Positive School Climate as a Moderator of Violence Exposure for Colombian Adolescents

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Abstract

In Colombia, many adolescents have experienced violence related to the decades-long armed conflict in the country and have witnessed or been directly victimized by violence in their communities, often related to gang activity or drug trafficking. Exposure to violence, both political and community violence, has detrimental implications for adolescent development. This study used data from 1,856 Colombian adolescents in an urban setting. We aim to understand the relations between exposure to violence and adolescent outcomes, both externalizing behaviors and developmental competence, and then to understand whether school climate (i.e., safety, connectedness, services) moderates these relations. Results demonstrate that armed conflict, community violence victimization, and witnessing community violence are positively associated with externalizing behaviors, but only armed conflict is negatively associated with developmental competence. School safety, connectedness, and services moderate the relation between community violence witnessing and externalizing behaviors. School services moderates the relation between community violence victimization and developmental competence. As students perceived more positive school climate, the effects of community violence exposure on outcomes were weakened. This study identifies potential levers for intervention regarding how schools can better support violence-affected youth through enhancements to school safety, connectedness, and services.

Keywords: community violence, armed conflict, externalizing behaviors, developmental competence, school climate, adolescence

Positive School Climate as a Moderator of Violence Exposure for Colombian Adolescents

Colombian adolescents have experienced violence related to the decades-long armed conflicts between guerilla groups, paramilitaries, and government armed forces in the country, which has resulted in death, severe physical and emotional trauma, and rampant displacement (Sanchez, 2007). Although the political dynamics in Colombia are continuously shifting and a peace agreement has been recently negotiated between the government and the largest guerrilla group, both direct and indirect effects of the conflict remain. Given the interconnectedness between the armed conflict, urban drug trade, and high rates of poverty, instability, and violent crime (Ibáñez Londoño & Moya, 2010), many youth join gangs and participate in micro-trafficking of drugs in cities (Angrist & Kugler, 2008). Therefore, many Colombian adolescents, even those who are have not experienced direct consequences of the armed conflict, have either witnessed or been directly victimized by violence in their communities (Chaux, 2002).

The relation between exposure to violence, both community violence and armed conflict, and developmental outcomes for adolescents has been well-documented (Barber & Schluterman, 2009; Overstreet, 2000), but few studies examine both community violence and armed conflict simultaneously. Many adolescents, however, are likely to experience multiple forms of violence in conjunction (Chaux, 2002). Thus, there is a need to identify the unique influences of various types of violence. Additionally, although most prior research has examined negative adolescent outcomes such as externalizing behaviors (i.e., delinquency, violence, drug and alcohol use; Bongers, Koot, van der Ende, & Verhulst, 2004), understanding influences on developmental competencies acknowledges the complex, multifaceted nature of development (L. H. Lippman, Ryberg, et al., 2014). Multiple conceptualizations of developmental competence have been advanced that address well-being across physical, psychological and emotional, social, cognitive, and spiritual domains (e.g., Ben-Arieh, 2008; Lerner, Almerigi, Theokas, & Lerner, 2005). Integrating both psychological and cognitive domains (L. H. Lippman, Ryberg, et al., 2014), our

conceptualization of developmental competence captures adolescents' cognitions and behaviors related to their education and future aspirations (i.e., educational engagement, hope, educational expectations, goal orientation). School-related competencies and future expectations are particularly salient during adolescence, when youth are developing and acting according to plans to achieve goals for a successful transition to adulthood (Eccles & Gootman, 2002; L. Lippman, Atienza, Rivers, & Keith, 2008). In addition, schools, which have been identified as an important context for fostering the positive development of violence-affected youth in Colombia, are particularly likely to be able to impact these competencies. Understanding how multiple forms of violence influence both adjustment-related difficulties and strengths is crucial to addressing critical gaps in current understanding regarding violence exposure and adolescent development.

It is also important to investigate potential contextual characteristics that may facilitate the reduction of the detrimental consequences of violence exposure on adolescent development, as such work can inform intervention and prevention efforts. Ecological resilience theory suggests that promotive processes within adolescents' social contexts can contribute to positive development despite exposure to violence (Tol, Jordans, Kohrt, Betancourt, & Komproe, 2013; Tol, Jordans, Reis, & de Jong, 2009). Resilience is fostered through interactions between the promotive processes within the social context and the adverse processes occurring as a result of the violence exposure, whereby the advantages of the promotive context buffer the negative implications of violence (Gaias, Lindstrom Johnson, White, Pettigrew, & Dumka, 2018). Guided by ecological resilience theory, the current study examines whether three dimensions of school climate (i.e., safety, connectedness, services) serve as protective factors in the relations between exposure to violence and externalizing behaviors and developmental competence. Prior research has found that school climate has important protective implications for violence-affected youth (O'Donnell, Roberts, & Schwab-Stone, 2011; Yablon, 2015). More research is needed, however,

in additional contexts and with more nuanced measures of school climate to identify ways in which schools can improve outcomes for adolescents exposed to violence.

Effects of Violence Exposure on Adolescent Development

Political violence. Political violence, such as the Colombian armed conflict, refers to hostile or aggressive acts meant to enact political or governmental change, and often involves both state and non-state actors (Mars, 1975). Political violence has detrimental implications for child and adolescent development. Most research regarding political violence and armed conflict has been conducted outside of the United States. In a review of 95 studies from across the world, Barber and Schluterman (2009) found that political violence has an overwhelming impact on a variety of negative outcomes for adolescents, including aggression, antisocial behavior, and depression. The few studies that examine developmental competencies have found mixed results (Muldoon & Trew, 2000; Rousseau, Drapeau, & Rahimi, 2003) with some studies demonstrating that political violence exposure was linked to higher competence, such as coping. Similarly, multiple studies have demonstrated great individual heterogeneity with regard to the impact of political violence on adolescents' aspirations and expectations for the future (Lavi & Solomon, 2005; Schwarzwald, Weisenberg, Solomon, & Waysman, 1997). Research conducted on the armed conflict in Colombia, however, has shown detrimental effects on both externalizing behaviors and developmental competence. Adolescents affected by the Colombian conflict are more likely to display diminished mental and socio-emotional health, condone retaliation and aggression, and exhibit lower educational attainment (Ardila-Rey, Killen, & Brenick, 2009; Kliewer, Murrelle, Mejia, Torres de G., & Angold, 2001).

