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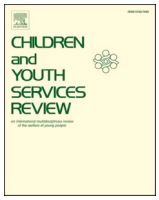

Does gender moderate the relationship between protective factors and rule violating behavior?

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ABSTRACT

This paper explores the role that gender plays in moderating the relationship between protective factors and rule violating behavior among adolescents and young adults. We explore the relationship between rule violating behavior, protective factors, and gender for regulatory strengths, meaning making strengths, and interpersonal strengths. The Resilience Portfolio Model is used to understand the process of resilience and how utilizing various types of strengths may decrease the prevalence of rule violating behavior. Participants were 860 adolescents and young adults (12–20 years old) within a rural, Appalachian area of the United States who self-reported behaviors based on survey data. Blockwise regression analyses and interaction analyses were conducted to identify gender differences. Findings indicate that overall, males are significantly more likely to report rule violating behaviors than females. Gender moderated the relationship between psychological endurance and moral meaning making with these strengths showing a stronger protective effect for male versus female youth. Several strengths were associated with less rule violating behavior and operated similarly for male and female youth, including emotion regulation, optimism, and community support. Findings suggest that more attention needs to focus on identifying and understanding gender-specific strengths as well as identifying strengths which may operate similarly for both males and females that contribute to reduced rule violating to improve developmental outcomes for adolescents and young adults. These findings are important especially as it relates to prevention of rule breaking among all adolescents and young adults.

1. Introduction

Rule violating behavior, or rule breaking behavior, is typically conceptualized as a type of anti-social behavior that consists of actions that do not reach the level of overt aggression. They are behaviors that are more covert in nature, such as swearing, stealing, truancy, running away, substance use, and vandalism (Burt, 2012; De Haan et al., 2012; Tremblay, 2010). While rule violating behavior often conceptually overlaps with the understanding of age-related delinquency (Givens & Reid, 2019), one major difference between rule violating behavior and delinquency is that delinquency includes more serious and violent offenses compared to rule violating behavior (Givens & Reid, 2019; Burt, 2012). Further, there are significant differences in internalizing and externalizing behaviors among those who are deemed a high-risk population as opposed to those having formal involvement with the justice system (Urben et al., 2016). However, rule violating behavior is an important area of study as it can be a marker for later risk for aggression or more serious delinquency. Most research on rule violating behavior and delinquency emphasizes a risk or deficits approach as opposed to a resilience or strengths-based approach (Barnes-Lee & Petkus, 2023). The current study focuses on strengths and protective factors as they relate to reducing rule violating behavior using a multi-faceted, resilience portfolios approach.

Rule violating behavior can be complex. On the one hand, rule violating behavior can be considered harmful to others such as authority figures and those whom the rules are designed to protect. However, there are instances where rule breaking can be seen as pro-social, when upholding a rule may violate the safety and well-being of marginalized groups of individuals (Hennigan & Cohn, 2022). Nevertheless, this study focuses on antisocial, rule violating behavior and examines how different protective factors may play a role in reducing antisocial rule violating behavior. We first review why it is important to reduce rule

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violating behavior and the impact it has on long-term outcomes among children and adolescents before exploring the role that protective factors may play in reducing rule violating behavior. Although previous studies have explored the role that gender plays in moderating the relationship between individual level *risk* factors and rule violating behavior (Cohn & Modecki, 2007), this study is unique in that it examines these relationships using a wide range of psychosocial *strengths* among a particularly vulnerable population of Appalachian youth, focusing on the role that resilience factors play in predicting less rule violating behavior.

1.1. Rule violating behavior

Many rule violating behaviors are often overlooked during childhood as many children are still learning what is socially appropriate behavior and what is not (Burt 2012; Tremblay, 2010). It is for this reason that rule violating behavior is rarely considered to occur during childhood and only begins to manifest as a problem as a child moves into adolescence and peaks during late adolescence (Moffitt, 1993, 2006; Tremblay, 2010). Further, rule violation is a form of externalizing problem behavior that is related to a wide range of negative developmental outcomes in adolescence and extending into adulthood (Bongers et al., 2008; Reef et al., 2011). Gornik et al. (2023) followed 1069 children beginning at ages three through five into adulthood around the ages of 24 through 31. The authors used child, maternal, paternal, and teacher reports over time and found that externalizing behaviors in childhood are related to a host of negative outcomes into adulthood particularly in the areas of educational attainment and legal difficulties. Rule violating and delinquent behaviors were often a stronger predictor of later outcomes than aggressive behavior.

Researchers (Miller, 2014; Patterson et al., 2017) have outlined the developmental pathways from factors like ineffective parenting to later childhood conduct disorders (which include rule violating behavior), which may lead to academic failure and involvement with deviant peers, which in turn may increase the risk for engaging in chronic delinquency in early adolescence. These findings support those of Moffitt (2017) who emphasizes the importance of identifying the individual level factors which differentiate adolescent limited vs. life course persistent delinquency. Further, there are systematic reviews and *meta*-analyses that demonstrate how rule violation behavior manifested within conduct disorder and aggression are much more likely to lead to later negative psychosocial outcomes across a variety of domains (Bevilacqua et al., 2018; Mambra & Kotian, 2022; Weinberger, 2023). These studies show the importance of identifying protective factors that may be key in reducing rule violating behavior among adolescents and young adults.

