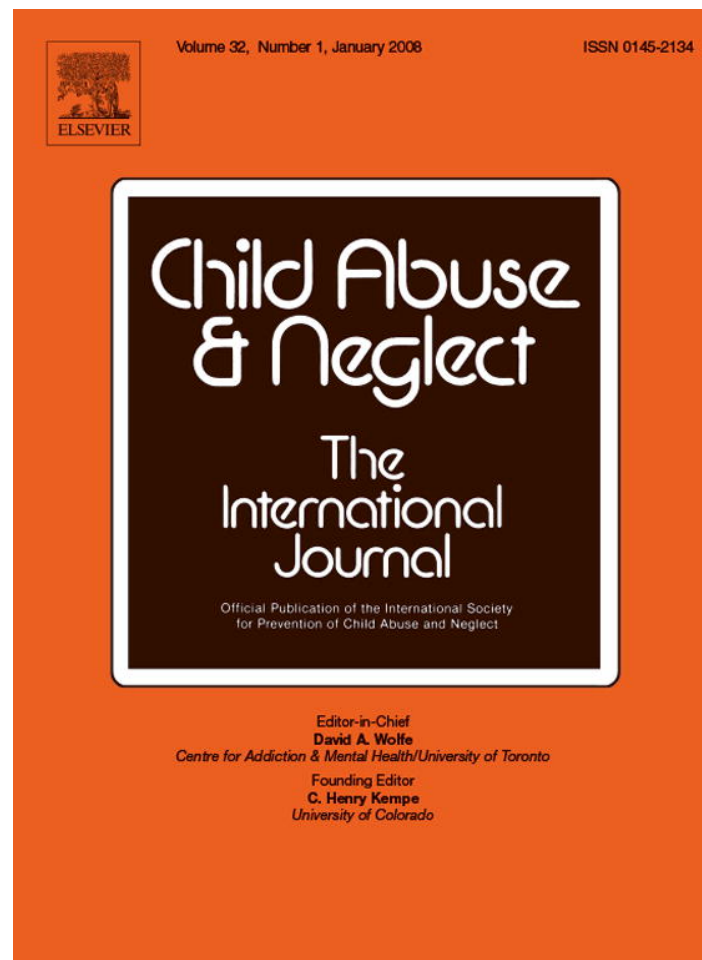


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Trauma resilience among youth in substitute care demonstrating sexual behavior problems

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Abstract

Objective: The purpose of this longitudinal study was to examine the relationship between several proposed protective factors and trauma symptoms among highly vulnerable youth in the child welfare system.

Methods: Participants were 142 youth identified with a sexual behavior problem and their caregivers. Two waves of data were collected for each participant an average of 18 months apart. Foster parents reported on perceived level of support from the child welfare agency, youth involvement in club activities, and perception of youths' interpersonal and emotional competence. Youth provided self-reports of their sexual and physical abuse experiences, trauma symptoms at both time 1 and time 2, and ratings of parenting practices.

Results: Youth with higher rates of sexual abuse showed more negative affect and higher levels of sexual and non-sexual rumination at time 2, controlling for time 1 scores. Boys and youth who experienced better parenting practices displayed lower negative affect. Youth with higher levels of emotional and interpersonal competence showed lower levels of non-sexual rumination. Moderation analyses revealed that youth with more significant sexual abuse histories whose foster parents did not feel supported by their child welfare caseworkers had higher levels of sexually ruminative thoughts. Finally, the results revealed that only youth without sexual abuse histories experienced the benefits of club involvement in terms of lower sexual rumination scores.

Conclusions: This study demonstrated that youth with significant vulnerabilities can still exhibit a degree of protection from trauma symptomatology in the presence of a wide range of personal and social variables. These findings support the efforts of stakeholders to promote strengths at the level of the individual, family, and broader social network and community.

