The Moderating Role of Resiliency on the Negative Effects of Childhood Abuse for

Adolescent Girls Involved in Child Welfare

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Abstract

Child abuse is associated with a number of negative psychosocial outcomes, including mental health problems, substance abuse, and interpersonal violence. Yet some children thrive or “adapt well” despite experiencing abuse; researchers are increasingly interested in the protective factors and mechanisms that may prevent negative outcomes. The purpose of this study was to explore the role of resiliency characteristics in the relationship between childhood abuse and the negative outcomes of depression, posttraumatic stress disorder (PTSD), substance abuse, and revictimization in adolescent girls involved in child welfare. Participants were 237 adolescent girls ages 12 – 19 years (*M* = 14.9, *SD* = 1.6), and who were youths of color (75%) and white (25%). Data were collected through surveys assessing histories of physical, sexual, and emotional child abuse; symptoms of posttraumatic stress and depression; lifetime substance use; and experiences of physical, verbal, and relational revictimization in the last three months. All forms of childhood abuse were significantly associated with symptoms of depression and PTSD as well as revictimization and substance use. Higher levels of resiliency were associated with fewer depression and PTSD symptoms and experiencing less revictimization. Resiliency significantly moderated the relationship between sexual abuse and depression, PTSD, and revictimization. Resiliency also moderated the relationship between emotional abuse and depression. No significant interactions emerged in the relationship between physical abuse and any of the mental health and behavioral problems. This study suggests that resiliency may serve as a protective factor in the relationship between abuse (sexual and emotional) and depression, PTSD, and revictimization during adolescence.

*Keywords:*resiliency, adolescence, child abuse, posttraumatic stress, depression, revictimization

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1. Introduction

Childhood abuse may be the most severe environmental threat to normal healthy development for children (Cicchetti, 2013); unfortunately childhood abuse and neglect are common in the United States. Recent prevalence rates indicate that one in eight children under 18 years of age has experienced at least one form of neglect or physical, sexual, or emotional abuse (Wildeman et al., 2014). Childhood abuse has been associated with a number of serious mental health outcomes, including posttraumatic stress and depression (Brewin, Andrews, & Valentine, 2000; Gilbert et al., 2009; McMillen et al., 2005), and adolescent females are at increased risk for negative outcomes compared to males (Auslander, McMillen, Elze, Thompson, & Stiffman, 2002; Edmond, Auslander, Elze, McMillen, & Thompson, 2002). Child abuse is also associated with a number of negative behavioral outcomes such as heightened risk for substance use and abuse across the lifespan (Cicchetti, 2013; Dube et al., 2003; Kilpatrick et al., 2003) and multiple types of revictimization (Desai, Arias, Thompson, & Basile, 2002; Irwin, 1999; Schaaf & McCanne, 1998; Widom, Czaja, & Dutton, 2008).

Recent research on survivors of child abuse has focused on resiliency characteristics, defined as psychological attributes of an individual which may protect against negative consequences (Edwards, Probst, Rodenhizer-Stämpfli, Gidycz, & Tansill, 2014; Wingo, Ressler, & Bradley, 2014). Despite considerable evidence linking negative mental health and behavioral outcomes with a history of childhood abuse, negative consequences are not inevitable. Previous studies have shown that many adults with histories of childhood abuse report positive outcomes in multiple domains of functioning (Collishaw et al., 2007; DuMont, Widom, & Czaja, 2007; McGloin & Widom, 2001). A growing body of research has examined factors and mechanisms that may have a protective effect against the negative outcomes associated with childhood abuse (Cicchetti, 2013; Haskett, Nears, Ward, & McPherson, 2006; Ong, Bergeman, Bisconti, & Wallace, 2006; Windle, Bennett, & Noyes, 2011).

In spite of this growing demand to understand what protects children in the face of extreme stress, there has been little consensus on the conceptualization of resilience. The term is often used to describe survivors of hardship who cope successfully and achieve positive outcomes in spite of significant challenges (Zolkoski & Bullock, 2012); however, in addition to being conceptualized as an outcome, resilience can also be considered as a trait, a process, or the adaptive capacity of multiple systems in an individual’s life (Masten, 2011; Southwick, Bonanno, Masten, Panter-Brick, & Yehuda, 2014). For this study, resilience was defined as intrapersonal characteristics such as perseverance and self-reliance that allow an individual to adapt to adversity (Wagnild & Young, 1993). Within a socio-ecological model, resiliency characteristics are therefore considered to be a protective factor for child welfare-involved adolescent girls. In this perspective, the “emotional stamina” associated with resiliency characteristics develops over time and can be strengthened; individuals with high levels of resiliency characteristics are able to flexibly draw upon a range of problem-solving strategies in the face of difficult circumstances (Wagnild, 2011; Wagnild & Young, 1993).