1.2. Rule violating behavior and gender

Research has consistently shown that male youth are more likely than female youth to engage in nonaggressive rule violating behavior, physical aggression, and delinquency (Bongers et al, 2008; Burt et al., 2016; Dishion et al.,1996; Liu, 2023; Liu & Miller, 2020; Moffitt et al., 2001; Piquero et al., 2005; Tapper & Boulton, 2004; Wang et al., 2014). Many attribute this finding to the different socialization of boys and girls in childhood by parents and societal expectations of gendered behavior (Janssen et al., 2017; Steketee et al., 2013). Boys are more likely to develop cognitive schemas of being rule violators and to be labeled rule violators as such behavior is often stereotyped as being masculine and traditionally related to the definition of being male (Brownfield & Thompson, 2005; De Coster, 2017). Dishion et al. (1996) found that adolescent boys who received more positive reactions in discussions of rule violating behavior were more likely to self-report delinquent behavior two years later, even after controlling for prior levels of delinquency. Given that externalizing behaviors, such as rule violating behavior, are a strong predictor of later legal difficulties (Gornik et al., 2023), it is important to further understand protective factors that reduce it.

Beyond the impact of gender on the amount of problem behaviors exhibited, additional research has demonstrated gender differences in moderators of delinquency and later developmental outcomes. In a series of studies, risk and protective factors were found to operate in a differential manner for boys as opposed to girls. Williams et al. (2017) found in examining a variety of different protective factors at the individual, parenting, school, and relationship levels that problem solving was more influential related to recidivism for boys while impulse control and parental supervision were more influential for girls, but not boys. Williams-Butler (2018) found that gender played a differential role in predicting the likelihood of delinquency among youth in foster care. In this study, there were more protective predictors for boys, compared to girls. School achievement, caregiver resources, and time in care were more influential in protecting against delinquency for boys whereas only age was significantly influential for girls. Similar gender moderation has been found in more general studies of mental health outcomes for youth. Williams-Butler et al. (2019) found among adolescents in the foster care system thatstrengths-based factors significantly predicted psychological well-being for boys but none of these factors were significantly related to outcomes for girls. These moderator analyses are important because they identify protective factors that may inform gender responsive prevention efforts. More work is needed to investigate protective factors that are either not moderated by gender or that protect girls.

1.3. Theoretical framework

As noted above, studies of rule violating behavior and delinquency have most often focused on risk factors (Barnes-Lee & Petkus, 2023). Nevertheless, developmental science has increasingly embraced a focus on resilience and there has been increased attention to the role of gender sensitive analyses related to resilience, delinquency, and developmental outcomes (Belisle & Salisbury, 2021; Pierce & Jones, 2022; Williams et al., 2017). Masten (2001) conceptualizes resilience as having a positive outcome, despite threats to positive development. Although there are various methods for measuring the process of resilience among youth (Zolkoski & Bullock, 2012), demonstrating resilience in this study is conceptualized as lower levels of rule violating behavior. Both individual (i.e., attitudes) and contextual (i.e., relationship quality) protective factors have been found to be important in advancing the field of resilience research (Masten, 2007).

The resilience portfolio model (Grych et al., 2015) is used in the current study to understand how protective factors may reduce the likelihood of rule violating behaviors among adolescents and young adults, and whether that relationship is moderated by gender. The resilience portfolio model draws on theory and research across a wide variety of domains including resilience, positive psychology, post-traumatic growth, and coping literatures to understand how people adapt positively despite violent and traumatic events. A key contribution of this model is the notion that an array of strengths needs to be considered rather than focusing on only one type of strength at a time.

In order to understand the mechanisms of how individuals can adapt in the face of adversity, the resilience portfolio model organizes psychosocial strengths into three higher order categories (Hamby et al., 2018). These higher order categories are regulatory strengths, interpersonal strengths, and meaning making strengths. Research shows the combination of strengths within and across these domains are powerful predictors of outcomes over and above measures of adversity or demographics (Hamby et al., 2018). Many protective factors examined in isolation may primarily represent the opposite pole of traditionally identified risk factors and may not provide practical information on the mechanisms and processes that promote resilience and that may be useful targets for prevention and intervention efforts (Masten & Tellegen, 2012; Lenzi et al., 2015). The resilience portfolio model focuses on malleable assets that are not simply the opposite of well-studied risk factors. It also places emphasis on measuring a variety of strengths at the same time within one study.

1.4. Protective factors and the importance of multi-level examination

Regulatory strengths focus on the ability to control one's impulses, manage difficult emotions, and persevere in the face of difficult situations (Baumeister et al., 2006; Moffitt et al., 2011). For example, Bockmann & Yu (2023) found that using mindfulness-based interventions which focus on supporting regulation in young children had positive effects for children. Houck et al. (2016) found that using an emotion regulation intervention with high-risk adolescents was correlated with less sexual activity, fighting, and other risky behaviors. These findings support regulatory strengths as an important factor in understanding the mechanisms of resilience among adolescents. Importantly, regulatory strengths are made up of an array of different protective factors and is not a singular entity.

Meaning-making strengths represent individuals' abilities to understand and explain their difficult experiences and also an individuals' access to experiences that connect them to something larger than themselves (Hamby et al., 2018). Oftentimes, meaning making can be become an essential coping response for reducing emotional distress and facilitating adaptation in understanding one's place in the world especially after adversity (Grossman, 2022). Meaning making is a category that includes many variables such as a sense of purpose and post-traumatic growth. It can also include measures of spirituality and religious beliefs (Villani et al., 2023), though these are relatively understudied.

Interpersonal strengths, which include the ability to maintain social connections as well as the resources of the social ecology, are important aspects of the resilience process, particularly during adolescence and the transition to adulthood (Caqueo-Urízar et al., 2022; Luthar, 1991; Oshri et al., 2017). For example, securely attached individuals are more likely to demonstrate resilience (Bender & Ingram, 2018). Having strong interpersonal skills and understanding social dynamics may be key to navigating difficult situations. To date, the resilience portfolio model has primarily been studied in relation to mental health outcomes and sense of well-being and health-related quality of life. The current study examines its utility for understanding rule violating behavior.