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Keywords: Child welfare; Resilience; Maltreatment; Sexual behavior

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Introduction

Resilience among youth has been defined as the “dynamic process encompassing positive adaptation within the context of significant adversity” (Luthar, Cicchetti, & Becker, 2000). Characteristics that precipitate resilience are known as protective factors (Luthar et al., 2000; Luthar & Zigler, 1991; Werner, 1989). The resilience literature has evolved to posit three interacting factors that affect adaptation to adversity among youth: (1) qualities of the individual (e.g., temperament, intelligence), (2) qualities of the youth’s family (e.g., parenting practices), and (3) qualities of the youth’s broader social environment (e.g., involvement in extra-curricular activities) (Heller, Larrieu, D’Imperio, & Boris, 1999; Luthar et al., 2000). The current study explores the effects of a range of possible protective factors across a sample of high-risk youth in the child welfare system (substitute care) who are beginning to demonstrate atypical, exploitative, and/or developmentally premature sexual behavior, known as sexual behavior problems (Ryan, 1997).

Child maltreatment

Recent estimates indicate that over 800,000 children are abused or neglected annually in the U.S. (U.S. Department of Health and Human Services, Administration on Children, Youth and Families, 2006). Additional adversities often exist for maltreated youth entering the child welfare system (Levine, Doueck, Freeman, & Compaan, 1996; Roberts, 2002). Research indicates that the possibility of multiple foster care placements, disrupted medical and educational services, and the potential for abuse while in foster care all place youth in substitute care at risk of increased health, developmental, and psychological problems (Benedict, Zuravin, Somerfield, & Brandt, 1996; Newton, Litrownik, & Landsverk, 2000; Roberts, 1993).

The effects of maltreatment also have been studied, and the presence of trauma symptoms is common among survivors of abuse (e.g., McLeer, Deblinger, Henry, & Orvaschel, 1992; Wolfe, Sas, & Wekerle, 1994). These symptoms may also be a trigger for sexual behavior problems among some youth (Pithers, Cumming, Beal, Young, & Turner, 1989). Consequently, understanding the factors that worsen or decrease trauma symptoms among youth beginning to demonstrate sexual behavior problems could have critical implications for therapeutic intervention.

Resilience maltreated children

Maltreated children have received considerable attention in resilience studies; resilience is frequently couched in terms of recovery from trauma (Masten, 1994). Research methods employing strict criteria for resilience, such as the presence of better-than-average functioning across more than one assessment period, have led to low rates of resilience in the maltreated population (Bolger & Patterson, 2003; Cicchetti & Rogosch, 1997; Farber & Egeland, 1987). For example, Cicchetti and Rogosch (1997) followed 213 maltreated and non-maltreated low-income youth over 3 years. Among the maltreated population, only 1.5% of youth demonstrated high functioning over all three assessments, compared to 10% of youth in the non-maltreated sample. In light of these findings, research exploring resilience among maltreated children has focused more on the relative benefits of what are termed *protective factors* in this highly vulnerable population.

A protective factor is any positive attribute or strength that, when present, leads to relatively better outcomes over time; it, therefore, is critical to use longitudinal designs when studying protective factors

(Luthar et al., 2000). Luthar et al. (2000) proposed six different protective factor typologies based on how youths' strengths interact with adversity to affect outcomes: protective, protective-stabilizing, protective-enhancing, protective-reactive, vulnerable-stable, and vulnerable-reactive. A youth strength that emerges as a main effect is simply protective in Luthar et al.'s model because it acts to promote adaptation equally at all levels of adversity. Strengths that promote adaptation differentially based on level of adversity are considered moderated types protective factors and are tested using interactions. For example, a variable such as social competence might lead to long-term protection against trauma symptoms among maltreated youth, but only for youth who experienced low levels of maltreatment. Luthar et al. (2000) proposed that a variable acting in this way be considered protective-reactive. On the other hand, variables such as certain forms of creativity might only trigger adaptation when the individual experiences higher levels of adversity. Luthar et al. (2000) propose that such a variable be termed protective-enhancing.