Resiliency characteristics in adolescents have been associated with positive behavioral and mental health outcomes. In the general population, higher resiliency levels in adolescents have been significantly associated with lower levels of anxiety, depression, and stress; and resilient adolescents have been found to be less likely to engage in risky behaviors such as substance use (Ali, Dwyer, Vanner, & Lopez, 2010; Hjemdal, Vogel, Solem, Hagen, & Stiles, 2011; Veselska et al., 2009). In an at-risk homeless population of adolescents, those considered resilient were better able to avoid life-threatening behaviors and felt more hopeful and less lonely compared to those with lower levels of resiliency (Rew, Taylor-Seehafer, Thomas, & Yockey, 2001).

Resiliency has also been found to moderate the negative impact of child abuse on mental health and behavior, although the majority of studies rely on retrospective reports of abuse histories from adult samples. In studies with young adult college students, resiliency characteristics moderated the relationship between childhood abuse and psychological distress; at high levels of resiliency, psychological distress was low regardless of the number of types or severity of childhood abuse (Campbell-Sills, Cohan, & Stein, 2006; Edwards et al., 2014). Results from other studies demonstrated that resiliency characteristics mitigated the effects of childhood abuse on depression in an urban adult population in the United States (Wingo et al., 2010) and in a community-based sample of adults in Germany (Schulz et al., 2014).

Research on the role of resiliency as a moderator of the relationship between childhood abuse and mental health and behavioral outcomes in adolescence has been limited, particularly among child welfare-involved youth. In one of the few studies of adolescents, resiliency was found to moderate the relationship between abuse (emotional, physical, and sexual) and PTSD re-experiencing symptoms (Zahradnik et al., 2010); however, the sample was limited to native Canadian high school students. Prior studies with child welfare-involved youth have often conceptualized behavioral and mental health outcomes as indicators of resiliency (e.g. Edmond, Auslander, Elze, & Bowland, 2006) rather than testing resiliency characteristics as a protective factor. To develop effective interventions that help children thrive after adversity, researchers recommend identifying the unique characteristics of each specific population of interest and the factors associated with healthy outcomes for that group (Zolkoski & Bullock, 2012). National and regional studies demonstrate that adolescent girls with child welfare histories are particularly vulnerable to mental health and behavioral problems (Edmond et al., 2002; Stahmer et al., 2005); however, there are no studies examining the role of resiliency characteristics as a protective factor. This indicates a particularly strong and urgent need for research that will contribute to interventions tailored to meet the unique needs and build on the unique strengths of this highly vulnerable group of adolescents.

The current study addressed this knowledge gap by examining the role of resiliency, as defined by intrapersonal characteristics, on the relationship between childhood abuse and behavioral and mental health outcomes in a sample of child welfare-involved adolescent females. The study explored the following questions: 1) Does resiliency vary according to demographics (age, race, or living situation)? 2) Is there an association between child abuse (physical, sexual, and emotional abuse) and mental health and behavioral problems such as depression, posttraumatic stress disorder (PTSD), substance abuse, and revictimization? And if so, 3) does resiliency moderate the relationship between child abuse (physical, sexual, and emotional abuse) and negative mental health and behavioral problems? Study findings will develop our understanding of potentially modifiable intrapersonal characteristics that may play a role in mitigating the harmful effects of abuse in childhood.

2. Methods

2.1. Participants

Participants were 237 adolescent girls, ages 12-19 (*M* = 14.9, *SD* = 1.6) who had been involved with the child welfare system and who were recruited for a trauma-focused cognitive-behavioral intervention study. Baseline data collected for the group intervention study were used for the present analyses. The majority of participants were youths of color (75%), and the remaining adolescents were White, non-Hispanic (25%). The majority of youths of color self-identified as African-American (68.5%); Mixed Race (24.2%); and Native American, Hispanic, Asian/Asian American, or “Other” (7.3%). The majority of participants (88%) lived in non-congregate care (biological parent, relative, adoptive parent, foster homes) and the remainder lived in congregate care or group homes. Inclusion criteria for the study included: 1) adolescent girls ages 12-19 years old, and 2) girls who were formally investigated or substantiated for child abuse by child protective services. Girls were excluded if they met any of the following criteria: were unable to read or write, were hospitalized for mental health problems in the last six months, were unable to tolerate discussing abuse or neglect, or if they had behaviors that would prohibit participation in a group treatment or interview.

2.2. Procedures

The study protocol was approved by the Human Subjects Institutional Review Board of two collaborating universities. Further, a Certificate of Confidentiality was issued by Centers for Disease Control and Prevention (CDC), the funding agency, to protect the privacy of research subjects by withholding their identities from all persons not connected with the research. Additionally, the Research Committee of the state office of child protective services approved the research protocol.

The informed consent procedures included several steps. After a referral was made to the study team and the adolescent expressed interest in participating, written consent was obtained by the legal custodian, who could be the biological parent, relative, adoptive parent, or the youth’s case manager. To the fullest extent possible, the written consent of the members of the family support team (e.g., guardian ad litem, juvenile officer, and child’s current therapist) was secured. All adolescents under the age of 18 provided written assent to participate in the study. Participants were given a $20 gift card to compensate them for their time.

