The relationships between parental educational practices, pro-aggression beliefs, and aggressive behavior: A cross-sectional study

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Abstract

Adolescent aggression poses a significant challenge to public health and societal well-being, with detrimental consequences for individuals and communities worldwide. Understanding the factors contributing to aggressive behavior during adolescence is crucial for developing effective intervention strategies. Parental influences, including parenting practices and beliefs, have been identified as key determinants of adolescent aggression. However, the mechanisms through which parental factors impact adolescent aggression, particularly the mediating role of cognitive factors such as pro-aggression beliefs, remain underexplored. This study aimed to investigate the associations between parental educational practices, pro-aggression beliefs, and aggressive behavior among middle school students, with a focus on understanding the mediating role of cognitive factors. A sample of 532 middle school students participated in the study and provided self-reported data on parental educational practices, pro-aggression beliefs, and aggressive behavior. The results revealed significant associations between parental educational practices, pro-aggression beliefs, and aggressive behavior. Furthermore, pro-aggression beliefs were found to partially mediate the relationship between parental educational practices and aggressive behavior. These findings underscore the importance of considering both familial and cognitive processes in understanding adolescent aggression. This study contributes to a deeper understanding of the complex interplay between parental factors, cognitive factors, and adolescent aggression, informing the development of targeted intervention programs aimed at promoting positive youth development and reducing violence. By addressing these factors, interventions can effectively mitigate the risk of aggressive behavior among adolescents, ultimately fostering healthier developmental trajectories and enhancing societal well-being.

Keywords: adolescent aggression, parental influences, pro-aggression beliefs, middle school students, aggressive behavior

1. Introduction

Adolescent aggression represents a pressing public health concern due to its widespread prevalence and profound impact on individual well-being and societal cohesion (Call et al., 2002; Schnurr & Lohman, 2013; Siagha, 2023). This form of behavior encompasses various manifestations, including physical violence, verbal aggression, and relational aggression, each posing unique challenges to adolescent development and social harmony (Kawabata et al., 2024). Extensive research indicates that adolescence is a critical period characterized by heightened susceptibility to aggressive tendencies, with rates of aggressive behavior peaking during this developmental stage (Quarmley et al., 2023). During adolescence, individuals undergo significant biological, psychological, and social changes, which may contribute to the emergence and escalation of aggressive behaviors. Moreover, the consequences of adolescent aggression extend beyond immediate interpersonal conflicts, impacting various domains of functioning. Studies have linked aggressive behavior during adolescence to a myriad of negative outcomes, including academic difficulties, strained interpersonal relationships, mental health disorders such as depression and anxiety, and increased involvement in delinquent and criminal activities (Celio et al., 2006; Le et al., 2023). The detrimental effects of adolescent aggression not only affect the individuals involved but also pose challenges to families, schools, and communities, highlighting the urgent need for comprehensive intervention strategies to address this pervasive issue. By understanding the complex factors contributing to adolescent aggression and its consequences, stakeholders can develop targeted interventions aimed at promoting positive youth development and fostering safer, more supportive environments for adolescents to thrive.
Understanding the multifaceted factors contributing to aggressive behavior during adolescence is paramount for developing targeted interventions aimed at fostering positive youth development and curbing violence. Parental influences have emerged as key determinants within this complex interplay of factors (Eron et al., 1993; Khoury-Kassabri et al., 2020). Parenting practices, encompassing disciplinary strategies, parental monitoring, warmth, and involvement, exert a profound influence on children’s behavioral outcomes (Lansford, 2022; Soenens et al., 2019). Authoritative parenting, characterized by high levels of warmth and support coupled with consistent yet reasonable levels of control and monitoring, has been consistently associated with lower levels of adolescent aggression (Soenens et al., 2019). Conversely, authoritarian and permissive parenting styles, characterized by either harsh discipline or lax enforcement of rules, respectively, have been linked to increased aggression among adolescents (Soenens et al., 2019). The impact of parenting practices on adolescent aggression is mediated by various mechanisms, including social learning theory, which posits that children learn and model behaviors observed in their environment (Domitrovich & Bierman, 2001). Parental warmth and responsiveness contribute to the development of positive social skills and emotional regulation, thereby reducing the likelihood of engaging in aggressive behaviors (Labella & Masten, 2018). In contrast, harsh or inconsistent discipline may instill feelings of hostility and resentment in adolescents, increasing the propensity for aggressive responses to perceived threats or challenges (Bjørnebekk & Mørkrid Thøgersen, 2021). Moreover, parental monitoring and supervision play a crucial role in deterring involvement in delinquent activities and mitigating the risk of aggressive behavior among adolescents (Lamari-Fisher & Bond, 2021). By understanding the nuanced influences of parenting practices on adolescent aggression, interventions can be tailored to promote positive parenting strategies and strengthen parent–child relationships, ultimately fostering healthier developmental outcomes and reducing the prevalence of violence in communities.

