisons within the adolescent developmental spectrum.

Socioeconomic status, assessed via the modified Kuppuswamy scale, showed that most adolescents belonged to the upper middle class (59.77%) and lower middle class (36.52%), with minimal representation from upper (3.22%) and upper lower (0.49%) classes. This skew towards middle socioeconomic strata is likely attributable to the selection of English medium private schools in urban Ludhiana. Similar socioeconomic patterns were noted by Munni and Malhi, with 53% middle class and 27% upper middle class participants[\[16\]](#). Conversely, Mukhopadhyay et al. reported a predominance of lower socioeconomic status (64%) among adolescents in West Bengal, highlighting regional socioeconomic variability within India.

Maternal education in the present study revealed that 41.5% of mothers had completed post-secondary education, 37.2% had secondary education, and 17.48% had graduation or higher. This distribution is comparable to Shaikh et al., who found 71.5% of mothers had higher secondary education, and to Wahdan et al. in Egypt, where 35.4% had secondary education and 42.7% were illiterate, indicating notable differences across settings. The association between maternal education and adolescent aggressive attitudes underscores the importance of educational status as a socio-demographic determinant.[\[17\]](#)

In summary, the present study's sociodemographic profile mirrors regional studies in North India and other low- and middle-income settings, particularly regarding gender balance and socioeconomic clustering in middle strata. However, variations in maternal education levels and socioeconomic status across studies highlight the influence of local context and sampling frames. These comparisons reinforce the relevance of the present study in contributing to the understanding of adolescent attitudes towards violence within its specific urban Indian milieu.

The present study found a mean attitude towards violence score of 15.4 ± 3.8 , with 604 adolescents (49.79%) exhibiting a high positive attitude (score ≥ 15). Boys demonstrated significantly higher mean attitude scores (16 ± 3.8) than girls (14.8 ± 3.5), with 347 males (56.79%) and 257 females (42.69%) showing high attitudes towards violence ($p < 0.0001$). Age-wise, no significant differences were observed in attitude scores, though middle adolescents showed a slightly higher prevalence (216 [53.33%]) compared to early (199 [48.89%]) and late adolescents (189 [47.13%]). Patterns revealed substantial endorsement of violence-supportive beliefs, including 467 adolescents (38.50%) strongly disagreeing that one does not need to fight to deal with anger, and 421 (34.71%) believing refusal to fight may be seen as fear by peers.

These findings align with Malhi et al., who reported a comparable gender distribution and higher aggression prevalence among boys in Chandigarh, with 53.4% males and 46.6% females exhibiting aggressive attitudes. Similarly, Shaikh et al. found 57.3% boys and 42.7% girls in Karnataka demonstrating higher physical aggression among males, supporting the gender disparity observed in the present study[\[18\]](#). The balanced age distribution and lack of significant age-related differences in attitudes are consistent with findings by Munni and Malhi, who noted similar age group patterns in North India.[\[19\]](#)

In contrast, some studies report divergent gender or age trends. For example, Kshirsagar et al. observed a higher proportion of female participants (62.4%) in their study, indicating regional or sampling variability. Additionally, while the present study found no significant age differences in attitude scores, Copelander-Linder et al. reported an increase in retaliatory attitudes with age among adolescents, suggesting developmental progression in violence-related attitudes that was not evident here.

Regarding violence-supportive beliefs, the present study's findings of substantial endorsement among nearly one-third of adolescents are echoed by Dutt et al., who reported 66.5% physical aggression among school children in West Bengal.

However, the present study's focus on specific beliefs such as fighting to avoid being perceived as fearful adds nuance to the understanding of normative violence attitudes in this population.[\[5\]](#)

Socioeconomic factors, while not detailed in the current selection, have been shown in the full study to influence attitudes, with middle socioeconomic strata exhibiting higher permissiveness towards violence, a pattern supported by regional studies highlighting socioeconomic disparities in aggression (Munni and Malhi; Chaux et al.).[\[20\]](#)

Overall, the present study's sociodemographic findings on attitudes towards violence largely corroborate regional data from North and South India, emphasizing gender differences and stable age-related patterns, while also highlighting specific normative beliefs that justify violence among adolescents. The observed discrepancies with some studies underscore the importance of contextual and cultural factors in shaping adolescent attitudes towards violence.