Face-to-face interviews were administered by interviewers who were masters-level or doctoral-level social work students. All interviewers participated in eight hours of interview training that included background knowledge of the population, basic research interviewing skills, confidentiality and ensuring privacy during the interview, and procedures for reports of abuse and items related to suicide. Interviews were conducted in participant homes or a community-based mental health agency and took approximately one hour to complete.

2.3. Variables and Measures

2.3.1. Resiliency

The 14-item Resilience Scale (RS-14) (Wagnild, 2011; Wagnild & Young, 1993) was used to assess resiliency characteristics. Items explored participants’ feelings toward a series of statements (e.g. “my belief in myself gets me through hard times”; “when I’m in a difficult situation, I can usually find my way out of it”; “I usually manage one way or another”) on a 7-point Likert scale from 1 = “Strongly Disagree” to 7 = “Strongly Agree.” The possible range of total scale scores for each respondent is14-98, with higher scores indicating higher resiliency. The scale developers characterize individuals with the lowest levels of resiliency as having difficulty “finding meaning” or struggling to “keep going”. Those at the highest levels of resiliency find life “very purposeful” and are able to regain “equilibrium and keep moving forward” after difficult events (Wagnild, 2011, p. 78). The scale is one of the most widely used measures of resiliency (Windle et al., 2011) with strong psychometric properties (Smith-Osborne & Bolton, 2013), and it has been reported to be particularly appropriate for an adolescent population (Ahern, Kiehl, Lou Sole, & Byers, 2006). The RS-14 has been shown to be reliable and to have good cross-ethnic validity in a study of ethnically diverse adolescents (Pritzker & Minter, 2014). The alpha coefficient for the current sample was α = 0.86.

2.3.2. Child abuse

The Child Trauma Questionnaire (CTQ) (Bernstein & Fink, 1998) was used to obtain participant reports of the types and severity of child abuse experienced. Three subscales, each containing five items, were used in the present study: emotional abuse, physical abuse, and sexual abuse. Items are rated from never true (1) to very often true (5). Previous research has demonstrated the validity and reliability of the CTQ (Bernstein & Fink, 1998). Additionally, guidelines for classification of CTQ scores were provided according to the following categories by the scale developers: none or minimal, low-moderate, moderate-severe, and severe-extreme (Bernstein & Fink, 1998). Internal consistency alpha coefficients for the current sample were as follows: emotional abuse (α = 0.86), physical abuse (α = 0.87), and sexual abuse (α = 0.92).

2.3.3. PTSD symptoms

Posttraumatic stress symptoms were assessed using the Child PTSD Symptom Scale (CPSS) (Foa, Johnson, Feeny, & Treadwell, 2001). Seventeen items (e.g., Having bad dreams or nightmares; Trying not to think about, talk about, or have feelings about the trauma) assessed domains of re-experiencing, avoidance, and arousal. Participants rated the frequency of post traumatic symptoms over the past month using a 4-point scale from “not at all” (0) to “five or more times a week” (3). The CPSS has previously demonstrated convergent validity, correlating highly with a similar PTSD scale (Foa et al., 2001). Good internal consistency and test-retest reliability have also been established (Foa et al., 2001). For the present study, internal consistency reliability was α = 0.90.

2.3.4. Depression

The Child Depression Inventory (CDI) (Kovacs, 2003) was used to measure depressive symptoms over the previous 2 weeks. The 27 items were rated from 0 to 2 and summed, with higher scores indicating more severe symptoms. Concurrent, discriminative, and criterion validity have been demonstrated (Kovacs, 2003). Good internal consistency and test-retest reliability have been demonstrated for a child welfare population (Kolko et al., 2010). The internal consistency alpha coefficient for the current sample was α = 0.90.

2.3.5. Revictimization

A modified version of the Problem Behavior Frequency Scale (PBFS) (Farrell, Kung, White, & Valois, 2000) was used to assess the girls’ experiences of being revictimized (i.e., aggressive behaviors targeting them in the past 3 months). Example items from the three subscales included: physical revictimization (e.g., Another person hit or slapped you); verbal revictimization (e.g., Someone teased you to make you angry); and relational revictimization (e.g., Another person tried to keep others from liking you by saying mean things about you). The language of each item did not specify who was the perpetrator (e.g. “another person” or “someone”) in order to capture the wide range of possible individuals who may have revictimized the girls. Items were rated to indicate the frequency with which they had happened over the past 3 months on a 6-point scale coded as follows: 1= ‘0 times,’ 2= ‘1-2 times,’ 3= ‘3-5 times,’ 4= ‘6-9 times,’ 5= ‘10-19 times,’ and 6= ‘20+ times.’ Items were summed to yield a total revictimization score with a possible range of 18 to 108. The internal consistency of the scale for the current sample was α = 0.92.

2.3.6. Alcohol and substance use

Selected items from the alcohol and drug use sections of the Diagnostic Interview Schedule for Children-Version IV (DISC-IV) (Costello, Edelbrock, Dulcan, Kalas, & Klaric, 1984) were used to assess substance and alcohol use. Eight items assessed whether they ever used (“yes/ no”) the following: alcohol, marijuana, stimulants, depressants, narcotics, hallucinogens, inhalants, or any other drugs to get high. For alcohol and each class of drugs assessed, a list of examples was provided to the participant to review. A total summed score with a possible range of 0-8 was utilized in the analysis.