In addition to parenting practices, parental beliefs and attitudes regarding aggression have garnered attention as significant predictors of adolescent aggressive behavior (Liu et al., 2021). Parents who endorse beliefs that condone aggression, such as viewing physical punishment as acceptable or considering aggression as a legitimate means to resolve conflicts, may inadvertently contribute to the development of aggressive tendencies in their children. These beliefs are often transmitted to children through modeling and social learning processes, whereby children observe and internalize parental behaviors and attitudes, shaping their perceptions of appropriate behavior in social interactions. The impact of parental beliefs on adolescent aggression is further underscored by research demonstrating the intergenerational transmission of aggressive behavior patterns (Greene et al., 2020; Neppel et al., 2020). Children raised in environments where aggressive behavior is normalized or justified may internalize these beliefs and adopt aggressive responses to interpersonal conflicts or perceived provocations. Moreover, parental attitudes toward aggression can influence the efficacy of disciplinary practices, with parents who endorse aggressive disciplinary tactics being more likely to engage in coercive interactions with their children, exacerbating the risk of aggressive behavior. Furthermore, the relationship between parental beliefs and adolescent aggression is influenced by broader sociocultural factors, including cultural norms and societal attitudes toward aggression (Connolly et al., 2010). In cultures where aggressive behavior is condoned or even valorized, parental beliefs supporting aggression may be more prevalent, further perpetuating the cycle of aggression within families and communities. Conversely, interventions aimed at challenging and reshaping parental beliefs regarding aggression can play a pivotal role in breaking this cycle and promoting alternative, nonviolent conflict resolution strategies.

While extensive research has documented the direct influence of parental factors on adolescent aggression, recent studies have increasingly delved into the mediating role of cognitive factors, such as pro-aggression beliefs, in shaping this relationship. Pro-aggression beliefs encompass individuals’ perceptions regarding the acceptability and justification of aggressive behavior across diverse contexts (Blankenship et al., 2018; Cohen & Prinstein, 2006). Notably, Blankenship et al. (2018) demonstrated that pro-aggression beliefs partially mediated the association between harsh parenting practices and aggressive behavior among adolescents. This finding suggests that cognitive processes, including beliefs and attitudes regarding aggression, may serve as mechanisms through which parental influences exert their effects on adolescent aggression. The mediating effect of pro-aggression beliefs on the relationship between parental factors and adolescent aggression underscores the importance of considering cognitive factors in understanding the pathways to aggressive behavior. Harsh or punitive parenting practices may shape adolescents’ pro-aggression beliefs by modeling aggressive behavior as a legitimate means of resolving conflicts or exerting control (Blankenship et al., 2018; Wood & Alleyne, 2010). Consequently, adolescents exposed to harsh parenting may internalize these beliefs, leading to the adoption of aggressive responses in interpersonal interactions. However, the mechanisms through which parenting practices influence the development of pro-aggression beliefs and subsequent aggressive behavior are complex and multifaceted.

The literature highlights the critical role of parental educational practices and beliefs in shaping adolescent aggression. Building upon this foundation, the present study aimed to investigate the associations between parental factors, pro-aggression beliefs, and aggressive behavior among middle school students, with a particular focus on elucidating the mediating role of cognitive factors. By addressing these gaps in the literature, this study aims to contribute to a more comprehensive understanding of the familial and cognitive processes underlying adolescent aggression, ultimately informing the development of targeted intervention programs to promote positive youth development and reduce violence.
2. Methods

2.1. Participants

The survey included a cohort of 532 middle school students, among whom males comprised 50.8% of the participants, suggesting a relatively balanced gender distribution within the sample. The average age of the participants was 13.0 years, with a standard deviation of 1.10, indicating a relatively narrow age range among the respondents. This age demographic aligns closely with the typical age range for middle school students, further validating the suitability of the sample for the study's objectives. The participants were drawn from diverse grade levels within the middle school system, reflecting a broad representation of the student population. Notably, the distribution of respondents across different grade levels showed varying proportions, with grade 6 constituting the largest segment at 33.6%. This suggests a greater prevalence of students in the earlier stages of middle school education within the surveyed population. Subsequently, grade 7 accounted for 28.4% of the total participants, indicating a substantial presence of students transitioning into the subsequent phase of their academic journey. The percentages of Grade 8 and Grade 9 students in the sample were 22.9% and 15.0%, respectively, representing progressively smaller proportions as students advanced through middle school. The distribution of participants across grade levels offers valuable insights into the composition of the sample and its representativeness of the broader middle school student population. The greater presence of students in lower grade levels suggests a potential bias toward younger students, which could influence the generalizability of the findings to older cohorts. However, the inclusion of students from multiple grade levels enhances the diversity and comprehensiveness of the sample, allowing for a more nuanced exploration of research questions across different developmental stages. The participant demographics provide a comprehensive overview of the sample composition, encompassing diverse gender representations and grade distributions characteristic of middle school populations. This diversity enriches the study's findings by capturing a wide spectrum of perspectives and experiences, thereby enhancing the robustness and validity of the research outcomes.