It is important to note that the effects of political violence are not limited to the immediate time and location of the conflict. Previous research has found that conflict has implications for adolescents even in regions that have been less severely or directly impacted by warfare, and that the effects remain even after the conflict has ended (Keresteš, 2006). There are

significant spillovers from political violence, often due to financial and political instability, manifestations of violence throughout society and in the media, and particularly in the Colombian context, the pervasiveness of the cocaine trade (Meltzer & Rojas, 2002).

Community violence. Community violence has been defined as instances or threats of interpersonal harm within one's neighborhood or community (Kennedy & Ceballo, 2013), and has been associated with short-term emotional and behavioral challenges, as well with long-term mental health problems and financial instability (see Overstreet, 2000 for a review). Extensive research from urban areas within the United States suggests that community violence has a particularly strong effect on adolescent externalizing behaviors, including aggression, delinquency, and substance use (James, Donnelly, Brooks-Gunn, & McLanahan, 2018; Tache, Lambert, Ganiban, & Ialongo, 2018; J. J. Taylor et al., 2018; K. W. Taylor & Kliewer, 2006). In Colombia, Chaux, Arboleda, & Rincón (2012) found that witnessing community violence and exposure to gangs was directly associated with higher adolescent aggressive behaviors. Similarly, Caicedo & Jones (2014 found that community violence was indirectly associated with higher aggressive behaviors among adolescents via intervening mechanisms, including justification of violence, associations with deviant peers, and poor parenting.

Although the vast majority of research explores the effects of community violence and externalizing behaviors (Overstreet, 2000), there is some evidence to suggest an association between community violence and developmental competencies as well. Longitudinal research has indicated that higher levels of community violence predicts lower levels of school engagement and academic achievement (Borofsky, Kellerman, Baucom, Oliver, & Margolin, 2013). Multiple studies, mostly from the United States, have examined the effects of community violence of future orientation and hope, although these results have been mixed, with some research indicating a negative relation between these variables (Landis et al., 2007; So, Gaylord-

Harden, Voisin, & Scott, 2018), and other studies discovering null findings (Dutra-Thomé, DeSousa, & Koller, 2018; Ludwig & Warren, 2009).

Research on community violence often distinguishes between witnessing violence and violence victimization. Typically, victimization is conceptualized as the more proximal violence exposure experience, and thus, it is often hypothesized that victimization will have stronger implications for development than witnessing. Research in the US has found some evidence for this hypothesis. Within a US sample, Lynch & Cicchetti (1998) found that community violence victimization, but not witnessing, was associated with higher levels of traumatic stress and depressive systems and lower levels of self-esteem. However, a meta-analysis of 110 studies found that victimization was a stronger predictor of internalizing behaviors than witnessing, but there were no differences between the effects of victimization and witnessing on externalizing behaviors (Fowler, Tompsett, Braciszewski, Jacques-Tiura, & Baltes, 2009). More research that explicates the distinct contribution of victimization and witnessing is needed. In particular, minimal international research, and no research in Colombia to our knowledge, has examined the relative influence of witnessing violence and violence victimization on developmental outcomes.

The Role of School Climate as a Protective Factor for Violence Exposure

There is great interest from researchers and policy makers, to understand how to best reduce the consequences of violence exposure on adolescent development. Schools, and particularly the quality of a school's climate (Bradshaw, Waasdorp, Debnam, & Lindstrom Johnson, 2014), have been identified as important ecological contexts for building resilience. Limited research has studied the importance of school climate for adolescents affected by both political and community violence (for exceptions, see Benbenishty & Astor, 2005; Yablon, 2015). In Colombia, adolescents' perceptions of school climate have been related to developmental competence, including positivity (Luengo Kanacri et al., 2017).

Consistent with the ecological resilience theory, school climate has also been indicated as a moderator of violence exposure. For example, in Gambia, in the presence of positive school climate, the association between exposure to community violence and PTSD was reduced (O'Donnell et al., 2011). However, most previous literature examining the moderating effects of violence exposure have utilized broad conceptualizations of school climate; additional work is needed to identify more specific aspects of school climate that can serve as levers of intervention for schools to enhance resiliency. Additionally, most prior studies examine school climate as a moderator of community violence; more research is needed that examines whether school climate moderates experiences of armed conflict. The current study explores three aspects of school climate – safety, connectedness, services – that may buffer the negative effects of both armed conflict and community violence exposure on adolescent development.

Safety. Feeling socially, emotionally, and physically safe is a fundamental human need that motivates behavior (Maslow, 1943). School safety captures whether students' perceive their school to be a space where they feel physically and emotionally safe (Lindstrom Johnson, 2009). Without a sense of safety, students will be limited in their ability to perform, as they must focus on minimizing the threat of violence and victimization rather than engaging in learning. Previous research has demonstrated the positive implications of school safety on adolescent development (Jimmerson, Nickerson, Mayer, & Furlong, 2012), and has exhibited some evidence that safety may act as a moderator of violence exposure. Ozer and Weinstein (2004) found that as community violence increased, students who felt unsafe at school demonstrated reduced adaptive functioning, whereas those who felt safe at school demonstrated higher adaptive functioning.

Connectedness. In addition to feeling safe, adolescents also need to feel connected to others and perceive a sense of belonging in their environments (Maslow, 1943). The connections that students form with their school exerts an informal control on behavior, inhibiting deviant behaviors and enhancing social, emotional, and behavioral competencies (Hawkins & Weis,

1985). Research has shown that students who perceive greater school connectedness, consisting of positive relationships and a sense of belonging, are less likely to use substances or engage in violence and are more likely to have higher levels of well-being (Bond et al., 2007). In a study examining various individual, family, and school-level risk and protective factors, school connectedness was one of only two variables that were protective for all eight health risk behavioral outcomes (Resnick et al., 1997). One prior study has examined school connectedness as a moderator of community violence exposure and adolescent developmental competence. Ludwig & Warren (2009) found that community violence was significantly and negatively related to hope at low, but not average or high levels, of school connectedness.