2.3.7.Potential control variables

Demographic variables were investigated as potential control variables, such as age and race (0=youths of color; 1=white) and current living situation (1=congregate or group home, 0=non-congregate care).

2.4. Data analysis

Data analyses included frequencies and univariate statistics to describe the levels of resiliency, severity of child abuse, mental health symptoms, re-victimization, and substance use. Pearson product-moment correlations were conducted to determine the bivariate relationships between the key independent and dependent variables. Last, a series of multiple regression analyses were run using the Hayes macro (Hayes, 2013) to test the moderating effect of resiliency on the relationships between types of abuse and the four dependent variables (depression, PTSD, revictimization, and substance use). A power analysis in the study’s design phase determined that the sample size was sufficient for multivariate analyses, including detecting a significant moderation effect.

3.Results

3.1.Descriptive Analyses

Descriptive results indicated that the mean score for the adolescent girls on resiliency was 75.7 (*SD*=14.0), and that this level of resiliency was considered “moderate” by the scale developers (Wagnild, 2011). Individuals with a “moderate” level of resilience are likely “moving forward” through life, but may be experiencing some negative effects of their adverse life circumstances (Wagnild, 2011, p. 77). The actual participant scores ranged from 23 to 98. Ten percent of scores were in the range considered “very low” (i.e., 14-56) , and 15% of participants were considered “high” resiliency (i.e. 91 or above) as determined by the developers (Wagnild, 2011). Table 1 reports mean scores for each of the individual items on the resiliency scale. The items most frequently endorsed by more than 50% of girls with “strongly agree” were: “I feel proud that I have accomplished things in life”; “I am friends with myself”; and “My life has meaning.”

Table 1

*Means and Standard Deviations for Resiliency Items*

|  |  |
| --- | --- |
| Resiliency Item | *M (SD)* |
| 1. I usually manage one way or another. | 5.2 (1.7) |
| 1. I feel proud that I have accomplished things in life. | 6.1 (1.3) |
| 1. I usually take things in stride. | 4.8 (1.8) |
| 1. I am friends with myself. | 5.5 (2.0) |
| 1. I feel that I can handle many things at a time. | 4.8 (1.7) |
| 1. I am determined. | 5.6 (1.6) |
| 1. I can get through difficult times because I've experienced difficulty before. | 5.7 (1.6) |
| 1. I have self-discipline. | 4.7 (1.9) |
| 1. I keep interested in things. | 5.1 (1.7) |
| 1. I can usually find something to laugh about. | 6.0 (1.3) |
| 1. My belief in myself gets me through hard times. | 5.6 (1.7) |
| 1. In an emergency, I'm someone people can generally rely on. | 5.4 (1.7) |
| 1. My life has meaning. | 5.8 (1.7) |
| 1. When I'm in a difficult situation, I can usually find my way out of it. | 5.4 (1.7) |

*Note. N =* 237.

Descriptive results from the Childhood Trauma Questionnaire indicated the participants’ mean score for physical abuse (*M* = 11.2, *SD* = 5.9) fell within the range of moderate – severe; the mean score for sexual abuse (*M* = 12.7, *SD* = 7.4) was in the severe range (≥13 considered severe); and scores for emotional abuse (*M* = 12.2, *SD* = 6.0) were in the low – moderate range (Bernstein & Fink, 1998).

Results of the mental health variables indicated that 55.3% of the girls experienced PTSD symptoms in the clinical range (> 15) with a mean score of 17.0 (*SD* = 11.0). Additionally, 40.1% of the girls scored in the clinical range for depression (> 13), a cut-off score that has been reported for clinically referred samples (Kovacs, 2003). Girls reported “ever” using an average of 1.2 substances in their lifetime. Sixty-eight percent of girls reported experiencing at least one type of physical revictimization in the last three months, 84% endorsed at least one item in the verbal revictimization subscale, and 74% endorsed at least one item in the relational revictimization subscale. Frequencies, means, and standard deviations for key study variables are presented in Table 2.

Table 2

*Frequencies, Means, and Standard Deviations of Key Variables*

|  |  |  |
| --- | --- | --- |
|  | *M (SD)* | *n (%)* |
| Type of childhood abuse |  |  |
| Physical abuse | 11.2 (5.9) |  |
| Sexual abuse | 12.7 (7.4) |  |
| Emotional abuse | 12.2 (6.0) |  |
| Resiliency | 75.7 (14.0) |  |
| Depression | 12.1 (8.6) |  |
| PTSD total | 17.0 (11.0) |  |
| Substance use | 1.2 (1.5) |  |
| Revictimization*a* | 33.0 (15.5) |  |
| Physical revictimization |  | 162 (68.4) |
| Verbal revictimization |  | 199 (84.0) |
| Relational revictimization |  | 175 (73.8) |

*Note. N =* 237*.*

aAt least one item was endorsed in each subscale.