2.2. Measurements

2.2.1. The Attitudes and Beliefs Regarding Aggression (ABRA)

In this study, the authors only used the Aggression Legitimate (AL) in the Vietnamese version of the Beliefs Regarding Aggression Scale, which was utilized to measure individuals' attitudes toward the acceptability of aggression. This subscale is part of the Attitudes and Beliefs Regarding Aggression (ABRA) scale, initially developed by Vernberg et al. (1999). The ABRA scale was validated in the Vietnamese context by Vu et al. (2023), resulting in the adoption of the ABRA-V. However, for this study, only the AL subscale was employed due to its demonstrated invariance and stronger association with aggressive behavior compared to the Aggression Pays subscale of the ABRA-V questionnaire, as evidenced by previous research (Vu et al., 2023; Vu et al., 2020). The AL subscale consists of 8 questions, each presenting scenarios related to aggression justification, with response options ranging from 1 (Completely disagree) to 4 (Completely agree). Participants were asked to indicate the extent to which they agreed or disagreed with each statement. The Cronbach's alpha coefficient for the AL subscale was found to be at an appropriate level (α = .71), indicating satisfactory internal consistency reliability. This suggests that the items within the AL subscale reliably measure individuals' beliefs about the justification of aggression in the Vietnamese middle school context. Overall, the AL subscale served as a valuable tool for assessing participants' attitudes toward aggression, providing insights into their perceptions of the acceptability of aggressive behavior.

2.2.2. The Vietnamese Aggression Scale (VAS)

In this study, the Vietnamese Aggression Scale (VAS) served as the tool for assessing overt aggressive behavior among adolescent students. Originally developed by Orpinas and Frankowski (2001), the VAS was adapted and validated for use in the Vietnamese context by Vu et al. (2019). This scale comprises 11 items designed to evaluate various manifestations of physical and verbal aggressive behaviors among adolescents. Participants were asked to indicate the frequency of their behaviors on a scale ranging from 0 (never) to 6 (6 times a week or more), providing a quantitative assessment of the prevalence of aggressive actions. Each item presented a specific aggressive behavior scenario, allowing participants to self-report their engagement in such behaviors. The Cronbach's alpha coefficient for the VAS was determined to be adequate at α = .84, indicating good internal consistency reliability. This suggests that the items comprising the VAS demonstrate a high degree of interrelatedness, effectively measuring the construct of overt aggressive behavior among adolescent students in the Vietnamese context. Overall, the VAS served as a reliable and valid instrument for assessing the prevalence and frequency of aggressive behaviors, providing valuable insights into the behavioral tendencies of participants within the study population.

2.2.3. The Parenting Behavioral Scale (PBS-short form) and Psychological Control Scale (PCS)
The Vietnamese version of the Parenting Behavioral Scale (PBS-short form) and the Psychological Control Scale (PCS) were utilized to assess the negative aspects of parents' educational practices. Developed by Van Leeuwen and Vermulst (2010); and Van Leeuwen and Vermulst (2004), the PBS-short form consists of 25 items designed to evaluate various dimensions of parenting behavior, encompassing five aspects related to parents' educational practices. Similarly, the PCS, developed by Barber (1996), comprises 8 questions specifically targeting psychological control tactics employed by parents. Both the PBS-Sa and PCS were validated in the Vietnamese population, ensuring their applicability and reliability within the cultural context. For the current study, only subscales representing negative aspects of parental educational practices were utilized. These subscales include the punishment subscale, which consists of 5 items assessing punitive disciplinary actions such as physical punishment; the discipline subscale, which comprises 4 items evaluating disciplinary measures for rule violations; and the psychological control scale, which features 7 items gauging manipulative behaviors aimed at controlling the child's thoughts and emotions. These three subscales were aggregated into a single scale to provide a comprehensive assessment of various negative educational practices employed by parents. Separate scales were utilized for fathers and mothers, considering potential differences in their parenting styles and behaviors. The Cronbach’s alpha coefficients for both the father and mother versions of these scales were deemed appropriate for measurement, with the father version scoring .93 and the mother version .94 indicating high internal consistency reliability. Overall, these instruments facilitated the evaluation of negative parental practices, shedding light on their potential impact on children's development and behavior within the Vietnamese cultural context.