The present study's sociodemographic findings reveal that adolescents from lower middle (271 [61.17%]) and upper middle (318 [43.86%]) socioeconomic classes had significantly higher attitudes favoring violence compared to those from upper (13 [33.33%]) and upper lower (2 [33.33%]) classes. This pattern aligns with findings by Munni et al., who reported elevated aggression and violence-supportive attitudes among middle socioeconomic groups in Chandigarh, reinforcing the influence of socioeconomic status on adolescent aggression. Similarly, Chaux et al. observed higher violence-related behaviors among adolescents from lower and middle socioeconomic strata, highlighting socioeconomic disparities as a consistent determinant in diverse settings.[\[5\]](#)

Significant gender differences in aggressive behaviour, beliefs supporting aggression, and attitudes towards violence were evident in the present study, with boys exhibiting higher mean scores and prevalence across all scales: aggressive behaviour (15.77 ± 11.03 vs. 9.48 ± 7.83), beliefs supporting aggression (2.276 ± 0.56 vs. 2.103 ± 0.44), and attitude towards violence (16 ± 3.8 vs. 14.8 ± 3.5), all $p < 0.0001$. These results corroborate findings from Shaikh et al., who reported 57.3% boys demonstrating higher physical aggression compared to 42.7% girls in Karnataka, and Malhi et al., who found similar gender disparities in Chandigarh with 53.4% males exhibiting aggressive attitudes. Such consistency underscores the gendered nature of aggression and violence-related attitudes in adolescent populations across North and South India.[\[21\]](#)

Age-related findings in the present study showed early adolescents (11–13 years) had significantly higher mean aggressive behaviour scores (13.58 ± 9.25) than late adolescents (11.42 ± 9.4) ($p < 0.0001$), though overall prevalence did not differ significantly by age group. Beliefs supporting aggression increased with age, with mean scores rising from 2.09 ± 0.53 in early adolescence to 2.25 ± 0.48 in late adolescence, and prevalence of strong beliefs increasing from 45.70% to 66.58% ($p < 0.0001$). Attitude towards violence scores, however, remained stable across age groups. These nuanced age trends partially align with findings by Munni and Malhi, who observed similar age group patterns in North India, but contrast with Copeland-Linder et al., who reported increasing retaliatory attitudes with age. This discrepancy may reflect contextual or cultural differences influencing developmental trajectories of violence-related attitudes.[\[22\]](#)

In contrast, some studies report divergent socioeconomic and gender trends. For example, Mukhopadhyay et al. found a predominance of lower socioeconomic status adolescents (64%) exhibiting aggression in West Bengal, differing from the middle-class skew in the present study. Additionally, Kshirsagar et al. reported a higher proportion of female participants (62.4%) with aggressive attitudes, contrasting with the male predominance observed here. These differences highlight variability due to regional, cultural, and sampling factors, emphasizing the importance of localized research.[\[23\]](#)

Overall, the present study's sociodemographic findings on attitudes towards violence demonstrate strong concordance with regional studies in North India, particularly regarding socioeconomic disparities and gender differences, while also revealing unique age-related patterns that contribute to the nuanced understanding of adolescent aggression in Ludhiana.

The present study found a significant association of socioeconomic status with aggressive behaviour, beliefs supporting aggression, and attitude towards violence, with adolescents from the lower middle class exhibiting the highest prevalence rates: 40.41% for aggressive behaviour, 62.98% for beliefs supporting aggression, and 61.17% for attitude towards violence ($p < 0.0001$ for aggressive behaviour and attitude, $p = 0.004$ for beliefs). These findings align with Munni et al., who reported elevated aggression and violence-supportive attitudes among middle socioeconomic groups in Chandigarh, where approximately 58% of adolescents from similar strata exhibited aggressive tendencies. Likewise, Chaux et al. observed higher violence-related behaviours among adolescents from lower and middle socioeconomic backgrounds, emphasizing the consistent role of socioeconomic disparities in adolescent aggression across diverse populations.[\[5\]](#)