1.5. Current study

The current study is unique in that it focuses on adolescents and young adults within the Appalachian region of the United States. Appalachia is one of the most vulnerable regions of the United States using risk indices like the high prevalence of poverty, mental health diagnoses, substance misuse, intimate partner violence, and other negative developmental outcomes (Kennedy et al., 2014). However, research also documents an important array of unique strengths among communities in this region such as high levels of emotion regulation, meaning making, community support, social support and practicing forgiveness (Hamby et al., 2018). The current study uses the resilience portfolio model to investigate how an array of strengths within each of the regulatory, interpersonal, and meaning making domains reduce the risk for rule violating behavior. Further, the study focuses on how strengths portfolios may differ by gender. Given the high vulnerability of those within the Appalachian community (Hege et al., 2020; Jeter 2019), and documented gender differences among male and female youth as it relates to externalizing behavior and later outcomes (Cohn & Modecki, 2007; Williams et al., 2017; Williams-Butler, 2018; Williams-Butler et al., 2019), it is important to identify whether gender plays a role in reducing rule violating behavior specifically within the Appalachian community as well. The current study seeks to answer the following two research questions:

(1) Are strengths within each of the three domains of the resilience portfolio associated with lower rule violating behavior? We hypothesized that higher levels of strengths for each would be related to lower rule violating behavior. Descriptively, we were interested in investigating whether particular types of strengths within each domain were strongly protective against rule violating behaviors.
(2) Does gender moderate the relationship between protective factors and rule violating behaviors? Given previous studies of this topic, we hypothesized that gender would be a significant moderator and that measured strengths would reduce rule violating behaviors for boys but less so for girls.

2. Method

2.1. Participants

Participants were 860 individuals from rural areas in the Southeastern United States, who were a subsample of a larger community sample (N=2,565). For the purposes of this study, we focused on participants under 21 years of age (range 12–20; M=15.92, SD=2.66) as delinquency is often age limited (Moffitt, 2017). The sample was mostly female youth (59.9 %). A majority (75.9 %) of the sample identified as White/European American (Non-Hispanic), 8.6 % as African American/Black (non-Hispanic), 6.9 % Hispanic/Latino, 6.3 % as more than one race, 1.4 % as American Indian/Alaska Native, 0.6 % as Asian, and 0.4 % as Hawaiian/Pacific Islander. Educational status included 56.3 % who were in middle or high school, 25.2 % who had a high school diploma or GED, 3.5 % with less than a high school education (and not currently in school), and 15 % with some college or higher. Most of the sample (68.1 %) lived in small towns with a population of 2,500 to 20,000 people, 19.8 % lived in rural areas with populations of less than 2,500 people, and others (12.1 %) lived in more populated areas.

2.2. Procedure

A wide range of recruiting techniques were utilized in 2013 and 2014. This range was used to reach segments of the population in rural Appalachia who are not often sampled in research. The majority (77.7 %) were recruited as part of a larger study of the impact and reach of a school-based narrative writing program in the region. The counties included where the last author's research center is based and the contiguous counties surrounding it. Recruitment and data collection took place at local community events, such as festivals and county fairs where a project booth was set up. Word-of-mouth was the second-most productive recruitment strategy (12.1 %), while the remaining 10.2 % were recruited using flyers, newspaper and radio ads, and direct For flyers and ads, participants called the research center to arrange participation. The survey was self-administered using Snap 10, a survey software similar to Qualtrics, but does not require internet connectivity during data collection, as the internet was not always accessible at data collection sites. Data was collected on laptops and iPads. An audio option was available when needed. Technical problems (such as iPads overheating) and time limitations prevented some individuals from completing the survey. However, the completion rate was notably 85 %. All participants received a $30 Walmart gift card and information about local resources. All procedures were approved by the IRB of the study's home institution.

2.3. Measures

Development and validation of measures: Given that our sample included a significant number of participants with limited education, it was essential that the reading level be appropriate. Brevity was also a priority. See Hamby et al. (2018) for details on measurement development process and reliability and validity for all measures. Unless specified, response categories for each measure were on a 4-point Likert scale with 1 (not true about me) and 4 (mostly true about me). In all cases, higher scores represent higher levels of strengths, with the exception of the rule violating behavior scale where higher scores indicate higher

rule violating behavior. For more details and a full list of measures, visit https://lifepathsresearch.org. The measures included in this study were part of a larger set of questionnaires assessing a wide range of constructs. Those used in the current analyses are described below.

Rule violating behavior included nine items that assessed a wide range of behaviors including property damage, smoking, cheating in school, and physical fights, (adapted from Cuevas et al., 2007). Minors (under the age of 18) were asked about whether they had ever engaged in these behaviors and older youth (18–21) were asked about their behavior when they were teenagers. Both versions of the questions were combined into one scale. As a result, the study examines lifetime self-report of rule violating behavior. Reliability showed a Kuder-Richardson 20 (KR-20; internal consistency for binary items) of 0.79 for the combined eight items. A sample item is "Have you on purpose broken, damaged or destroyed something that belonged to someone else?" Responses were given on "yes" or "no" scale. The scale-level mean was calculated for participants who responded to at least half of the items on the scale. Score values do not represent the frequency of engaging in any specific set of rule violating behaviors, but rather how many different types of behaviors the participant engaged in.

Regulatory strengths encompass strengths that involve sustaining and supporting goal-driven behavior when coping with immediate stressors. The *Psychological Endurance Scale* is a 6-item measure (Hamby et al., 2015) to assess one's ability to persist in the face of challenges. A sample item is "I am quick to pick myself up when I get 'knocked down." Cronbach's alpha = 0.85. *Emotion Awareness* was assessed with 2 items on the ability to monitor one's own feelings and was adapted from the DERS (Gratz & Roemer, 2004). A sample item is "I am aware of my feelings." Cronbach's alpha = 0.82. *Emotion Regulation* included 4 items assessing one's ability to manage distressing feelings adapted from the DERS (Gratz & Roemer, 2004). A sample item (reverse-scored) is "When I'm upset, I have difficulty focusing on other things." Cronbach's alpha = 0.80. *The Coping Scale* consisted of 13 items designed to describe behavioral and cognitive-emotional responses an individual might use when dealing with adversity (partially adapted from Holahan & Moos, 1987; Spitzberg & Cupach, 2008). A sample item is "When dealing with a problem, I spend time trying to understand what happened." Cronbach's alpha = 0.91.