2.3. Procedures

The research procedures for evaluating the relationships among parents' negative educational practices, middle school students' pro-aggression beliefs, and students' aggressive behavior involve several steps and analyses. First, the sample collection process involved recruiting middle school students from various grades to participate in the study. Students were selected using a random sampling technique to ensure the representativeness of the middle school population. Before participation, informed consent was obtained from both the students and their parents or legal guardians, outlining the purpose of the study, the procedures involved, and their rights as participants. Participation in the study was voluntary, and the confidentiality of the responses was strictly maintained throughout the data collection process. Second, single mediation analysis models will be employed to assess the relationships between the negative educational practices of both fathers and mothers, pro-aggression beliefs, and aggressive behavior among middle school students. Two separate models will be considered: Model 1 for fathers and Model 2 for mothers. In Model 1, fathers' negative educational practices are included as the indicator variable (X), pro-aggression beliefs are included as the mediator variable (M), and aggressive behavior is included as the dependent variable (Y). Similarly, in Model 2, mothers' negative educational practices serve as indicator variables (X), beliefs supporting aggression as the mediator variable (M), and aggressive behavior as the dependent variable (Y). Gender and age will be included as control variables in both models to account for potential confounding effects. Bootstrapping with 5000 iterations will be conducted to estimate the 95% confidence interval of the indirect effect, providing a robust assessment of the mediating role of pro-aggression beliefs. The process analysis package for R will be utilized to perform intermediate model analysis, facilitating a comprehensive examination of the mediation pathways. Additionally, t-tests and ANOVA comparative analyses will be employed to assess significant differences, with a significance level set at p < .05. These analyses will help identify significant relationships and differences between variables of interest. The main variables under investigation include aggressive behavior, beliefs about the justification of aggression, and negative educational practices (both father and mother versions), which are calculated as total scores. Overall, these research procedures will facilitate a comprehensive exploration of the relationships among parental practices, pro-aggression beliefs, and aggressive behavior among middle school students.

2.4. Data Analysis

The data analysis for this study was conducted using the RStudio environment, encompassing a variety of statistical techniques to explore the relationships between parental practices, pro-aggression beliefs, and aggressive behavior among middle school students. Descriptive statistical analyses, including median analysis model analysis, were employed to provide insights into the central tendencies and distributions of the variables of interest. These analyses allowed for a comprehensive characterization of the sample and key study variables, aiding in the interpretation of the findings. Additionally, other descriptive statistical techniques were utilized to further elucidate patterns and trends within the data, ensuring a thorough understanding of the research outcomes. Overall, the combination of median analysis model analysis and other descriptive statistical analyses conducted in RStudio facilitated a rigorous examination of the study's hypotheses and provided valuable insights into the complex interplay between parental practices, pro-aggression beliefs, and aggressive behavior among middle school students.

3. Results

https://www.malque.pub/ojs/index.php/msj
3.1. Gender and grade-level differences in aggressive behavior, pro-aggression beliefs, and negative parental educational practices

Analysis of variance (ANOVA) was conducted to examine the effects of gender and grade level on aggressive behavior, legitimate aggression, negative parenting from fathers, and negative parenting from mothers among students. The results revealed a significant main effect of gender on aggressive behavior, $F(1, 530) = 4.21, p = .041, \eta^2 = .008$. However, there was no significant main effect of gender on aggression legitimacy, $F(1, 530) = 0.12, p = .730, \eta^2 = .000$. Similarly, there was no significant main effect of gender on negative parenting from fathers, $F(1, 530) = 0.02, p = .886, \eta^2 = .000$, or negative parenting from mothers, $F(1, 530) = 0.00, p = .991, \eta^2 = .000$. Furthermore, there was a significant main effect of grade level on aggressive behavior, $F(3, 528) = 3.14, p = .024, \eta^2 = .018$. Post hoc comparisons using the Tukey HSD test revealed that students in Grade 7 exhibited significantly greater levels of aggressive behavior than those in Grade 8 ($p = .041$). However, there were no significant differences in aggressive behavior between students in other grade levels. Additionally, a significant main effect of grade level was found for legitimate aggression, $F(3, 528) = 5.67, p = .001, \eta^2 = .031$. Post hoc comparisons indicated that students in Grade 9 reported significantly higher levels of legitimate aggression than those in Grade 7 ($p = .002$). No other significant differences were observed between grade levels for legitimate aggression. For negative parenting from fathers, there was a significant main effect of grade level, $F(3, 528) = 2.81, p = .040, \eta^2 = .016$. Post hoc tests revealed that students in Grade 9 reported significantly lower levels of negative parenting from fathers than did those in Grade 6 ($p = .022$). However, no other significant differences were observed between negative parenting grades and those of fathers. Similarly, a significant main effect of grade level was found for negative parenting from mothers, $F(3, 528) = 3.10, p = .026, \eta^2 = .017$. Post hoc comparisons showed that students in Grade 9 reported significantly lower levels of negative parenting from their mothers than did those in Grade 6 ($p = .028$). No other significant differences were found between grades for mothers’ negative parenting styles.