Services. Finally, adolescents benefit from school services that address their mental, emotional, and behavioral needs. Schools have been identified as ideal locations to provide support for students' mental and socio-emotional health (Bruns et al., 2016). Scholars have called for mental, emotional, and behavioral services to not only serve as targeted interventions for students with psychological and behavioral challenges, but also to be integrated into the school climate by building capacity for non-clinical personnel to support students' personal, non-academic problems (Bruns, Walrath, Glass-Siegel, & Weist, 2004). For example, in the School Development Program (Haynes & Comer, 1990), mental health experts are tasked with both addressing individual student needs and improving the school climate. Teachers, administrators, and other personnel are also trained to promote students' social-emotional development. Such an approach may be especially important in under-resourced areas with limited access to clinical expertise, and may be particularly beneficial for violence-affected adolescents at high risk for developing mental health problems (Albus, Weist, & Perez-Smith, 2004). Despite the importance of school services, no research to our knowledge has examined services as a moderator of the relation between violence exposure and adolescent outcomes.

Present Study

The first aim of the current study was to explore the implications of violence exposure on adolescent development. We built on limitations of previous research by examining the unique effects of three aspects of violence exposure*: armed conflict*, *witnessing* community violence, and community violence *victimization* on both developmental competence (i.e., educational engagement, goal orientation, hope, educational aspirations) and externalizing behaviors (i.e., delinquency, violence, drugs and alcohol). Consistent with previous research, we hypothesized that all three aspects of violence exposure would positively predict externalizing behaviors. In addition, we also expected that community violence witnessing and victimization and armed conflict would negatively predict developmental competence. We theorize that adolescents exposed to high levels of violence, often beyond their control, likely perceive more hopelessness, less control over their future, and diminished aspirations; consequently, they may lose motivation to plan for the future and act according to these plans (Stoddard, Zimmerman, & Bauermeister, 2011). Adolescents in high-violence contexts may be less concerned with the long-term consequences of engaging in school and developing and executing goals, if they do not expect positive outcomes for the future.

Our second aim was to examine whether three aspects of school climate (i.e., safety, connectedness, services) served as moderators that fostered ecological resiliency for adolescents affected by violence. This contributes to gaps in current knowledge by exploring nuanced relations between three specific elements of school climate, exposure to violence, and positive and negative developmental outcomes, to better understand how to support youth affected by both armed conflict and political violence. We expected that the impact of violence exposure on development would be mitigated for students who perceived a positive school climate. We captured adolescents' perceptions of their contexts, given the importance of an individual's phenomenological experiences for driving development (Bronfenbrenner & Morris, 2006).

Method

Participants and Procedure

Data were collected from 1,857 sixth -11th grade students (52% female, n = 972) in six public high schools in an urban area of Colombia. Schools were recruited through word-of-mouth, with careful consideration given to enrolling schools who served students from diverse neighborhoods. In Colombia, students are assigned to a group at the beginning of the school year, and the group stays in one physical classroom, while subject-area instructors rotate into the classroom. Data were collected from students in 64 groups (~2 groups per grade, per school; potential N = 2,331), with an average of 36.4 students enrolled and 29.0 students participating from each group. The average participation rate from each group was 79.7%. Participation was well-distributed across grades, with the smallest number of seventh grade students (n = 284, 15.3%) and the largest number of ninth grade students (n = 354, 19.1%).

Surveys were completed anonymously and did not contain any identifying information. The study employed passive consent; parents of students in the selected groups were sent a letter explaining the purpose and procedures of the study before the scheduled data collection and could opt their child out of participation. Children were also able to decline participation through the assent process at the time of data collection. Parental opt-out forms were only received from 28 (1.5%) parents, and 25 (1.3%) students did not assent to participate. Students not in attendance during data collection also did not participate. Recruitment procedures were approved by the participating schools and the Institutional Review Board at the authors' university.

Data were collected in each school on either one or two days, depending on the school size. Each student completed a paper-and pencil questionnaire. Individualized assistance from a study team member was provided to students who had questions. The survey took between 20 minutes and an hour to complete. Each participating school received a contribution to a school improvement project that fulfilled a need identified by the director (e.g., recycling bins, printers).

Measures

Translation procedures. As all measures had originally been developed for use in the United States, we translated them into Spanish, and then established semantic equivalence (Knight, Roosa, & Umaña-Taylor, 2009), whereby the ideas expressed in each item were accurately conveyed in Spanish. We utilized a blind back-translational approach where the measures were translated into Spanish, and then back to English, by independent bilingual speakers. A review team then checked for any culturally inconsistent phrasing or wording. Finally, the questionnaires were piloted in one non-participating school that reflected the demographic characteristics and language ability of the target sample. Adjustments were made for wording that pilot students found confusing.

Externalizing behaviors. *Delinquency* was measured using 17 items from the Risky Behavior Measure (Eccles & Barber, 1990). Each item (e.g., "How many times in the past year have you gotten in trouble in school?") was measured on a four-point scale (0 = Never, 3 = More than 10 times). *Violent behaviors* were measured using four items from the Youth Risk Behavior Surveillance Survey (YRBSS; Center for Disease Control, 2017). Students were asked how many times they had been involved in a fight, carried a knife or gun, and injured someone in a fight in the past month. Each item was rated on a four-point scale (0 = Never, 3 = 5 times or more). *Drug and alcohol use* was measured using three items from the YRBSS (CDC, 2017). Students were asked how many times they had consumed alcohol, been drunk, or consumed drugs. Each item was rated on a four-point scale (0 = Never, 3= 5 times or more). Scores within a scale were summed to create indices (αs= .85, .73, .71, respectively).