Meaning making strengths measure ways in which individuals seek fulfillment, which can often mean connecting to something larger than themselves. The *Purpose* scale included 2 items from the Meaning in Life Questionnaire (Steger et al., 2006) and 1 item from the Life Orientation Test (Scheier et al., 1994) that assessed perceptions that there is a reason for living. A sample item is "I have a good sense of what makes my life meaningful." Cronbach's alpha = 0.81. *Optimism* was assessed with two items from the Life Orientation Test (Scheier et al., 1994) and measured how often people have positive expectancies. A sample item (reverse-scored) is "If something can go wrong for me, it will." Cronbach's alpha = 0.77. The meaning making scales are designed to describe behaviors and actions related to mattering and pursuing purpose in life. *Meaning Making – Other-oriented* included 10 items on how individuals help others to make their own lives meaningful. A sample item is "I try to act and make choices like people who are successful." Cronbach's alpha = 0.85. *Meaning Making – Self-oriented* included 8 items on improving one's mental and physical well-being to find purpose. A sample item is "I spend time with people who teach me things." Cronbach's alpha = 0.74. *Meaning Making – Family-Care* assesses the extent to which individuals help their loved ones and work on strengthening their family ties (5 items). A sample item is "I take care of older or younger family members each week." Cronbach's alpha = 0.75. *Meaning Making – Morals* assesses how individuals find meaning through adhering to moral or ethical standards of behavior (4 items). A sample item is "I make sure that in most situations I am following the rules." Cronbach's alpha = 0.81. *Religious Meaning Making* is comprised of 11 items (Amato, 1990; Levin et al., 1996; Pargament et al., 1998; Putney & Middleton, 1961) assessing engagement in religious and spiritual practices. A sample item is "My faith or spiritual beliefs are very important in my life." Cronbach's alpha = 0.89.

Interpersonal strengths include participants' relational skills and indicators of support from their larger social environments. *Community Support* is comprised of 9 items assessing support at the community level, beyond an individual's close family and friends (adapted from Sampson et al., 1997; U.S. Air Force, 2011). A sample item is "People in my neighborhood offer to help one another in times of need." Cronbach's alpha = 0.84. *Compassion* is comprised of 7 items assessing the degree to which an individual displays care and concern for others and is motivated to help them (partially adapted from McCullough et al., 2002; Pommier, 2011; Sprecher & Fehr, 2005). A sample item is "My heart goes out to people who are unhappy." Cronbach's alpha = 0.78. *Maternal Attachment* includes 6 indicators of a close and secure relationship with one's mother or mother figure (adapted from the Attachment Behaviors Scale from Furman & Buhrmester, 2009). A sample item is "You seek out your mother (or mother figure) when you're upset." Cronbach's alpha = 0.91. *Paternal Attachment* contains parallel items to maternal attachment asking about one's father or father figure. Cronbach's alpha = 0.93. *Generous Behaviors* is a 6-item scale that measured charitable activities in the past year (adapted from Amato, 1990; Banyard et al., 2013). Items were dichotomous ("yes" or "no"). A sample item is "Spent time volunteering at a charity." KR-20 = 66. *Generative Roles* is measured with 10 items assessing mentoring or charitable roles served by the respondents and their partners (Hamby et al., 2015). Items were dichotomous ("yes" or "no"). A sample item is "At some time in my life, I have been a tutor." KR-20 = 0.77. *Generativity* assesses one's concern for guiding future generations (5 items) and was adapted from Loyola Generativity Scale – Short Form (McAdams & de St. Aubin, 1992). A sample item is "I like to teach things to people." Cronbach's alpha = 0.86. *Forgiveness* (adapted from Gordon & Baucom, 2003) was assessed with 3 items describing one's ability to move on following an argument. A sample item is "Understanding what the other person did is more important to me than blaming him/her." Cronbach's alpha = 0.59. *Social Support – Immediate Family* is comprised of 6 items that assessed the extent to which individuals' family members serve as sources of strength and guidance and are willing to offer substantial assistance (partially adapted from Turner et al., 2010; from Zimet et al., 1988). A sample item is "I can talk about my problems with my family." Cronbach's alpha = 0.85. *Social Support – Friends and Adults* is a 6-item scale that measured the extent to which individuals' friends and non-parent adults served as sources of strength and guidance (adapted from Turner et al., 2010). A sample item is "I can talk about my problems with my friends." Cronbach's alpha = 0.88.

Data Analysis. All scale scores were standardized by conversion to Z-scores (mean converted to 0 with a standard deviation of 1) to allow for comparisons across measures. Descriptive statistics were used to characterize the sample. Bivariate correlations were conducted with all variables. To examine the main effect for each strength, we conducted multiple regression analyses for each set of portfolio factors with rule violating behavior as the outcome. To examine the moderating effect of gender, an interaction term was also computed for each strength, with the standardized continuous scale score for each strength multiplied by gender (dichotomized to 0 for male youth and 1 for female youth). For graphing the moderator effect, when statistically significant interactions were found, the significant strength was separated into high and low scores based on a median split. Other demographic variables (age and race) were included as control variables in the multivariate analyses.

3. Results

Rule violating behaviors: Many forms of rule violating behaviors were reported by the youth in this sample (See Table 1). The most highly endorsed item of the 8 items was "Have you ever cheated on school tests or skipped school without an excuse?", with 48.9 % of the male youth sample and 44.7 % of the female youth sample saying "yes." The item

Table 1
Rule violating behaviors item level frequencies.