3.2. Mediation Analysis

The study utilized the PROCESS macro developed by Hayes and Preacher (2013) to examine the mediating role of aggression legacy in the relationship between educational practice fathers’ editions and aggressive behavior.

First, a direct effect of Educational Practices Father’s Edition on Aggression Legitimate was observed ($\beta = 0.41, p < .001$), indicating that fathers’ educational practices significantly influence children's perception of aggression as legitimate. Second, Aggression Legitimate was found to mediate the relationship between Educational Practice Father’s Edition and Aggressive Behavior. The indirect effect through aggression legislation was statistically significant ($\beta = 0.29, p < .001$), suggesting that children’s perception of aggression legitimacy partially explains the association between fathers’ educational practices and aggressive behavior. Furthermore, the total effect of Educational Practice Father’s Edition on Aggressive Behavior remained significant ($\beta = 0.43, p < .001$), emphasizing the combined impact of both direct and indirect pathways in predicting aggressive behavior (Figure 1). These findings highlight the importance of addressing aggression-related beliefs and attitudes within educational contexts. Recognizing the mediating role of Aggression Legitimate suggests that interventions targeting children's perceptions of aggression legitimacy may effectively mitigate aggressive behavior. Future research should explore additional contributing factors to aggressive behavior and refine intervention strategies to promote healthier behavioral outcomes among children.

![Figure 1](https://www.malque.pub/ojs/index.php/msj)

**Figure 1** The Mediating Model of Aggression Legitimate in the Relationships between Educational Practice Father Edition and Aggressive Behavior. Note: ***$p<.001$**
through which maternal educational practices influence children’s aggressive behavior, potentially by shaping their perceptions of aggression legitimacy. The coefficients revealed significant pathways within the model, delineating the impact of each variable.

First, path ‘a’ demonstrated a notable direct effect of maternal educational practices on aggression legitimacy ($\beta = 0.35, p < .001$). This suggests that mothers play a crucial role in shaping children's perceptions of aggression as acceptable or justified through their educational practices. Such findings underline the importance of maternal influence in molding children's attitudes toward aggression within the family environment. Second, the mediating effect of aggression legitimacy (path ‘b’) was significant ($\beta = 0.34, p < .001$), indicating that children’s perceptions of aggression legitimacy partially mediate the association between maternal educational practices and aggressive behavior. This highlights the nuanced role of aggression legitimacy as a psychological mechanism through which maternal influence translates into observable behavioral outcomes in children. Moreover, direct path ‘c’ revealed a substantial effect of maternal educational practices on aggressive behavior ($\beta = 0.33, p < .001$), suggesting that maternal influence directly impacts children’s aggressive tendencies. The total effect path ‘c’ further emphasized the combined impact of both direct and indirect pathways, showcasing a comprehensive understanding of the influence of maternal educational practices on aggressive behavior ($\beta = 0.45, p < .001$). The graphical representation of the model provided a visual depiction of the interplay between the variables, elucidating the complex pathways through which maternal influence operates (Figure 2). These findings underscore the pivotal role of maternal educational practices in shaping children’s attitudes toward aggression and subsequent behavioral outcomes. Interventions aimed at promoting positive maternal practices and fostering healthy perceptions of aggression legitimacy may prove instrumental in reducing aggressive behavior among children.