Developmental competence. The scales measuring the indicators of developmental competence were developed as part of the Positive Indicators Project through the Child Trends Flourishing Children Project (L. H. Lippman, Moore, et al., 2014). Concurrent validity for each scale was established by assessing relations with cognitive abilities, health behavior, and socio-emotional well-being. *Educational engagement* captured the degree to which students

participated in, cared about, and were invested in academic activities (3 items; e.g., "If something interests me, I try to learn more about it."; $\alpha = .74$). *Goal orientation* referred to one's motivation and ability to take action toward future plans (5 items; e.g., "I develop step-by-step plans to reach my goals."; $\alpha = .77$). *Hope* referred to a general expectation that the future will turn out well (3 items; e.g., "I expect good things to happen to me"; $\alpha = .86$). *Educational aspirations* referred to adolescents' expectations for their future attainment (2 items; e.g., "Do you plan to attend college?"). All items were measured on a four-point scale (1 = Totally disagree, 4 = Totally agree) and items within a scale were averaged to represent higher levels of each indicator of competence.

School climate moderators. All components of school climate were measured using the Spanish version of the US-based Maryland Safe and Supportive Schools School Climate Survey, previously validated in Mexico (Bradshaw et al., 2014; Shukla et al., 2007). All items were measured on a four-point scale (1 = Strongly disagree, 4 = Strongly agree). Items for each scale were averaged and coded so that higher levels of the school climate dimension represented a more positive school climate. The *safety* scale contained two items that capture students' feelings of security at school (i.e., "I feel safe at this school.", "I feel safe going to and from school."; $\alpha = .74$). The *connectedness* scale contained nine items ($\alpha = .84$) that captured students' perceptions of their relationships with teachers (e.g., "Students trust teachers"), relationships amongst students (e.g., "The students respect one another"), and belonging (e.g., "At this school, I feel like I fit in"). The *services* scale contained four items ($\alpha = .75$) that addressed how well students perceived that their socio-emotional needs were met at school (e.g., "Teachers at this school help students with their problems").

Exposure to violence predictors. *Victimization* was measured using the neighborhood subscale of the Victimization Scale (Nadel, Spellmann, Alvarez-Canino, Lausell-Bryant, &

Landsberg, 1996). Adolescents reported on 7 items (e.g., "In your neighborhood, how often have you been a victim of a robbery?") measured on a 4-point scale (0 = Never to 3 = Many times). *Witnessing* was measured using the Children's Exposure to Community Violence scale (Richters & Martinez, 1990). Adolescents reported on 17 items (e.g., "In your neighborhood, how often have you seen gangs?") measured on a 4-point scale (0 = Never to 3 = Many times). *Armed conflict exposure* was assessed using an adaptation of the Childhood War Trauma Questionnaire (Macksoud, 1992). Adolescents reported on 16 items indicating whether they had experienced various situations due to the armed conflict (e.g., forced residence change, kidnapping). Scores within a scale were summed to create indices of victimization, witnessing, and armed conflict exposure. For armed conflict exposure, 98% of children had experienced 5 or less situations; therefore, any scores above 5 (n = 46) were truncated; final scores could range from 0 to 5.

Covariates. Students reported on their grade (i.e., 6^{th}-11^{th}), sex (Females = 0, Males = 1), and mothers' and fathers' education level (1 = did not finish primary school, 7 = finished graduate school), which were averaged to create an indicator of parental education.

Analytic Plan

Preliminary analyses. We conducted preliminary analyses including descriptive statistics, frequencies, and correlations using SPSS 24. We assessed the univariate normality and outliers by examining descriptive statistics, histograms and frequency charts.

Structural equation model. To address the study aims, we utilized structural equation modeling, with a series of analyses conducted in Mplus 8.1.5 (Muthén & Muthén, 2017). The maximum likelihood- robust estimator was employed to account for non-normality in the data. Missing data were handled using Full Information Maximum Likelihood, which minimizes bias in parameter estimates but retains the original sample size (Enders, 2010). Missing data on key study variables ranged from 1% (delinquency, victimization) to 13.2% (school safety). All but

five variables had missingness below 5%, and all but three variables had missingness below 10%. The rate of missingness for each variable is presented in Table 1.

We controlled for the nested structure of the data within schools, by including school membership as fixed effects (i.e., dummy codes) in the model. This has been shown to be the optimal way to control for Level 2 variance with a small number of clusters (McNeish & Stapleton, 2016). All path models included grade, age, gender, parental level of education, and school membership as covariates. Considering that exposure to violence varies by sex, age, and socio-economic status (Stein, Jaycox, Kataoka, Rhodes, & Vestal, 2003), these demographic characteristics were allowed to covary with the three exposure to violence variables in all models. The three exposure to violence variables were allowed to covary with one another.

All predictors and moderators were centered prior to running analyses. Models were considered to fit adequately if the comparative fit index (CFI) and Tucker Lewis Index (TLI) were greater than .90 and the root-mean-square-error of approximation (RMSEA) and standardized root-mean-square residual (SRMR) were less than .06 (Hu & Bentler, 1999).

Measurement model. Before testing relations between variables of interest, we established a measurement model for the two latent outcomes utilizing a confirmatory factor analysis. The externalizing behaviors latent factor included three indicators: delinquency, violence, and risky behavior. The developmental competence latent factor included four indicators: educational engagement, hope, goal orientation, and educational expectations.

Hypothesis testing. After establishing the measurement model, we developed full path models. First, to understand the influence of violence exposure on adolescent functioning, we regressed the two latent outcomes on three predictors (i.e., exposure to armed conflict, violence victimization, and witnessing violence). Second, we were interested in exploring how school safety, connectedness, and services moderated the influence of armed conflict exposure, and community violence victimization and witnessing on externalizing behaviors and developmental

competence. Exploring safety, connectedness, and services as independent moderators allowed us to identify specific aspects of school climate that may serve as levers for future intervention. Conducting 18 moderation tests, however, would increase the risk of obtaining Type-1 errors (Cohen, Cohen, West, & Aiken, 2003). To reduce this possibility, we first ran an omnibus moderation test (Frazier, Tix, & Barron, 2004; Pettigrew et al., 2015), where each exposure to violence variable was interacted with a latent school climate variable with safety, connectedness, and services as indicators, to predict externalizing behaviors and developmental competence. These tests helped rule out the possibility that none of the 18 effects were significant. Any non-significant omnibus tests were eliminated from future models to reduce the possibility of capitalizing on chance significance when testing specific moderators. For significant omnibus tests, we then conducted analyses to explore the moderating effects of each school climate variable (Aiken, West, & Reno, 1991). For any significant omnibus tests, we tested interactions between the significant violence predictor(s) and the three school climate moderators independently. Significant interactions were probed using the model constraint function, testing the effect of violence exposure at one standard deviation above and below the mean of the climate moderator.