3.2.Bivariate Analyses

Results of the bivariate analyses shown in Table 3 indicated that resiliency did not significantly vary by any demographic characteristic. However, girls who experienced more severe physical, sexual, or emotional abuse had significantly greater mental health and behavioral problems, i.e., higher symptoms of depression and PTSD, higher frequencies of revictimization, and more substance use. Likewise, resiliency was also significantly associated with mental health variables and revictimization; higher resiliency scores were associated with fewer symptoms of depression (*r* = -0.54, *p* < .001) and PTSD (*r* = -0.34, *p* < .001), and lower frequencies of revictimization (*r* = -0.17, *p* < .05).

Table 3

*Pearson’s Correlations Between Independent, Dependent, Moderating, and Control Variables*

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 1. Sexual abuse | -- |  |  |  |  |  |  |  |  |  |  |
| 1. Emotional abuse | 0.40\*\*\* | -- |  |  |  |  |  |  |  |  |  |
| 1. Physical abuse | 0.31\*\*\* | 0.70\*\*\* | -- |  |  |  |  |  |  |  |  |
| 1. Resiliency | -0.14\* | -0.12 | -0.01 | -- |  |  |  |  |  |  |  |
| 1. PTSD | 0.32\*\*\* | 0.46\*\*\* | 0.25\*\*\* | -0.34\*\*\* | -- |  |  |  |  |  |  |
| 1. Depression | 0.24\*\*\* | 0.38\*\*\* | 0.14\* | -0.54\*\*\* | 0.74\*\*\* | -- |  |  |  |  |  |
| 1. Revictimization | 0.25\*\*\* | 0.38\*\*\* | 0.26\*\*\* | -0.17\* | 0.58\*\*\* | 0.54\*\*\* | -- |  |  |  |  |
| 1. Substance use | 0.16\* | 0.31\*\*\* | 0.14\* | -0.03 | 0.18\*\* | 0.23\*\*\* | 0.10 | -- |  |  |  |
| 1. Age | 0.07 | 0.10 | 0.12 | 0.11 | -0.05 | 0.00 | 0.03 | 0.28\*\*\* | -- |  |  |
| 1. Race | 0.13 | 0.14\* | 0.01 | -0.07 | 0.05 | 0.07 | -0.04 | 0.18\*\* | 0.03 | -- |  |
| 1. Living situation | 0.05 | 0.15\* | 0.22\*\*\* | 0.01 | 0.06 | 0.08 | 0.11 | 0.14\* | 0.22\*\*\* | -0.07 | -- |

*Note. N =* 237*.*

\**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

3.3.Multiple Regression Analyses

Multiple regression analyses were conducted to investigate the moderating effects of resiliency on the relationship between childhood abuse and four mental health (depression, PTSD) and behavioral outcomes (revictimization, substance use). As shown in Table 4, there was a differential effect of sexual abuse on depression (*B* = -0.01; *p* = .008), PTSD (*B* = -0.01; *p* = .034), and revictimization (*B* = -0.02; *p* = .013) depending on the level of resiliency. As resiliency increased, the relationship between sexual abuse and depression, PTSD, and revictimization weakened. Resiliency did not significantly moderate the relationship between sexual abuse and substance use. Resiliency also had a significant moderating effect on the relationship between emotional abuse and depression (*B* = -0.01; *p* = .006); as resiliency scores increased, the relationship between emotional abuse and depression weakened. Resiliency was not a moderator for the relationship between emotional abuse and the other outcomes (PTSD, revictimization, and substance use), nor between physical abuse and any of the mental health and behavioral outcomes.

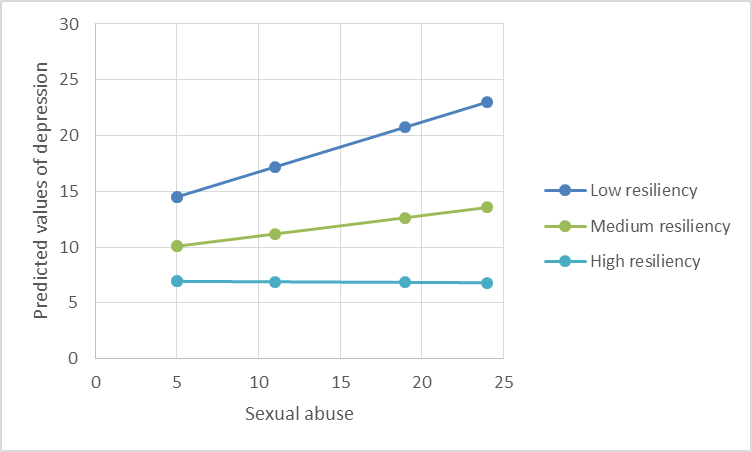
Table 4

*Results for Linear Regression Models for Depression, PTSD, Revictimization, and Substance Use*