	Male Youth	Female Youth
	Yes (%)	Yes (%)
Cheated on school test	48.9	44.7
Hit, slapped, pushed people	43.3	29
Used drugs (not prescribed)	31.9	21.1
On purpose broken something belonging to someone	31.7	19.2
Stolen anything	28.4	16.7
Tried to scare or make other kid feel bad (call names)	16.5	10.1
Graffitied walls, cars, sidewalks	12.9	8.8
Picked on another kid	12.1	5.5
Any rule violating behavior (at least one of above)	72.9	60

endorsed the least was "Have you ever picked on another kid by chasing or grabbing him or her or by making him or her do something he or she didn't want to do?", with 12.1 % of male youth and 5.5 % of female youth saying "yes." Approximately three in four male youth (73 %) reported at least one rule violating behavior (M=2.21, SD=2.13). Three in five female youth (60 %) reported at least one rule violating behavior (M=1.53, SD=1.79). When considering the full sample, 65 % of participants reported at least one rule violating behavior (M=1.80, SD=1.97).

Bivariate analyses: A correlation table for all variables is in Table 2. Rule violating behaviors were significantly inversely correlated with several strengths. Lower rule violating behavior was significantly correlated with greater emotion regulation at the regulatory strengths level, higher reports of six meaning making strengths: optimism, meaning making–other-oriented, meaning making–self-oriented, meaning making–family care, meaning making–morals, and religious meaning making; and higher scores on one interpersonal strength involving social support in the immediate family.

Regulatory strengths: Significant main effects were found in the blockwise regression (See Table 3). Male youth were more likely to report more rule violating behavior than female youth (β = -0.19, $p < 0.001$). For strengths, higher levels of the regulatory strengths of emotion regulation (β = -0.37, $p < 0.001$) were associated with lower rule violating behavior. Unexpectedly, higher levels of coping were associated with more rule violating behavior (β = 0.14, $p < 0.05$). Gender moderated the relationship between psychological endurance and rule violating behavior (β = 0.14, $p < 0.05$). For psychological endurance, male youth who were low in psychological endurance reported significantly more rule violating behavior than those high in psychological endurance, while female youths' rule violating behaviors were consistently low across levels of psychological endurance and coping. See Fig. 1.

Meaning making strengths: Similar to previous results, male youth were more likely to report more rule violating behavior than female youth (β = -0.16, $p < 0.001$). Significant main effects were found for sense of purpose (β = 0.15, $p < 0.05$), optimism (β = -0.26, $p < 0.001$), and moral-based meaning making (β = -0.31, $p < 0.001$). See Table 3. Individuals with higher levels of optimism and moral meaning making were more likely to report lower levels of rule violating behavior. Conversely, individuals with a higher sense of purpose in their lives were more likely to report more rule violating behavior. Gender significantly moderated the relationship between moral meaning making and rule violating behavior (β = 0.14, $p < 0.05$). See Fig. 2. Reported rule violating behaviors were lower for both male and female youth with higher levels of moral meaning making, compared to those with lower levels of moral meaning making. However, the difference was larger for male youth than female youth.

Interpersonal strengths: Male youth continued to be more likely to report rule violating behavior than female youth (β = -0.12, $p < 0.01$). For interpersonal strengths, there were two significant main effects: community support (β = -0.16, $p < 0.05$), and generative roles (β = 0.15, $p < 0.05$). See Table 3. Individuals who reported higher levels of community support reported lower levels of rule violating behavior. Conversely, those who reported higher levels of generative roles were more likely to report higher levels of rule violating behavior. Gender did not significantly moderate the relationship between any interpersonal strengths and rule violating behavior.

4. Discussion

This study is unique in that it is the first to utilize the resilience portfolio model to examine delinquency as an outcome. Despite the disadvantages within the Appalachian region (Hege et al., 2020), this study demonstrates how these young people were able to utilize their strengths to adapt to have a positive developmental outcome related to reduced rule violating behavior. This study is important as it can provide insights into the mechanisms and processes of resilience regarding delinquency. Rule violating behavior has often been found to be a significant correlate of later negative developmental outcomes and it is an important focus for prevention efforts (Gornik et al., 2023). The current study took a strengths-based and portfolio approach to identifying promising factors that are associated with lower levels of these behaviors in a sample of adolescents and young adults and determined whether gender moderated the relationship of particular strengths to outcomes. Applying resilience research in a practical manner is important in informing knowledge which promotes positive outcomes in young people's lives (Zolkoski & Bullock, 2012).

Our first hypothesis was largely supported in that findings from the current study show that in each of the main effect models, higher levels of some strengths were associated with lower levels of rule violating behavior. Many strengths exhibited main effects that were not affected by gender. Participants with greater emotion regulation, optimism, morals, and community support reported fewer types of rule violating behavior. Coping, sense of purpose, and generative roles were unexpectedly associated with increased reports of rule violating behavior.

Our second hypothesis was partially supported. Gender was significant in moderating the relationship between two strengths in the expected direction. Psychological endurance and moral meaning making were associated with less rule violating behavior more so for male than female young people. These results support the findings of Cohn & Modecki (2007) who found that rule violating behavior among adolescents operated differently for male and female adolescents. This study also supports the findings of Liu (2023) who found that developmental factors important for delinquency such as peer influence and endorsement of deviant values were more influential among males as opposed to females within a population of justice-involved youth. Nevertheless, it is important to note that gender did not moderate the relationship between interpersonal strengths and rule violating behavior and overall, the findings of the current study support gender similarity in how strengths work to protect against rule violating behaviors as it relates to most of the strengths examined in this study. Findings suggest that more attention needs to focus on identifying and understanding gender-specific strengths (Kerig & Schindler, 2013), but also in identifying those strengths which may operate similarly for both male and female youth as these findings have important implications for prevention and intervention programming (Grych et al., 2015).