Results

Descriptive Statistics

Descriptive statistics (Table 1) revealed that on average students did not report high levels of violence exposure or externalizing behaviors, with means far below the highest observed and possible values. Also, on average students perceived high levels of safety, connectedness, and services in their schools. Indicators of developmental competence were also high, with all averages within one point of the scale maximum. Correlations between study variables were weak to moderate, but in the expected directions.

Measurement Model

The measurement model demonstrated good fit to the data ($\chi^2(13) = 24.11$, p = .03, RMSEA = .02 [.01, .04], SRMR = .02, CFI = .99, TLI = .99). All indicators positively loaded onto expected factors (*p*s < .001). All indicators had standardized loadings over .55. The two latent variables were inversely correlated (*r* = -.13, p < .001).

Main Effects Model

The first aim was to determine whether armed conflict, victimization, and witnessing predicted externalizing behaviors and developmental competence. This model (Figure 1) demonstrated adequate fit to the data. All three dimensions of exposure to violence positively predicted externalizing behaviors, such that a 1-*SD* increase in witnessing was associated with a .47-*SD* increase in externalizing behaviors, a 1-*SD* increase in victimization was associated with a .23-*SD* increase in externalizing behaviors, and a 1-*SD* increase in exposure to armed conflict was associated with a .16-*SD* increase in externalizing behaviors. For developmental competence, only armed conflict was a significant predictor, whereby a 1-*SD* increase in exposure to armed conflict was associated with a .08-*SD* decrease in developmental competence.

Omnibus Moderation Model

The second research question addressed whether three dimensions of school climate moderated the relation between exposure to violence and developmental outcomes. To reduce the risk of obtaining Type 1 errors (false positives), we first conducted an omnibus moderation model (see Table 2). Witnessing was significantly moderated by school climate for externalizing behaviors (B = -.03, SE = .01, β = -.12, *p* = .03), and victimization was marginally moderated by school climate for developmental competence (B = -.03, SE = .02, β = -.07, *p* = .08). Exposure to armed conflict was not moderated by school climate for either outcome.

Interaction Probes by School Climate Dimensions

To explore which particular aspects of school climate moderated the relations between (a) witnessing and externalizing behaviors and (b) victimization and developmental competence, an individual model was run for each aspect of climate. Each model included the three exposure to violence variables, the three covariates, the focal dimension of school climate, and the interaction terms predicting both outcomes. All three models demonstrated adequate fit to the data (Safety: $\chi^2 = 418.743(106)$, $p < .001$, RMSEA = .040[.036, .044], SRMR = .035, CFI = .911, TLI = .900; Connectedness: $\chi^2 = 452.939(106)$, $p < .001$, RMSEA = .042[.038, .046], SRMR = .037, CFI = .904, TLI = .892; Services: $\chi^2 = 339.301(106)$, $p < .001$, RMSEA = .034[.030, .039], SRMR = .029, CFI = .933, TLI = .925).

Higher levels of safety, connectedness, and services were associated with higher levels of developmental competence and lower levels of externalizing behaviors (Table 2). Services and connectedness were significant moderators and safety was a marginally significant moderator of the relation between witnessing and externalizing behaviors. Services was a marginally significant moderator of the relation between victimization and developmental competence.

Examinations of the simple slopes revealed that witnessing significantly predicted externalizing behaviors at high (mean + 1SD), average, and low (mean - 1SD) levels of safety ($B_H = .07(.01)$; $B_A = .09(.01)$, $B_L = .11(.01)$; ps < .001), connectedness ($B_H = .08(.01)$; $B_A = .09(.01)$, $B_L = .10(.01)$; ps < .001), and services ($B_H = .07(.01)$; $B_A = .09(.01)$, $B_L = .11(.01)$; ps < .001), but the strength of these associations decreased as positive perceptions of school climate increased. Additionally, at high (B = .01(.01), p = .23) and average (B = -.01(.00), p = .26) levels of services, victimization did not predict developmental competence; however, at low levels of services, victimization negatively predicted developmental competence (B = -.02(.01), p = .045).

Discussion

This study aimed to test the relations between violence exposure and adolescent outcomes in Colombia, and to understand the role of school climate in mitigating the effects of violence on externalizing behaviors and developmental competencies. We found that community violence witnessing and victimization, and experiences of armed conflict were all positively associated with adolescent externalizing behaviors. Only armed conflict was negatively related to developmental competence. We found moderation of the relation between witnessing community violence and externalizing behaviors by safety, connectedness, and services, whereby the positive relation between witnessing and externalizing was weaker, though not eliminated, for adolescents who perceived higher levels of positive school climate. We also found that services moderated the relation between victimization and competence, whereby victimization was only negatively related to competence at low levels of school services.

Influence of Violence Exposure on Adolescent Outcomes

One objective of this study was to isolate the independent effects of community violence exposure, including witnessing and victimization, and experiences of armed conflict, particularly in a context where the underlying causes of each type of violence may be interrelated. This augments prior research, which typically has examined community violence and political violence independently from the another. The results of this study demonstrate that all three forms of violence are positively associated with adolescents' externalizing behaviors. Violence exposure may provide behavioral models for deviant behavior, increase adolescent's justification of these behaviors, and desensitize adolescents to the effects of violence (Mrug & Windle, 2009).