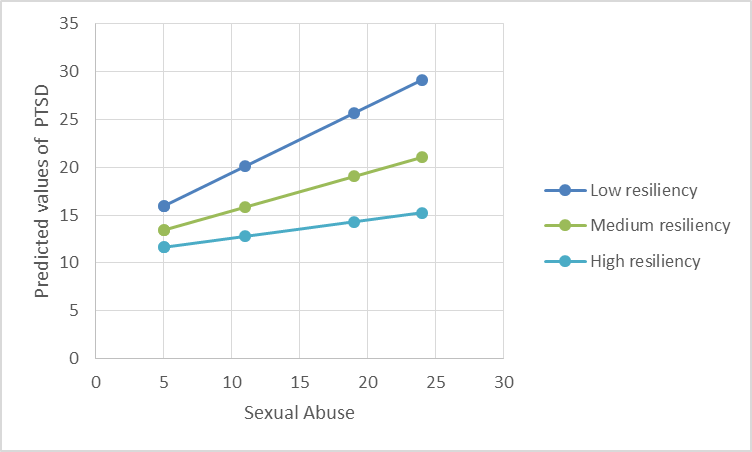
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Depression** | | | **PTSD** | | | **Revictimization** | | | **Substance use** | | |
|  |  | *B* | *SE B* | *R2* | *B* | *SE B* | *R2* | *B* | *SE B* | *R2* | *B* | *SE B* | *R2* |
| *Sexual abuse models* | |  |  | 0.34 |  |  | 0.21 |  |  | 0.10 |  |  | 0.03 |
|  | Resiliency | -0.15\* | 0.07 |  | -0.05 | 0.10 |  | 0.18 | 0.15 |  | -0.02 | 0.01 |  |
|  | Sexual abuse | 1.15\*\* | 0.36 |  | 1.48\*\* | 0.51 |  | 2.35\*\* | 0.76 |  | -0.05 | 0.08 |  |
|  | Sexual abuse x resiliency | -0.01\*\* | 0.00 |  | -0.01\* | 0.01 |  | -0.02\* | 0.01 |  | 0.00 | 0.00 |  |
| *Emotional abuse models* | |  |  | 0.41 |  |  | 0.30 |  |  | 0.17 |  |  | 0.10 |
|  | Resiliency | -0.14\* | 0.07 |  | -0.08 | 0.09 |  | 0.10 | 0.14 |  | 0.00 | 0.01 |  |
|  | Emotional abuse | 1.44\*\*\* | 0.36 |  | 1.63\*\* | 0.50 |  | 2.33\*\* | 0.78 |  | 0.08 | 0.08 |  |
|  | Emotional abuse x resiliency | -0.01\*\* | 0.00 |  | -0.01 | 0.01 |  | -0.02 | 0.01 |  | 0.00 | 0.00 |  |
| *Physical abuse models* | |  |  | 0.31 |  |  | 0.18 |  |  | 0.10 |  |  | 0.03 |
|  | Resiliency | -0.24\*\*\* | 0.07 |  | -0.19 | 0.10 |  | 0.03 | 0.14 |  | -0.01 | 0.01 |  |
|  | Physical abuse | 0.79 | 0.44 |  | 0.99 | 0.62 |  | 2.19\* | 0.91 |  | -0.05 | 0.09 |  |
|  | Physical abuse x resiliency | -0.01 | 0.01 |  | -0.01 | 0.01 |  | -0.02 | 0.01 |  | 0.00 | 0.00 |  |

*Note.* \**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

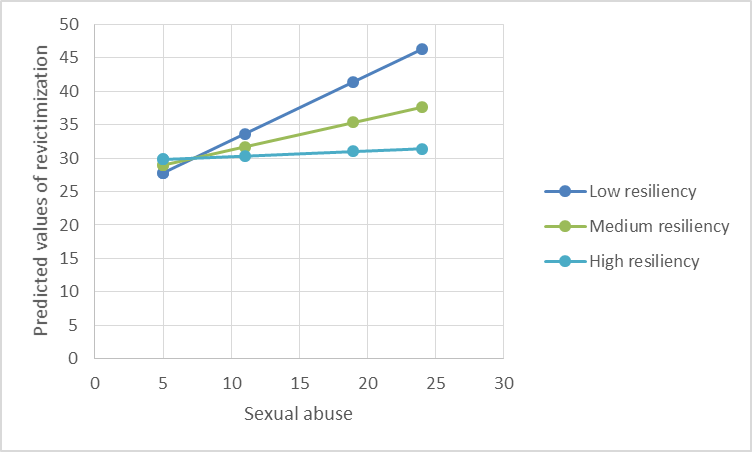
Figures 1-4 display the relationships between the abuse type and mental health and behavioral problems at low, medium, and high levels of resiliency based on percentiles of the resiliency scores of the sample (10th, 50th, and 90th percentiles). The predicted values of the outcome variable (Y-axis) at different levels of the independent value are calculated based on the simple slope of the regression line for each of the three levels of resiliency (Hayes, 2013). The Johnson-Neyman technique was used to demonstrate the level of resiliency at which the relationship between child abuse and mental health and behavioral outcomes becomes nonsignificant (Preacher, Curran, & Bauer, 2006). As shown in Figures 1-4, relatively high levels of resiliency were needed to fully moderate the relationships between abuse and the outcomes of depression, PTSD, and revictimization (i.e., between 0.5 and 1.3 standard deviations above the mean resiliency score).