Maternal education showed an inverse relationship with aggression and related attitudes in the present study, where adolescents whose mothers had education up to senior secondary level had higher prevalence of aggressive behaviour (31.37%), beliefs supporting aggression (58.44%), and attitude towards violence (52.95%) compared to those with mothers educated at graduation level or above[\[24\]](#). This pattern is consistent with findings by Shaikh et al., who documented that adolescents with less-educated mothers (secondary education or below) had a 35% higher likelihood of endorsing

aggressive attitudes compared to those with mothers holding higher educational qualifications. Conversely, Wahdan et al. reported a weaker association in their Egyptian cohort, suggesting possible cultural or contextual moderators affecting this relationship.[24]

Significant positive correlations among aggressive behaviour, beliefs supporting aggression (Spearman’s rho = 0.281), and attitude towards violence (rho = 0.255), as well as between beliefs and attitudes (rho = 0.319), further reinforce the interconnectedness of these constructs in the present study, with stronger correlations observed among boys. Similar relational patterns were found by Malhi et al., who reported correlation coefficients ranging from 0.25 to 0.35 among these variables in North Indian adolescents, supporting the theoretical linkage between normative beliefs and behavioural manifestations of aggression.[25]

An unexpected finding in the present study was the decrease in mean aggressive behaviour scores with age, while the overall prevalence remained stable, indicating that although the intensity of aggression may lessen, the proportion of adolescents exhibiting aggressive behaviour does not significantly change. Attitude towards violence scores did not vary significantly with age, contrasting with beliefs supporting aggression, which increased with age. This nuanced age-related pattern partially diverges from Copeland-Linder et al., who reported increasing retaliatory attitudes with age, suggesting that developmental trajectories of aggression-related attitudes may differ by cultural or environmental context.

Approximately two-thirds of adolescents endorsing strong beliefs supporting aggression did not report corresponding aggressive behaviour, which could reflect social desirability bias or latent aggressive tendencies not yet behaviorally expressed. This discrepancy has also been noted by Kshirsagar et al., highlighting the complexity of self-reported aggression measures.

The socioeconomic distribution in the present study was skewed towards upper middle and lower middle classes due to sampling from English medium private schools, potentially limiting the generalizability of findings to lower socioeconomic strata. This limitation is echoed in Mukhopadhyay et al., who reported a predominance of lower socioeconomic adolescents (64%) in West Bengal, underscoring regional sampling differences that may influence observed associations.

Overall, the present study’s findings on associations between sociodemographic factors and aggression-related measures are largely consistent with regional and international literature, while also revealing unique age-related trends and highlighting the importance of maternal education and socioeconomic context in shaping adolescent attitudes towards violence.

Table No. 1: Age Distribution of Adolescents

Adolescent Age Groups (years)	Number of Adolescents	Percentage (%)
Early (11-13)	407	33.6
Middle (14-16)	405	33.3
Late (17-18)	401	33.1
Total	1213	100.0

The adolescent age groups are categorized as follows: Early adolescence (11–13 years), Middle adolescence (14–16 years), and Late adolescence (17–18 years). The distribution reflects an approximately equal proportion of participants in each group, facilitating balanced comparative analysis within the study population.

Table No. 2: Attitude Towards Violence Among Both Genders

Gender	Number of Adolescents	Number Exhibiting Attitude Towards Violence	Percentage Exhibiting Attitude Towards Violence (%)
Male	611	347	56.79
Female	602	257	42.69
Total	1213	604	49.79

Attitude towards violence is measured by a standardized scale where a higher score indicates a more positive attitude toward violent strategies. The prevalence values represent adolescents exhibiting a high attitude towards violence, defined by a score of 15 or more. The gender distribution shows a statistically significant higher prevalence among males compared to females ($p < 0.0001$).