Both community violence variables were stronger predictors of externalizing behaviors than armed conflict. This may be related to the cross-sectional nature of the data; children who demonstrate more externalizing behaviors are more likely to be in situations where they are exposed to violence (O'Keefe, 1997). The strength of these relations is also likely affected by the proximity of the different types of violence to adolescents' lived experiences. Experiences of

armed conflict, although often very severe, may constitute acute one-time events, whereas community violence is often a more chronic stressor (Lambert, Nylund-Gibson, Copeland-Linder, & Ialongo, 2010). In this study, data were collected as Colombia was entering a post-conflict period, which may have attenuated the impact of exposure to armed conflict. Also, this study only included adolescents in an urban area that was not directly impacted by the armed conflict. The adolescents in this study who experienced armed conflict events were no longer situated in the conflictual environment at the time of data collection. It will be important to replicate these findings with adolescents with more prolonged direct exposure to armed conflict.

Despite the fact that these armed conflict events were more distal to the current lived experiences of the participating adolescents, armed conflict exposure was the only significant predictor of developmental competence. Although community violence witnessing and victimization were strongly associated with externalizing behaviors that capture more immediate, concurrent behaviors, these experiences do not seem to alter adolescents' perceptions of their own competencies and future expectations. It is possible that chronic community violence exposure is considered a normative experience to adolescents in this context, and therefore has less of an impact on students' expectations for the future and how their current behaviors may affect those expectations. This result is consistent with some prior research that has found null results regarding the relation between community violence exposure and hope and self-esteem (Dutra-Thomé et al., 2018; Ludwig & Warren, 2009), constructs which are similar to our conceptualization of developmental competence.

In contrast, armed conflict events, however acute, may be severe enough in nature to affect an adolescent's outlook regarding their personal, relational, and educational skills (Macksoud, 1992).This finding contributes to a very mixed and limited body of literature examining the effects of political violence on positive developmental outcomes (Barber & Schluterman, 2009). It is possible that the effects of armed conflict on positive indicators of

developmental competence are sensitive to the timing and degree to which participants have experienced or been involved with the conflict, which vary greatly across studies. By utilizing a latent variable that represents multiple indictors of competence, this study more broadly captures what constitutes positive adolescent functioning than prior studies.

Role of School Climate

The primary objective of the current study was to understand whether school climate mitigated the negative implications of violence exposure for adolescents in Colombia. However, it is also important to note that the main effects of safety, connectedness, and services were significantly associated with adolescent outcomes, indicating that regardless of exposure to violence, students who perceive higher levels of positive school climate also report lower levels of externalizing behaviors and higher levels of developmental competence. This is consistent with extant research that has shown the benefits of school safety, connectedness, and services for enhancing students' socio-emotional competencies (Bradshaw et al., 2014).

Beyond the implications of school climate for the general student population, this study demonstrates support for ecological resilience theory (Tol et al., 2013), suggesting that promotive processes within school contexts can mitigate the detrimental effects of violence exposure. Significant results were found in relation to community violence exposure. The interactions that emerged for both witnessing and victimization reflected an amplified disadvantages mechanism (Gaias et al., 2017), whereby the detrimental effects of community violence were particularly profound at low levels of safety, connectedness, and services. This is consistent with theory and prior research (Whipple, Evans, Barry, & Maxwell, 2010) suggesting that youth who experience higher levels of adversity in multiple contexts are at risk for decreased socio-emotional well-being.

We examined school safety, connectedness, and services as independent moderators to explore whether there were specific aspects of school climate that could serve as levers for

intervention. With regard to the relation between witnessing and externalizing, however, all three aspects emerged as moderators and operated similarly. As students perceived higher levels of safety, connectedness, and services, the relation between witnessing and externalizing was weakened, but not fully alleviated. Although many studies have identified school climate to be important within high-violence contexts (e.g., Payne, Gottfredson, & Gottfredson, 2003), this study is one of the first to identify these aspects of climate as moderators of witnessing violence (for exceptions, see Ludwig & Warren, 2009; Ozer & Weinstein, 2004).

The three school climate aspects did operate differently with regard to the relation between victimization and developmental competence, as only school services emerged as a moderator. Community violence victimization hindered developmental competence at low, but not average or high levels of school services. Not providing students who have experienced victimization in their communities with support for mental, emotional, and behavioral needs may have detrimental impacts on their perceptions of their own competencies and outlook toward the future. Students in high-conflict settings may already perceive their schools to be supportive contexts compared to other community locations (Frey, Ruchkin, Martin, & Schwab-Stone, 2009), so having school personnel who are equipped to respond to the needs of victimized students may be an effective way to enhance developmental competence. It is important to note that the measure of services utilized in this study was not meant to capture the presence of mental health professionals within the schools, underscoring the importance of integrating services into the norms and values of the school.

We did not find that any aspects of school climate moderated the effects of armed conflict. Although this finding contradicts ecological resilience theory, which proposes that school contexts is an important source of resiliency for youth affected by political violence, the empirical evidence for this theory is limited, as most prior research has examined school climate as a moderator of community violence exposure (Tol et al., 2013). Due to the severity of the

armed conflict, mitigating the effects of this type of violence exposure may require more tailored interventions that explicitly address the circumstances of the conflict or target the individual needs and backgrounds of conflict-affected students, beyond improving the general school climate. For example, Jordans and colleagues (2010) found positive effects of a classroom based intervention that explicitly addressed positive coping, trauma, and safety for improving socio-behavioral outcomes and positive wellbeing in early adolescents affected by violence in Nepal. In Colombia, a multi-tiered elementary school prevention initiative called *Aulas en Paz* (Classrooms in Peace) that provides both universal and targeted programming to enhance citizenship competencies, promote peace, and prevent violence (Chaux, 2009) led to reductions in aggressive behavior and improvements in prosocial behavior (Chaux et al., 2017). It is possible that comprehensive approaches that explicitly address trauma and violence are necessary to enhance development for youth affected by armed conflict.

In addition, as compared to community violence, the events of the armed conflict are likely more distal to the school environment. Because schools are situated within high-violence communities, school personnel likely have regular experiences coping with community violence and may be able to utilize these experiences to respond to students' own challenges. This embeddedness may increase students' perceptions that their schools can respond to their community experiences. This is less likely the case for students exposed to armed conflict. Also, mitigating the effects of armed conflict may require targeting the individual needs of conflict-exposed students.