Figure 2 The Mediating Model of Aggression Legitimate in the Relationships between Educational Practice Mothers’ Edition and Aggressive Behavior. Note: ***$p<.001$

4. Discussion

The findings of this study underscore the critical role of parental educational practices, both from fathers and mothers, in shaping adolescents' aggressive behavior. The significant direct and indirect effects observed highlight the complex interplay between parental influence and cognitive factors, such as pro-aggression beliefs, in determining adolescent behavioral outcomes. These results emphasize the importance of considering familial dynamics and cognitive processes in understanding the transmission of aggression within family systems. Interventions targeting negative parental practices and cognitive distortions may offer promising avenues for promoting healthier developmental trajectories and reducing the risk of aggression among adolescents. Overall, this study contributes to a deeper understanding of the multifaceted influences on adolescent behavior and underscores the importance of comprehensive interventions that address both parenting practices and cognitive factors to foster positive outcomes in adolescents.

The statistically significant relationship observed between fathers’ negative educational practices and changes in aggressive behavior among middle school students underscores the influential role that paternal upbringing can play in the development of aggressive tendencies in adolescents. This finding aligns with previous research highlighting the significant impact of parental behaviors, particularly those characterized by punitive or authoritarian approaches, on the behavioral outcomes of children (Romm & Metzger, 2021; Zhang et al., 2017). The association between fathers' negative educational practices and increased aggression emphasizes the need for interventions aimed at promoting positive parenting strategies, fostering healthier parent-child relationships, and mitigating the risk of aggressive behavior among adolescents (Labella & Masten, 2018; Wang, 2019). Moreover, the significant indicator effect of fathers’ negative educational practices on changes in aggressive behavior suggests a specific avenue for targeted intervention efforts within familial contexts. Interventions aimed at addressing and mitigating negative paternal practices, such as harsh discipline or psychological control, may prove
effective in reducing the likelihood of aggressive behavior among adolescents (Azami et al., 2023; Wang, 2019). By providing support and guidance to fathers in adopting more positive and nurturing parenting approaches, interventions can help cultivate environments conducive to the development of prosocial behaviors and conflict-resolution skills in adolescents. Furthermore, the findings underscore the importance of considering gender-specific parenting dynamics and their implications for adolescent behavioral outcomes. While both fathers and mothers play significant roles in shaping their children’s behaviors, the distinct impact of paternal practices on aggressive behavior highlights the unique influence that fathers can exert within the family unit (Kawabata et al., 2011). Addressing the negative educational practices of fathers, alongside those of mothers, in intervention programs can thus contribute to more holistic and effective approaches to promoting positive parenting and reducing aggression among adolescents (Caldwell et al., 2010; Panter-Brick et al., 2014). The observed significant relationship between fathers’ negative educational practices and changes in aggressive behavior among middle school students emphasizes the critical role of paternal influence in shaping adolescent behavioral outcomes. This highlights the importance of targeting interventions toward fathers to promote positive parenting practices and mitigate the risk of aggression in adolescents. By addressing negative paternal practices within familial contexts, interventions can foster supportive and nurturing environments conducive to healthy child development and well-being (Gavidia-Payne et al., 2015; Kim & Esquivel, 2011).

The statistically significant indirect effect observed between fathers’ negative educational practices and changes in aggressive behavior, mediated by pro-aggression beliefs, underscores the intricate interplay between parental influence and adolescents’ cognitive and behavioral outcomes. This finding aligns with prior research emphasizing the mediating role of cognitive factors, such as beliefs supporting aggression, in the pathway between parenting practices and aggressive behavior among adolescents (Musher-Eizenman et al., 2004; Su et al., 2010). The significant indirect effect suggests that fathers’ negative educational practices may contribute to the formation of pro-aggression beliefs in adolescents, subsequently influencing their likelihood of engaging in aggressive behaviors (Anderson et al., 2007). Furthermore, the identification of pro-aggression beliefs as a mediator in the relationship between fathers’ negative educational practices and changes in aggressive behavior highlights a potential target for intervention efforts aimed at mitigating the risk of aggression among adolescents. Interventions designed to challenge and modify adolescents’ beliefs supporting aggression may serve as a protective factor against the detrimental effects of negative paternal practices on behavioral outcomes (Rappaport & Thomas, 2004). By addressing cognitive distortions and promoting prosocial beliefs and attitudes, interventions can disrupt the link between negative paternal practices and aggressive behavior, thereby fostering healthier developmental trajectories in adolescents (Dishion & Patterson, 2015). Moreover, the mediating role of pro-aggression beliefs underscores the importance of considering cognitive factors in understanding the mechanisms underlying the transmission of aggressive behavior within family systems. While fathers’ negative educational practices may directly contribute to aggressive behavior in adolescents, mediation through pro-aggression beliefs highlights the cognitive processes through which parental influence operates (Blankenship et al., 2018). Addressing both parental practices and adolescents’ cognitive schemas in intervention programs can provide a comprehensive approach to reducing aggression and promoting positive behavioral outcomes among adolescents (Dodge et al., 2013; Kendall, 2011). The significant indirect effect of fathers’ negative educational practices on changes in aggressive behavior, mediated by pro-aggression beliefs, underscores the complex interplay between parental influence and adolescent behavioral outcomes. This highlights the importance of considering cognitive factors in understanding the transmission of aggression within family systems and suggests potential avenues for targeted intervention efforts aimed at promoting healthier cognitive and behavioral outcomes in adolescents (Sheerin et al., 2023; Weisz & Hawley, 2002).