Three findings showed a different direction of effects from what was hypothesized. Coping, sense of purpose, and generative roles were associated with increased reports of rule violating behavior rather than protecting against it. The coping finding is noteworthy as previous studies have linked coping to rule violating behavior and delinquency. Rebellon et al. (2012) found among middle school and high school students that youth who perceive that they were wronged in an unjust way often coped with the situation with increased anger and rule violating behavior. Additional studies have also found how growing up with adverse childhood experiences may impact the ability to cope in

Table 2
Correlations among rule violating behaviors, age, race/ethnicity, gender, & psychosocial strengths in a sample of youth (Ages 12–20).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1. Rule Violating Behaviors Scale	–	0.06	**−0.18**	−0.05	−0.03	−0.07	**−0.29**	0.02	−0.05	**−0.2**	**−0.17**	**−0.12**	**−0.09**	**−0.24**	**−0.11**	**−0.14**	**−0.16**	**−0.18**	−0.06	0.01	0.07	0.01	*−0.08*	**−0.14**	*−0.07*
2. Age	–	0.04	0.05	0.05	*0.07*	0.03	**0.1**	0.01	0.03	*0.09*	**−0.14**	*0.09*	0.06	**−0.13**	−0.06	**0.09**	**−0.1**	**−0.13**	−0.02	**−0.17**	*0.08*	*0.07*	0.02	−0.04	
3. Gender	–	−0.03	0.04	0.03	**−0.1**	−0.02	0.03	**0.11**	**0.12**	*0.09*	**0.22**	**0.16**	0.05	−0.01	**0.24**	**0.11**	−0.06	**0.1**	−0.05	0.04	−0.03	−0.01	**0.1**		
4. Race/Ethnicity	–	0	*0.08*	0.06	−0.01	0.03	−0.01	0.06	−0.06	*−0.08*	*0.07*	0.05	*0.07*	**0.11**	0.05	**0.14**	0.02	−0.06	−0.04	**0.09**	**0.11**	0.05			
5. Psychological Endurance	–	**0.44**	0.02	**0.62**	**0.62**	**−0.2**	**0.55**	**0.34**	**0.34**	**0.49**	**0.37**	**0.21**	**0.4**	**0.37**	**0.24**	**0.29**	**0.26**	**0.72**	**0.2**	**0.49**	**0.47**				
6. Emotion Awareness	–	−0.01	**0.45**	**0.45**	*−0.07*	**0.41**	**0.29**	**0.21**	**0.41**	**0.27**	**0.21**	**0.36**	**0.35**	**0.24**	**0.17**	**0.12**	**0.43**	**0.29**	**0.47**	**0.49**					
7. Emotion Regulation	–	0.01	**0.1**	**0.37**	−0.03	**−0.11**	**−0.16**	0	0	*0.08*	−0.02	0.01	0.07	**−0.15**	−0.04	−0.01	0.06	*0.08*	−0.01						
8. Coping	–	**0.51**	**−0.15**	**0.48**	**0.41**	**0.31**	**0.47**	**0.31**	**0.24**	**0.37**	**0.36**	**0.27**	**0.27**	**0.25**	**0.61**	**0.31**	**0.42**	**0.46**							
9. Sense Purpose	–	−0.04	**0.47**	**0.27**	**0.23**	**0.42**	**0.38**	**0.25**	**0.34**	**0.37**	**0.22**	**0.14**	**0.2**	**0.58**	**0.2**	**0.5**	**0.42**								
10. Optimism	–	**−0.1**	*−0.07*	**−0.14**	**−0.1**	−0.03	0.02	**−0.1**	−0.07	−0.02	**−0.15**	0.01	**−0.13**	*−0.08*	−0.02	**−0.12**									
11. Meaning Making – Other-oriented	–	**0.46**	**0.44**	**0.58**	**0.39**	**0.36**	**0.53**	**0.46**	**0.27**	**0.29**	**0.28**	**0.55**	**0.29**	**0.54**	**0.53**										
12. Meaning Making – Self-oriented	–	**0.43**	**0.49**	**0.32**	**0.21**	**0.3**	**0.23**	**0.15**	**0.28**	**0.36**	**0.42**	**0.19**	**0.3**	**0.37**											
13. Meaning Making – Family Care	–	**0.4**	**0.32**	**0.19**	**0.3**	**0.18**	**0.12**	**0.46**	**0.17**	**0.35**	**0.12**	**0.24**	**0.24**												
14. Meaning Making – Morals	–	**0.41**	**0.25**	**0.47**	**0.41**	**0.24**	**0.24**	**0.23**	**0.48**	**0.24**	**0.48**	**0.45**													
15. Religious Meaning Making	–	**0.24**	**0.3**	**0.3**	**0.28**	**0.27**	**0.39**	**0.37**	**0.13**	**0.35**	**0.28**														
16. Community Support	–	**0.35**	**0.26**	**0.23**	**0.14**	**0.2**	**0.24**	**0.24**	**0.33**	**0.27**															
17. Compassion	–	**0.39**	**0.23**	**0.24**	**0.11**	**0.42**	**0.41**	**0.42**	**0.39**																
18. Maternal Attachment	–	**0.37**	**0.12**	**0.14**	**0.32**	**0.2**	**0.62**	**0.44**																	
19. Paternal Attachment	–	**0.1**	**0.18**	**0.2**	**0.15**	**0.41**	**0.27**																		
20. Generous Behaviors	–	**0.37**	**0.3**	0.02	**0.18**	**0.21**																			
21. Generative Roles	—	**0.31**	*0.07*	**0.21**	**0.23**																				
22. Generativity	–	**0.23**	**0.46**	**0.47**																					
23. Forgiveness	–	**0.26**	**0.25**																						
24. Social Support – Immediate Family	–	**0.6**																							
25. Social Support – Friends/Adults	–																								

Note: Italics indicates significance at 0.05 level. Bold indicates significance at 0.01 level. The gender variable was dichotomous, with a higher value corresponding to "female." Race/Ethnicity is dichotomized with 1 = White Non-Latino and 0 = All Other Youth of Color.