Implications

The current study presents several implications for school practices. The results demonstrate that improving school safety, connectedness, and services will likely enhance development for all students, and may be particularly important for those exposed to community violence. In addition to investing resources and training teachers to improve school climate for

all students, it may be important to help teachers understand and recognize the consequences of violence exposure so they can enhance the school experience for violence-affected students.

Improving school climate involves implementing strategies at multiple levels. Although previous research has typically conceptualized climate holistically, recent work, such as this study, focuses on targeting specific aspects of climate (see Voight & Nation, 2016 for a review). Perceptions of safety can be improved by establishing clear and well-enforced school rules and improving the physical environment of the school (Lindstrom Johnson, 2009). Connectedness may be enhanced by improving relationships among students and teachers and increasing students' participation in school decisions (Center for Disease Control and Prevention, 2009). There may be an opportunity to facilitate connectedness in Colombia, as students spend their whole school day with the same group of classmates. Because school services emerged as a moderator of both witnessing and victimization, this study emphasizes the importance of services for violence-affected youth. These practices may include training school personnel on adolescent socio-emotional development, increasing the number of mental health professionals available, and conducting universal screening for mental health problems (Bruns et al., 2016). Some of this translational work has already begun as a result of this study. For example, the first author has conducted workshops in Colombia with participating schools, local researchers, policy makers, and community stakeholders about the ways school climate can impact violence-affected youth.

Limitations and Future Directions

Although this study offers important new evidence regarding the relation between exposure to violence, school climate, and adolescent outcomes, it is not without limitations. The data were cross-sectional and prevent us from drawing any causal interpretations of the results. Also, the data used in this study were entirely self-report. Although this captures adolescents' phenomenological experiences, this study would be enhanced by including other sources of data. Additionally, with a larger number of schools, we would have been able to test school-level

effects, both in terms of the aggregation of student's perceptions as well as structural characteristics of the schools and the communities. Also, the measurement of violence exposure was broad; we asked students how frequently they experienced community violence, but did not capture the intensity of these experiences, specify a timeline for these experiences, or identify who perpetrated the violence. More detailed assessments of violence exposure would provide more insight into these experiences and inform more tailored interventions.

An additional limitation concerns the generalizability of the findings. This study was situated within a specific geographic and temporal context. The relatively large sample size and the consistency of these results with theory and previous research findings increases confidence that these results are not entirely unique to Colombian adolescents. However, it is important for future research to simultaneously examine the effects of political violence and community violence on adolescent development and to replicate the findings regarding the importance of safety, connectedness, and services, perhaps through a cross-national study.

Conclusion

This study contributes new understandings regarding the impact of violence exposure on adolescent developmental outcomes and the role of school climate in mitigating these impacts. Given the consequences of violence exposure, identifying mechanisms to reduce externalizing behaviors and promote competence is essential. This study enhances the literature in a number of ways, including examining multiple forms of violence exposure simultaneously, investigating both positive and negative developmental outcomes, and identifying specific dimensions of school climate that may facilitate resilience in violence-affected youth. This study was conducted in an understudied context and has direct implications for Colombia as the country enters a post-conflict period and seeks solutions for socializing peace among youth. Despite the focus on the Colombia, we believe that the results of this study can inform school-climate based interventions in contexts in which adolescents are exposed to both political and community violence.

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1. Arm Con	1															
2.Witness	.32**	1														
3. Victim	.29**	.40**	1													
4. Delinq.	.29**	.49**	.40**	1												
5. Violent	.27**	.42**	.30**	.55**	1											
6. Drugs	.23	.46**	.27**	.51**	.47**	1										
7. Ed. Engage	-.03	-.01	.01	-.10**	-.04	-.06**	1									
8. Goals	-.09**	-.03	-.02	-.05	-.06*	-.03	.36**	1								
9. Hope	-.09**	-.06*	-.04	-.08**	-.05*	-.08**	.41**	.56**	1							
10. Ed. Asp.	-.08**	-.06*	-.07**	-.05*	-.06*	-.08**	.39**	.53**	.52**	1						
11. Safety	-.09**	-.10**	-.13**	-.25**	-.10**	-.12**	.33**	.14**	.20**	.13**	1					
12. Connect	-.08**	-.08**	-.14**	-.25**	-.13**	-.13**	.33**	.20**	.22**	.22**	.52**	1				
13. Services	-.07**	-.08**	-.06*	-.23**	-.15**	-.14**	.30**	.20**	.22**	.20**	.40**	.57**	1			
14. Grade	-.07**	.15**	.12**	.24**	.02	.20**	-.02	.10**	.04	.09**	-.21**	-.21**	-.18**	1		
15. Sex	.04	.12**	.01	.13**	.15**	.09**	-.06*	-.04	-.06*	-.07**	.06*	.12**	.05*	-.04	1	
16. PED.	-.06*	-.10**	-.07**	-.01	.00	-.02	-.00	.03	.05	.04	.01	-.02	-.03	.01	.06*	1
N	1808	1830	1838	1838	1819	1827	1696	1644	1630	1679	1611	1772	1758	1857	1847	1540
Mean	.93	14.89	2.41	7.51	.74	1.40	3.57	3.83	3.60	3.70	3.25	3.07	3.12	8.54	.47	3.31
SD	1.40	7.70	3.07	6.49	1.50	1.97	.54	.43	.60	.54	.77	.55	.69	1.68	.50	1.62
Min	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	6	0	1.00
Max	5.00	48.00	19.00	42.00	12.00	9.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	11	1	7.00
% Missing	2.6%	1.5%	1%	1%	2%	1.6%	8.7%	11.5%	12.2%	9.6%	13.2%	2.4%	4%	0%	0.5%	17.1%

Table 2.
Results of structural equation models testing for moderation of exposure to violence variables by school climate.