The statistically significant relationship observed between mothers’ negative educational practices and changes in aggressive behavior among middle school students underscores the influential role that maternal parenting behaviors can play in the development of aggressive tendencies in adolescents. This finding aligns with previous research highlighting the significant impact of maternal practices, such as harsh discipline or psychological control, on children’s behavioral outcomes (Pettit et al., 2001; Wolf & Sunheimer, 2020). The association between mothers’ negative educational practices and increased aggression emphasizes the need for interventions aimed at promoting positive maternal parenting strategies and fostering healthier parent-child relationships to mitigate the risk of aggressive behavior among adolescents. Moreover, the significant indicator effect of mothers’ negative educational practices on changes in aggressive behavior suggests the importance of addressing and mitigating negative maternal practices within familial contexts. Interventions targeting negative maternal practices, such as promoting positive discipline techniques and enhancing communication skills, may prove effective in reducing the likelihood of aggressive behavior among adolescents (Juffer et al., 2023). By providing support and guidance to mothers in adopting more nurturing and supportive parenting approaches, interventions can help create environments conducive to the development of prosocial behaviors and conflict-resolution skills in adolescents. Furthermore, the findings highlight the critical role of maternal influence in shaping adolescent behavioral outcomes and underscore the need for gender-specific considerations in parenting interventions. While both fathers and mothers contribute to the socialization of their children, the unique impact of maternal practices on aggressive behavior emphasizes the importance of addressing negative maternal practices in intervention programs (Hastings & Rubin, 1999). By targeting the negative
educational practices of both fathers and mothers, interventions can provide comprehensive support to families and promote positive parenting practices to reduce aggression among adolescents. The observed significant relationship between mothers’ negative educational practices and changes in aggressive behavior highlights the critical role of maternal influence in shaping adolescent behavioral outcomes. This underscores the importance of addressing negative maternal practices within familial contexts and underscores the need for gender-specific considerations in parenting interventions. By promoting positive maternal parenting strategies, interventions can help create nurturing and supportive family environments conducive to healthy child development and well-being (Berger & Font, 2015).

The statistically significant indirect effect observed between mothers’ negative educational practices and changes in aggressive behavior, mediated by pro-aggression beliefs, underscores the complex interplay between maternal influence and cognitive factors in shaping adolescent behavioral outcomes. This finding aligns with prior research emphasizing the mediating role of cognitive factors, such as beliefs supporting aggression, in the pathway between maternal parenting practices and aggressive behavior among adolescents (Gallarín & Alonso-Arbiol, 2012; Musher-Eizenman et al., 2004; Su et al., 2010). The significant indirect effect suggests that mothers’ negative educational practices may contribute to the formation of pro-aggression beliefs in adolescents, subsequently influencing their likelihood of engaging in aggressive behaviors (Blankenship et al., 2018). Moreover, the identification of pro-aggression beliefs as a mediator in the relationship between mothers’ negative educational practices and changes in aggressive behavior highlights a potential target for intervention efforts aimed at mitigating the risk of aggression among adolescents. Interventions designed to challenge and modify adolescents’ beliefs supporting aggression may serve as a protective factor against the detrimental effects of negative maternal practices on behavioral outcomes (Kahn & Graham, 2020; Rappaport & Thomas, 2004). By addressing cognitive distortions and promoting prosocial beliefs and attitudes, interventions can disrupt the link between negative maternal practices and aggressive behavior, thereby fostering healthier developmental trajectories in adolescents. Furthermore, the mediating role of pro-aggression beliefs underscores the importance of considering cognitive factors in understanding the mechanisms underlying the transmission of aggressive behavior within family systems. While mothers’ negative educational practices may directly contribute to aggressive behavior in adolescents, mediation through pro-aggression beliefs highlights the cognitive processes through which maternal influence operates (Blankenship et al., 2018; Nickerson et al., 2020). Addressing both maternal practices and adolescents’ cognitive schemas in intervention programs can provide a comprehensive approach to reducing aggression and promoting positive behavioral outcomes among adolescents (Kendall, 2011). The significant indirect effect of mothers’ negative educational practices on changes in aggressive behavior, mediated by pro-aggression beliefs, underscores the intricate interplay between maternal influence and cognitive factors in shaping adolescent behavioral outcomes. This highlights the importance of considering cognitive factors in understanding the transmission of aggression within family systems and suggests potential avenues for targeted intervention efforts aimed at promoting healthier cognitive and behavioral outcomes in adolescents (Baskin-Sommers et al., 2022; Bradshaw & Garbarino, 2004).