Table 3
Linear regressions of psychosocial strengths as predictors of rule violating behaviors.

Regulatory Strengths				
	B	β	95 % CI	
Age	0.03	0.09*	0.01 –	0.06
Gender	−0.37	−0.19***	−1.40 –	0.31
Race/Ethnicity	−0.1	−0.04	−0.25 –	0.05
Coping	0.14	0.14*	0.00 –	0.28
Emotion Regulation	−0.37	−0.37***	−0.47 –	−0.26
Psychological Endurance	−0.11	−0.11	−0.23 –	0.03
Emotion Awareness	−0.08	−0.09	−0.18 –	0.02
Gender x Coping	−0.13	−0.1	−0.31 –	0.04
Gender x Emotion Regulation	0.08	0.06	−0.06 –	0.21
Gender x Psychological Endurance	0.18	0.14*	0.01 –	0.36
Gender x Emotion Awareness	−0.02	−0.02	−0.16 –	0.11
R^2 for Model	0.38			
Meaning Making Strengths				
	B	β	95 % CI	
Age	0.04	0.10*	0.01 –	0.06
Gender	−0.32	−0.16***	−0.50 –	−0.14
Race/Ethnicity	−0.14	−0.06	−0.30 –	0.01
Sense of Purpose	0.15	0.15*	0.02 –	0.28
Optimism	−0.26	−0.26***	−0.37 –	−0.15
Meaning Making – Morals	−0.29	−0.31***	−0.41 –	−0.16
Meaning Making – Family Care	0.03	0.03	−0.11 –	0.17
Religious Meaning Making	0.02	0.02	−0.11 –	0.14
Meaning Making – Self-oriented	0.02	0.02	−0.13 –	0.16
Meaning Making – Other-oriented	−0.13	−0.12	−0.27 –	0.01
Gender x Sense of Purpose	−0.12	−0.09	−0.28 –	0.04
Gender x Optimism	0.01	0.01	−0.13 –	0.15
Gender x MM – Morals	0.17	0.14*	−0.01 –	0.34
Gender x MM – Family Care	−0.05	−0.04	−0.22 –	0.12
Gender x Religious Meaning Making	−0.04	−0.03	−0.20 –	0.12
Gender x MM – Self-oriented	−0.02	−0.01	−0.19 –	0.16
Gender x MM – Other-oriented	0.03	0.02	−0.15 –	0.22
R^2 for Model	0.40			
Interpersonal Strengths				
	B	β	95 % CI	
Age	0.03	0.07	0.00 –	0.05
Gender	−0.25	−0.12**	−0.41 –	−0.09
Race/Ethnicity	−0.08	−0.03	−0.25 –	0.09
Generative Roles	0.16	0.17*	0.04 –	0.28
Community Support	−0.16	−0.16*	−0.29 –	−0.03
Social Support – Friends/Adults	0.13	0.11	−0.04 –	0.28
Generativity	0.05	0.05	−0.09 –	0.20
Paternal Attachment	0.02	0.02	−0.11 –	0.16
Forgiveness	−0.03	−0.03	−0.16 –	0.10
Generous Behaviors	−0.05	−0.05	−0.17 –	0.08
Compassion	−0.07	−0.07	−0.20 –	0.06
Maternal Attachment	−0.12	−0.11	−0.27 –	0.04
Social Support – Immediate Family	−0.14	−0.13	−0.33 –	0.06
Gender x Generative Roles	−0.14	−0.11	−0.29 –	0.01
Gender x Community Support	0.11	0.08	−0.06 –	0.27
Gender x SS – Friends/Adults	−0.13	−0.09	−0.34 –	0.08
Gender x Generativity	0.04	0.03	−0.14 –	0.22
Gender x Paternal Attachment	0.01	0.01	−0.16 –	0.17
Gender x Forgiveness	−0.03	−0.02	−0.19 –	0.13
Gender x Generous Behaviors	0.1	0.08	−0.05 –	0.26
Gender x Compassion	−0.01	−0.01	−0.19 –	0.17
Gender x Maternal Attachment	0.02	0.02	−0.18 –	0.23
Gender x SS – Immediate Family	0.01	0.01	−0.23 –	0.24
R^2 for Model	0.33			

Note: ***Statistical significance < 0.001; ** Statistical significance < 0.01; * Statistical significance < 0.05. The gender variable was dichotomized, with a higher value corresponding to "female." The Race/Ethnicity variable was dichotomized, with 1 = White Non-Latino and 0 = All other Youth of Color.

adaptive ways relating to later mental health issues and involvement with the justice system (Burke-Harris, 2018; Logan-Greene et al., 2017; Shonkoff et al., 2012). The coping measure in the current study might have served as an indicator of a third variable like stress and adversity that was driving higher rates of rule violating behaviors. The relationship between coping and rule violating behavior needs to be studied in more detail within this population especially given the high rates of adverse childhood experiences and the associated stress levels amongst the Appalachian population (Hege et al., 2020; Jeter 2019).

To date, sense of purpose among young people has been less well studied (Burrow et al., 2018). Research shows that adolescence is a time when peer relationships are centered and may play a key role in determining purpose (Berk, 2022) and of how young people think about generative roles (Hamby et al., 2018). Thus, in adolescence, these measures may perhaps be markers of involvement with unhealthy peer networks, a known risk factor for rule violating behaviors (Liu, 2023). More research is needed to better measure and understand these concepts in this developmental moment.

Further, the negative relationship with generative roles fits with other work using a resilience portfolio model examining interpersonal strengths like social support (Banyard et al., 2017; Hamby et al., 2019). Indeed, while connections to others can have positive impacts on mental health, they can also carry negative features like caregiver burden (Durden et al., 2007) or the influence of unhealthy social norms (Villalonga-Olives & Kawachi, 2017). The complexity of social networks and their impact on developmental outcomes needs more study (Holt-Lunstad & Uchino, 2019; Uchino et al., 2004; Williams-Butler et al., 2023).