	Externalizing Behaviors			Developmental Competence		
	B(SE)	Beta	95% CI	B(SE)	Beta	95% CI
Omnibus Model						
School Climate	-.40(.07)***	-.26	[-.54, -.27]	.57(.06)***	.48	[.46, .68]
School Climate x Armed Conflict	-.06(.04)	-.05	[-.13, .02]	-.01(.03)	-.01	[-.07, .05]
School Climate x Witnessing	-.03(.01)*	-.12	[-.05, -.00]	.00(.01)	-.07	[-.01, .02]
School Climate x Victimization	-.03(.02)	-.06	[-.08, .01]	-.03(.02)+	.03	[-.06, .00]
Safety Model						
Safety Main Effect	-.24(.05)***	-.13	[-.34, -.14]	.46(.06)***	.33	[.33, .58]
Safety x Witnessing	-.01(.01)+	-.06	[-.03, .00]	N/A	N/A	N/A
Safety x Victimization	N/A	N/A	N/A	-.02(.02)	-.05	[-.05, .01]
Connectedness Model						
Connectedness Main Effect	-.42(.07)***	-.16	[-.56, -.29]	.77(.07)***	.38	[.63, .91]
Connectedness x Witnessing	-.02(.01)*	-.06	[-.04, -.00]	N/A	N/A	N/A
Connectedness x Victimization	N/A	N/A	N/A	-.02(.02)	-.04	[-.07, .02]
Services Model						
Services Main Effect	-.33(.06)***	-.15	[-.30, -.16]	.58(.06)***	.36	[.46, .70]
Services x Witnessing	-.03(.01)*	-.08	[-.03, -.00]	N/A	N/A	N/A
Services x Victimization	N/A	N/A	N/A	-.03(.02)+	-.06	[-.06, .00]

Note. *** p < .001, ** p < .01, * p <.05, + p < .10; N/A = Not assessed. Safety

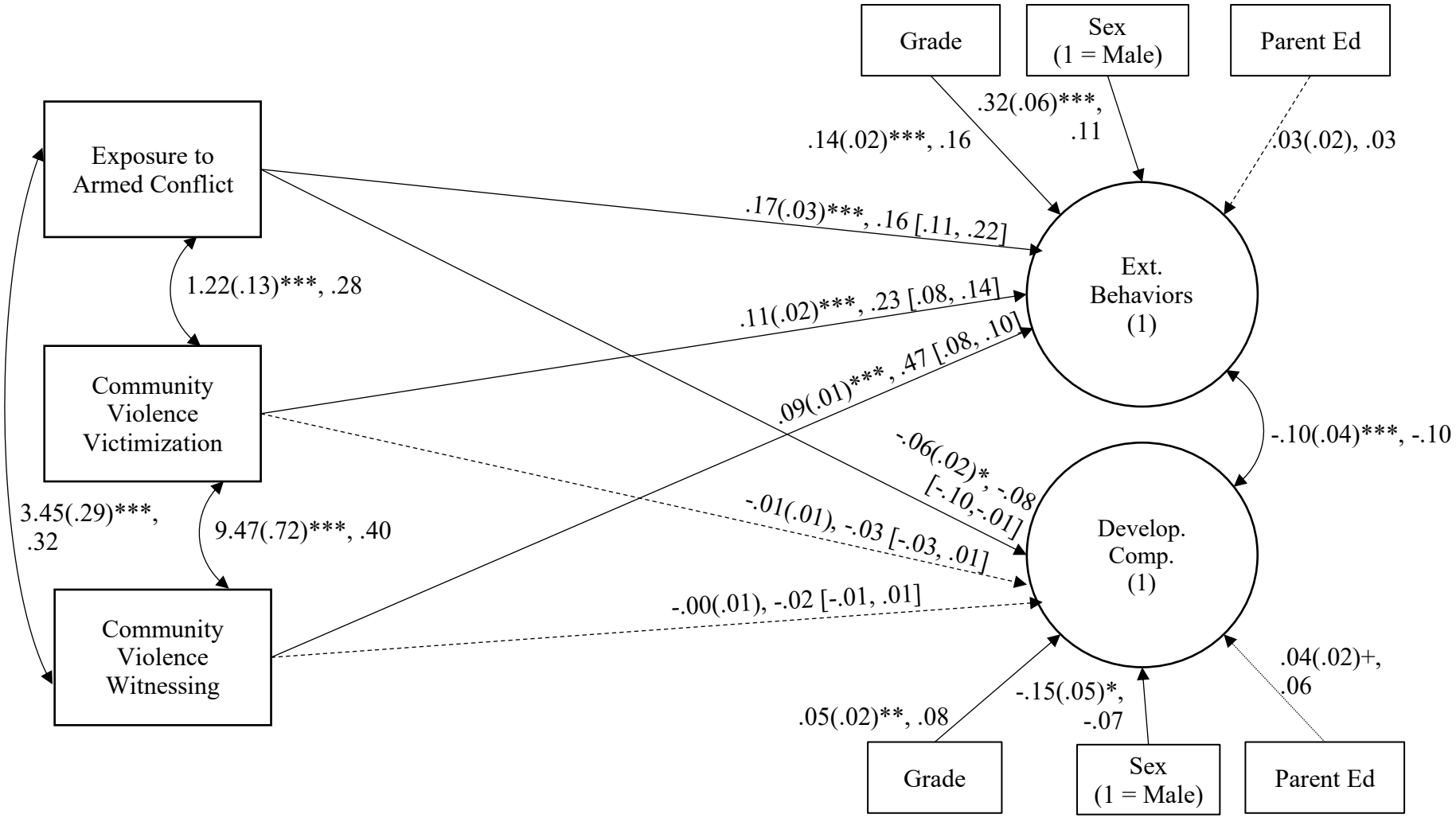

Figure 1. Structural equation model examining exposure to violence predicting externalizing behaviors and developmental competence. Unstandardized parameter estimates are presented first, with standard errors in parentheses, and standardized betas following the comma. 95% confidence intervals are presented in brackets for paths of interest. Solid lines indicate significant paths (*** p < .001, ** p < .01, * p <.05). Dotted lines indicate marginal paths (+p < .1). Dashed lines refer to non-significant paths $\chi^2(71) = 236.99$, p < .001, RMSEA = .035 [.031, .041], SRMR = .02, CFI = .95, TLI = .93