Protective factors at the individual level among youth include intellectual ability (Herrenkohl, Herrenkohl, & Egolf, 1994), internal locus of control (Moran & Eckenrode, 1992) a sense of self-worth (Cicchetti, Rogosch, Lynch, & Holt, 1993; Moran & Eckenrode, 1992) and ego resilience and control (Cicchetti et al., 1993). Examining ego resilience, research has demonstrated that youths' ability to be reflective, persistent, attentive, dependable, planful and relaxed is protective for both maltreated and non-maltreated populations (Cicchetti et al., 1993), making it simply protective in Luthar et al.'s typology. In addition, ego over-control, the ability to modulate impulses and shield oneself from external stressors, has been found to enhance adaptive functioning in maltreated youth (Cicchetti et al., 1993), making it a protective-stabilizing variable in Luthar et al.'s (2000) typology.

Protective factors at the proximal social level include the presence of a mutual friendship (Bolger & Patterson, 2003) and familial cohesion, such as the presence of a caring and supportive adult (Egeland, Carlson, & Stroufe, 1993; Romans, Martin, Anderson, O'Shea, & Mullen, 1995; Spaccarelli & Kim, 1995). For example, research exploring family cohesion has found that the presence of attentive and supportive adults can lead to resilience (Egeland et al., 1993; Romans et al., 1995). Taylor (1996) has found that youth who perceive social support and family organization demonstrate lower problem behaviors. Among youth from urban settings, high levels of family support have been linked to lower problem behaviors even in the context of adversity (Quamma & Greenberg, 1994).

Factors surrounding youths' involvement in the community also have been shown to be protective and include participation in religious group and extra-curricular activities (Egeland et al., 1993; Herrenkohl et al., 1994). In a sample of 3,281 youth between the ages of 12 and 17, Perkins and Jones (2004) found that involvement in extra-curricular activities was associated with lower rates of alcohol use and suicide attempts. Research has not explored whether the quality of services surrounding the child welfare agency serves as a protective factor. However, prior research has found a connection between the quality of caseworker support and foster parents' willingness to house and care for youth in the future (Denby, Rindfleisch, & Bean, 1999).

In sum, the literature on resilience has evolved to offer several consistent conclusions regarding the role of protective factors in maltreated youths' adaptation to adversity (Heller et al., 1999). However, resilience research should explore in greater detail variations in resilience patterns among unique demographic and clinical populations of at-risk youth (Luthar et al., 2000). As more unique populations are studied, distinct context-specific protective profiles are likely emerge, lending more support to the notion that what is protective for one type of youth may not be protective for others.

Prior research has not explored the effects of hypothesized protective factors among neglected or maltreated youth currently in the child welfare system and beginning to exhibit sexual behavior problems.

This study seeks to address this gap in the literature. Maltreated youth in the foster care system beginning to demonstrate sexually problematic behavior are significantly disadvantaged; therefore, it is reasonable to hypothesize that any identified strengths will do little or nothing to improve their psychological outcomes. However, the potential protective factor variables explored in this study, such as parenting practices, extra-curricular involvement, and interpersonal and emotional competence, have been consistent predictors of improved outcome in the resilience literature. Therefore, it is hypothesized that the variables explored here will predict improvement in the psychological symptoms of trauma.

The current study examined the effects of several protective factors on symptoms of trauma in a sample of 142 youth in substitute care identified as exhibiting sexual behavior problems. Youth in substitute care who demonstrated these problem behaviors were identified for inclusion in the study as part of an overall effort to understand the escalation and/or maintenance of sexual behavior problems over time among youth in substitute care. Protective factors are explored across the individual, foster family, and foster parent perception of foster care agency.

Method

Participants

Participants included youth and foster parents who participated in this two wave longitudinal study of children with identified sexual behavior problems living in Cook County, IL and under the custody of the state's child welfare system (Department of Children and Family Services-DCFS). Participants were consecutive referrals to the study after initially being screened by DCFS based a report that they were involved in sexually inappropriate behavior, described below. The study was conducted by the Child Abuse Unit for Studies, Education and Services (CAUSES), a private clinical services and research agency in Chicago, Illinois under contract with DCFS. DCFS policy requires that Unusual Incident Reports (UIRs) be filed by the youth's caseworker for events such as elopement, abuse, or in the case of youth in this study, the occurrence of sexual behavior problems. The enrollment period lasted from May 2000 until the end of February 2003.