Overall, the current study supports a portfolio approach to understanding resilience. Strengths within each portfolio domain were significant protective factors for rule violating behaviors. These strengths are potentially modifiable behaviors that could be incorporated into prevention programs in educational or community settings (Banyard & Hamby, 2022). For example, social emotional learning programs have shown efficacy in improving both interpersonal and regulatory skills in elementary and middle school samples. Longitudinal studies are needed to examine whether such effects might persist and reduce rule violating behaviors in adolescence and young adulthood. Opportunities for young people to engage in generative roles including community leadership positions may also be effective.

4.1. Limitations

There are a number of limitations to the current study. It is cross sectional and a geographically specific sample. Measures of rule violating behavior were retrospective for young adults in the sample and may be subject to recall biases. Although the current study took a portfolio approach and measured multiple strengths, there are many other malleable psychosocial strengths that might be examined in future research. More work on other strengths that may be relevant to young people and that were not currently captured in the current study are needed. The current study, with its focus on strengths, did not measure other potential confounding and possibly moderating variables such as antisocial peer norms and affiliations or impulsivity. Future research that includes these risk factors in addition to strengths variables are an important next step. Further, the word-of-mouth sampling strategy which is a well-established model for data collection (Mulvey et al., 2015; Velu & Nadu, 2009), may have affected the representativeness of the sample given the focus on self-report delinquency. Finally, the study only assessed two gender identities, male and female. Future research should explore protective factors among nonbinary youth and examine whether cisgender youth have different protective factors than transgender youth.

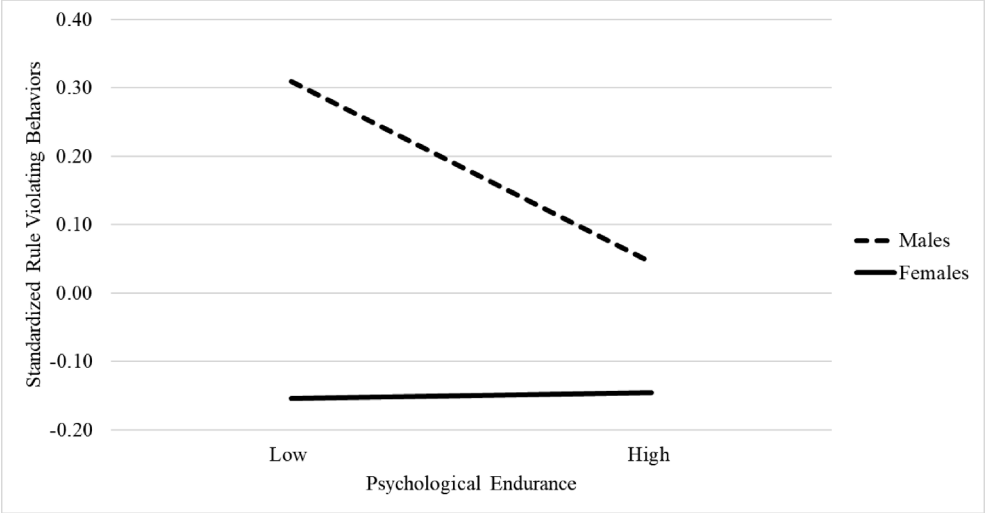

Fig. 1. Gender as a moderator between psychological endurance and rule violating behaviors.

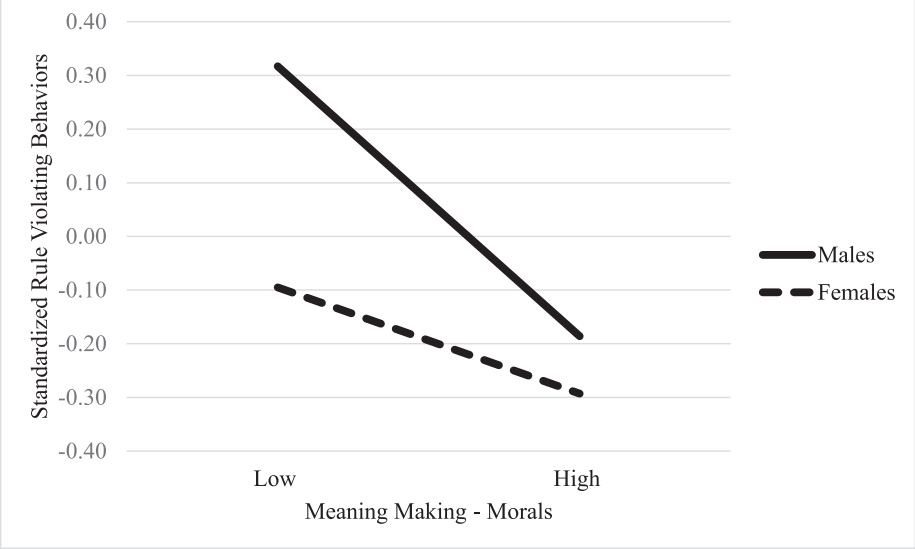

Fig. 2. Gender as a moderator between meaning making – morals and rule violating behaviors.

5. Conclusion

The current study represents an important examination of how the resilience portfolio model can help identify strengths that may reduce rule violating behavior among adolescents and young adults. It extends the study of strength portfolios beyond mental health outcomes. It also provides support for prevention programs that support resilience by teaching emotion regulation skills, providing opportunities to mentor and help others and strengthen community connections. More research must focus on the process of resilience and identifying protective factors in reducing rule violating behavior among adolescents and young adults. Understanding the role that gender plays in moderating these relationships—or not—is key in aiding prevention and intervention efforts to promote positive developmental outcomes within this population.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data are available from authors on reasonable request

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