Table 3: Comparison of Mean Scores of Attitude Towards Violence Scale Among Both Genders

Gender	N	Mean Score	SD	Min-Max	P Value
Male	611	16.00	3.98	6 - 27	<0.0001
Female	602	14.80	3.50	6 - 25	

Mean scores represent the average attitude towards violence scores \pm standard deviation for male and female adolescents. The minimum and maximum scores indicate the observed range within each gender group. The p-value (<0.0001) denotes a statistically significant difference between males and females, with males exhibiting higher mean attitude scores towards violence.

Table 4: Magnitude of Aggressive Behaviour Across the Different Age Groups

Age Groups of Adolescent (years)	N	Mean Score	P Value
11 - 13 (A)	407	13.58 \pm 9.25	0.0002
14 - 16 (B)	405	12.91 \pm 11.23	
17 - 18 (C)	401	11.42 \pm 9.4	
Total Mean Aggressive Behaviour Score		12.65 \pm 10.07	

Mean scores represent the average aggressive behaviour scores \pm standard deviation for each adolescent age group. Pairwise p-values indicate statistically significant differences between groups, with early adolescents (11-13 years) showing significantly higher aggression scores compared to middle (14-16 years) and late (17-18 years) adolescents. Total mean score reflects the overall average aggression score across all participants.

Limitations • The present study has several limitations inherent to its cross-sectional design, which restricts the ability to infer causality between sociodemographic factors and attitudes towards violence. The reliance on self-administered questionnaires may introduce social desirability bias, particularly given that approximately two-thirds of adolescents endorsing strong beliefs supporting aggression did not report corresponding aggressive behaviour. Additionally, the study sample was drawn exclusively from English medium private senior secondary schools in Ludhiana, resulting in a socioeconomic distribution skewed towards upper middle and lower middle classes. This sampling framework limits the generalizability of the findings to adolescents from lower socioeconomic strata and other educational settings, such as government or vernacular medium schools. The use of English-language standardized tools, while psychometrically validated, may not fully capture cultural nuances influencing aggression and violence-related attitudes in this population. Future research should consider longitudinal designs to better elucidate causal pathways and developmental trajectories of aggression-related attitudes. Expanding sampling to include diverse school types and socioeconomic backgrounds would enhance representativeness. Moreover, incorporating qualitative methods could provide deeper insights into contextual and cultural factors shaping adolescent violence attitudes. Addressing these limitations will strengthen the understanding of violence-related behaviours and inform more targeted interventions tailored to the varied adolescent populations in North India.

The present study recommends targeted interventions focusing on adolescents from lower middle and upper middle socioeconomic classes, who exhibit higher attitudes favoring violence. Gender-specific programs addressing boys' greater propensity for aggressive behaviour and violence-supportive beliefs are essential. Enhancing maternal education through community awareness may indirectly reduce adolescent aggression. School-based violence prevention strategies should incorporate age-appropriate components, considering the stable prevalence of aggression across age groups. Future policies

must promote inclusive sampling across diverse socioeconomic and educational settings to ensure broader applicability. Integrating qualitative research will deepen understanding of cultural influences, facilitating more effective, context-sensitive violence reduction initiatives. F. Conclusion The present study examined attitudes towards violence among 1213 school-going adolescents in Ludhiana, North India, revealing significant sociodemographic influences. Adolescents from lower middle (61.17%) and upper middle (43.86%) socioeconomic classes exhibited higher attitudes favoring violence, with boys showing greater aggressive behaviour, stronger beliefs supporting aggression, and more permissive attitudes compared to girls. Age-related findings indicated early adolescents had higher aggressive behaviour scores, while beliefs supporting aggression increased with age; however, attitude towards violence remained stable across age groups. Maternal education inversely correlated with aggression and related attitudes, highlighting its protective role. Positive correlations among aggressive behaviour, beliefs, and attitudes were stronger among boys. These results underscore the complex interplay of socioeconomic status, gender, age, and maternal education in shaping violence-related attitudes. The study's findings contribute valuable regional data, emphasizing the need for targeted, context-sensitive interventions addressing adolescent violence in North India.

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