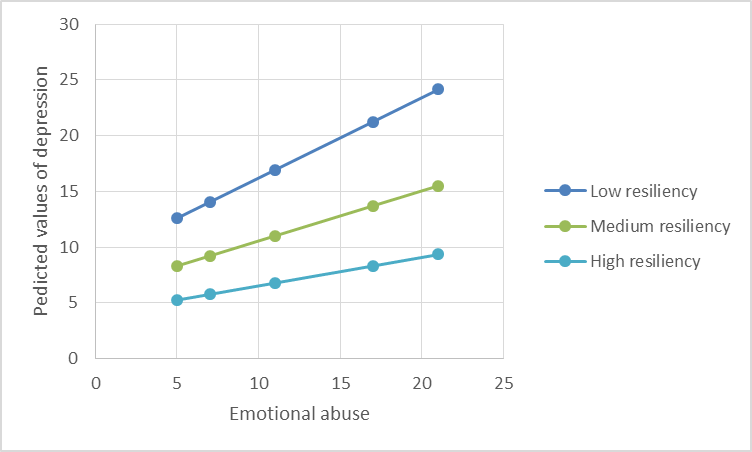
*Figure 1.* Interaction between sexual abuse and resiliency in depression model.Predicted values of sexual abuse on depression at low, medium, and high resiliency levels.



*Figure 2.* Interaction between sexual abuse and resiliency in PTSD model.Predicted values of sexual abuse on PTSD at low, medium, and high resiliency levels.



*Figure 3.* Interaction between sexual abuse and resiliency in revictimization model.Predicted values of sexual abuse on revictimization at low, medium, and high resiliency levels.



*Figure 4.* Interaction between emotional abuse and resiliency in depression model.Predicted values of emotional abuse on revictimization at low, medium, and high resiliency levels.

4.Discussion

One of the most important findings of the study was documenting the role of resiliency as a significant moderator of the relationship between childhood sexual and emotional abuse and PTSD, depression, and revictimization among adolescent girls involved in the child welfare system. For girls with high levels of resiliency, the relationship between sexual abuse and symptoms of PTSD, depression, and revictimization weakened or became non-significant. Likewise, the relationship between emotional abuse and depression was also significantly moderated by resiliency.

These findings are consistent with findings from other studies that examined the moderating role of resiliency on mental health outcomes for adults who retrospectively reported abuse in childhood (Campbell-Sills et al., 2006; Edwards et al., 2014; Schulz et al., 2014; Wingo et al., 2010). This study adds to our knowledge of resiliency in child welfare-involved adolescents who by definition have high rates of childhood abuse. Moreover, although the moderating influence of resiliency on the relationship between abuse and mental health problems has been examined previously, there have been no studies to our knowledge that have examined the moderating effects of resiliency on physical, verbal, and relational revictimization among adolescents.

A second interesting finding was that resiliency did not have the same moderating influence on all the relationships between types of abuse and outcomes. For example, resiliency was a significant moderator of some of the consequences of sexual and emotional abuse, but not for all of the outcomes examined. This finding suggests that certain protective factors such as resiliency characteristics may be more or less effective at mitigating negative effects of abuse depending on the type of abuse and the type of outcome. Much of the previous research have conducted the moderating analyses using a count, index, or sum-score variable that includes multiple types of abuse experienced by the respondent (Campbell-Sills & Stein, 2007; Edwards et al., 2014; Schulz et al., 2014; Wingo et al., 2010). In contrast, the current study utilized separate continuous variables for each specific type of abuse to determine the moderating influence of resiliency. Although co-occurrence of different types of child abuse is extremely common (Higgins & McCabe, 2000; Kim, Mennen, & Trickett, 2016), examining the separate types of abuse in the analysis is important because of the growing body of research indicating that different types of abuse are associated with varying types or severity of negative outcomes (Kinard, 2001; Manly et al., 1994). For example, evidence indicates that sexual and emotional abuse may be associated with more damaging outcomes than physical abuse (Auslander, Sterzing, Threlfall, Gerke, & Edmond, 2016; Auslander, Tlapek, Threlfall, Edmond, & Dunn, 2015; Edmond et al., 2002; Spinazzola et al., 2014; Wekerle et al., 2009). In a nationally representative survey, childhood sexual abuse was found to be associated with the highest risk for revictimization in adolescent dating relationships out of 12 types of adverse childhood experiences, including physical abuse (Miller et al., 2011). For mental health outcomes such as PTSD, emotional abuse has been found to be a significant predictor in child-welfare samples (Auslander et al., 2015; Wekerle et al., 2009). Likewise, children who experienced emotional abuse have also been found to have distinct clinical profiles and greater behavioral problems and disorders compared to physically abused children (Spinazzola et al., 2014).