The implications of this study are multifaceted and relevant for various stakeholders, including parents, educators, policymakers, and mental health professionals. First, the findings underscore the importance of promoting positive parenting practices, particularly among fathers and mothers, to mitigate the risk of aggression among adolescents. Parenting interventions aimed at enhancing communication skills, positive discipline techniques, and nurturing parental behaviors may prove effective in fostering healthier parent–child relationships and reducing aggressive behaviors. Second, the identification of pro-aggression beliefs as a mediator highlights the significance of addressing cognitive factors in interventions targeting adolescent aggression. Interventions focused on challenging and modifying adolescents’ beliefs supporting aggression can serve as protective factors against the detrimental effects of negative parental practices, thereby promoting prosocial behaviors and conflict-resolution skills. Third, the findings have implications for educational and policy initiatives aimed at promoting positive youth development and reducing aggression in school settings. School-based programs targeting social-emotional learning and conflict resolution skills can complement parental interventions, providing adolescents with alternative strategies for managing interpersonal conflicts and expressing emotions constructively. Moreover, mental health professionals can utilize the findings of this study to inform therapeutic interventions for adolescents displaying aggressive behavior. Cognitive-behavioral approaches focusing on cognitive restructuring and emotion regulation skills may be beneficial for addressing underlying cognitive distortions and promoting adaptive coping mechanisms. Overall, the implications of this study underscore the importance of a comprehensive approach to addressing adolescent aggression, one that considers both familial dynamics and cognitive processes. By targeting negative parental practices, promoting positive parenting strategies, and addressing cognitive distortions, interventions can contribute to fostering healthier developmental trajectories and promoting positive behavioral outcomes among adolescents.

Despite the valuable insights gained from this study, several limitations should be acknowledged. First, the use of self-report measures may introduce response bias and social desirability effects, potentially impacting the accuracy of the reported data. Future research could incorporate multiple informants, such as parent and teacher reports, to provide a more comprehensive assessment of adolescent behavior. Second, the cross-sectional design of the study limits causal interpretations of the observed relationships. Longitudinal studies are needed to elucidate the temporal sequencing and
directionality of effects, providing a more robust understanding of the associations between parental practices, pro-aggression beliefs, and aggressive behavior over time. Third, the study focused exclusively on middle school students, limiting the generalizability of the findings to other age groups or developmental stages. Future research could explore these relationships across different developmental periods to examine potential developmental variations in the associations observed. Furthermore, the study did not account for potential confounding variables, such as family socioeconomic status or parental psychopathology, which may influence the observed relationships. Future research could consider these factors to provide a more comprehensive examination of the mechanisms underlying adolescent aggression. Finally, the study was conducted within a specific cultural context, limiting the generalizability of the findings to other cultural or ethnic groups. Future studies could explore these relationships across diverse cultural contexts to examine potential cultural variations in the associations observed. Overall, while this study provides valuable insights into the associations between parental practices, pro-aggression beliefs, and aggressive behavior among middle school students, these limitations highlight the need for caution in interpreting the findings and suggest avenues for future research.

5. Conclusions

This study sheds light on the significant influence of parental educational practices, particularly those of fathers and mothers, on adolescents’ aggressive behavior. The findings underscore the importance of considering both direct and indirect pathways, with pro-aggression beliefs playing a mediating role in the relationship between parental practices and aggressive behavior. These results highlight the need for targeted interventions aimed at promoting positive parenting strategies and challenging cognitive distortions to mitigate the risk of aggression among adolescents. By addressing negative parental practices and fostering healthier cognitive schemas, interventions can contribute to the cultivation of prosocial behaviors and conflict-resolution skills in adolescents. Overall, this study emphasizes the pivotal role of familial dynamics and cognitive processes in shaping adolescent behavior and underscores the importance of comprehensive approaches in intervention programs aimed at fostering positive developmental outcomes.

Ethical considerations

The current study complied with the Declaration of Helsinki’s standards for human subjects’ research. The Research Ethics Committee of the Hanoi National University of Education, Vietnam approved this research project. The participants provided their written informed consent to participate in this study.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Funding

This research received no external funding.

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