One surprising finding was that resiliency did not moderate the relationship between any type of childhood abuse and substance use. Although all three types of childhood abuse were significantly associated with substance use at the bivariate level, the finding that resiliency characteristics did not moderate any of these relationships was inconsistent with prior research (Ali et al., 2010; Veselska et al., 2009; Wingo et al., 2014). One possible explanation for this may be that previous studies examined these relationships in different populations (e.g. adults) and used different measures of resiliency. The relatively low frequencies of substance use reported by participants in this study may also raise questions about whether participants were responding in a socially desirable manner; it is possible that underage participants were hesitant to report behavior related to illegal use of substances in a face-to-face interview. However, because the bivariate relationships between substance use and other key variables were significant in the expected direction (i.e., depression, PTSD, all abuse types), social desirability bias may be minimal in this study. This finding suggests that examination of other protective factors against substance abuse, such as caregiver relationship or participation in extracurricular activities (Guibord, Bell, Romano, & Rouillard, 2011; Traube, James, Zhang, & Landsverk, 2012), may be warranted in this population.

Finally, the study found that resiliency did not vary significantly according to the demographic characteristics of the girls (i.e., age, race, or living situation). This is of interest because other studies of resiliency characteristics in adolescents have not examined demographic differences other than gender (Rew et al., 2001; Salazar-Pousada, Arroyo, Hidalgo, Pérez-López, & Chedraui, 2010). For example, Pritzker & Minter (2014) reported levels of resiliency for adolescents by race, age, and geography using the same scale as the current study but did not report whether these differences were significant. The current study’s findings indicate that the level of individual resiliency is not related to age or race and that girls with child welfare involvement can possess resiliency characteristics regardless of whether they are living in congregate care (i.e., group homes) or non-congregate care (i.e., biological parents, relatives, or foster parents).

This study contributes to the limited research literature on the moderating role of resiliency characteristics in the relationship between child abuse and behavioral and mental health problems in adolescence for girls with histories of abuse. However, study findings should be interpreted in consideration of several limitations. The cross-sectional nature of the study makes it difficult to determine the direction of the relationship between abuse and resiliency characteristics. Resiliency characteristics were measured after participants experienced abuse. Therefore, it is possible that children who experience traumatic events develop resiliency characteristics in response to these events, rather than possessing pre-existing characteristics that mitigate the impact of abuse (Bonanno & Mancini, 2008; Connor & Davidson, 2003; Olsson, Bond, Burns, Vella-Brodrick, & Sawyer, 2003). In fact, there is evidence that *some* adversity in life is associated with better outcomes in comparison to high levels of adversity or no adversity (Seery, 2011), suggesting a U-shaped relationship between adverse experiences and mental health and behavioral problems. This supports the idea that people may develop resiliency characteristics in response to experiencing some adversity in their lives. Second, adolescent reports of resiliency may have been affected by their mental health at the time of the interview. Although the RS-14 measure of resiliency asks participants to rank agreement with statements about characteristics that are not time-limited, it is possible that adolescents who were actively depressed or experiencing symptoms of posttraumatic stress disorder may have self-reported a lower level of resiliency (Schulz et al., 2014). Finally, the resiliency measure used in the current study assesses individual personality characteristics of resiliency. Some researchers maintain that resiliency is a product of individual characteristics and the environment, and they call for measures that capture the complexity of an individual’s adaptive capacity (Bonanno, Westphal, & Mancini, 2011; Olsson et al., 2003) or that account for external social or environmental factors such as family, resources, or policies (Domhardt, Münzer, Fegert, & Goldbeck, 2015; Haskett et al., 2006; Ungar, 2013). Although child welfare populations may have fewer family and social protective factors than the general adolescent population, future studies using a more comprehensive assessment of resiliency have the potential to capture other coping resources used in this population.

5. Conclusions

The current findings suggest directions for intervention development. According to some researchers and theorists, resiliency characteristics are considered modifiable (Connor & Davidson, 2003; Wagnild, 2011), and it is possible that strengthening resiliency characteristics may reduce the severity of impact of certain types of abuse on specific outcomes. Building resiliency for populations who have not yet experienced child abuse may prevent the development of future negative outcomes; community leaders and professionals should consider identifying children in at-risk communities for resiliency-strengthening interventions (Shapiro, 2015). For adolescent girls who have already experienced child abuse, interventions could focus on building important adaptive coping skills to handle future stressors (Lee, Cheung, & Kwong, 2012; Olsson et al., 2003). Child welfare organizations may consider integrating an assessment of resiliency for children and adolescents who have experienced abuse; targeting those with low resiliency characteristics may help to address or prevent mental health and behavioral problems during adolescence.

Child welfare providers and agencies have been encouraged to use interventions that strengthen protective factors and promote well-being (Smith, LeBuffe, Alleyne, Mackrain, & Likins, 2014). A recent review of resilience interventions for children and youth highlighted a small number of interventions which aim to improve individual skills for coping such as interpersonal skills, academic skills, and self-efficacy (see Zolkoski & Bullock, 2012), but additional research is needed to develop and test the effectiveness of individual-level resiliency interventions for child welfare populations. This study builds knowledge on the potentially protective role of intrapersonal resiliency characteristics, and study findings may inform future research on effective interventions to enhance the strengths of adolescent girls with histories of childhood abuse.

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