There were 174 youth originally identified for participation in the study. Fourteen of these youth were deemed inappropriate for further study due to severe emotional disturbance or severe developmental delay. An additional 18 subjects were lost to refusal, attrition, or severe emotional disturbance (e.g., previously undiagnosed psychotic disorders discovered upon initial interview). The final sample consisted of 142 youth for whom we collected both time 1 and time 2 data. On average, sample youth had been in state custody since age 5.6 ($SD = 3.7$). Youth had experienced multiple placements, ranging from 1 to 23 prior to the screening incident; the mean number of placements was 7.0 ($SD = 4.0$). Twenty-seven percent of the sample was female, and the mean age was 13.2 years ($SD = 1.9$). The ages ranged from 10.4 to 17.9 years; 88% of the sample was African American.

In terms of the foster parents, 53% of primary caregivers were African American, 43% were Caucasian and the remainder were Latino or Other; 43% were employed full-time, 41% were unemployed, and 15% were employed part-time. In terms of education, 4% received less than a high-school education, 23% received some high-school education, 23% received a high-school diploma or equivalent, 30% had taken some college courses, 10% had an Associate's degree, 9% had a Bachelor's degree, and 1% received a Master's degree. Thirty-seven percent were single, 36% was married, and 26% were widowed or divorced.

The non-youth sources of information included extensive reviews of foster care agency records and caregiver reports in order to document the frequency, duration, and nature of the sexual behavior problem. Youth exhibited a range of sexual behavior problems, which we classified into five categories or levels of increasing invasiveness: (1) sexualized behaviors (e.g., frequent masturbation that does not involve others), 1.8%; (2) sexually problematic non-contact behaviors (e.g., exposure), 9.1%; (3) non-genital fondling (e.g., touching of breasts), 23.4%; (4) genital fondling, 27.9%; and (5) penetration, including oral copulation, or penetration of the vagina or anus, 37.8%.

Procedure

The consent process included first verifying state guardianship and obtaining consent from the DCFS Guardian, and after a discussion with the youth's caseworker regarding the appropriateness of participation. Informed consent was obtained from the foster caregiver and assent from the youth. Youth and foster parents received a small gift card (\$35) for each participation episode.

Data were collected from youth, their caregivers, and from DCFS electronic and paper records. While supervised by trained research assistants, youth were administered a series of survey items on a laptop computer. As youth worked on the laptops, their caregivers completed a survey via pencil and paper. Youth and caregiver data in this study were collected between 3 and 12 months from the time of the screening incident. This wide time range was caused by variability in responsiveness of caseworkers and the guardianship office to the consent process, as well as difficulties in scheduling data collection with foster parents. Time 2 data were collected an average of 1.5 ($SD = .6$) years after time 1 data; the range was .6–3.2 years between the two data points.

Data collection also involved review of comprehensive DCFS family files for each participant and a separate sexual incident-screening file. Research assistants reviewed each document in the comprehensive family file and coded information pertaining to family composition and history, abuse/neglect history, placement and educational history, and sexual behavior incidents. Information was also retrieved from the electronic integrated database of the DCFS Office of the Research Director. Data were collected on subjects' demographics, legal status changes (e.g., temporary custody, state guardianship, etc.), placement history, and abuse/neglect allegations.

Measures

Independent variables.

Physical abuse. Children were asked eight questions adapted from the Conflicts Tactics Scale (Straus, Hamby, Boney-McCoy, & Sugarman, 1996) about whether or not they had ever experienced physical, non-sexual abuse. They responded on a 1–5 scale indicating frequency, with scores of one indicating not at all and scores of five indicating frequent physical abuse. Scores were then summed, and individuals who responded to over 50% of items were given scores of zero on omitted items. The mean on this measure was 7.8 ($SD = 8.3$). Internal consistency for this scale was .90.

Sexual abuse. The sexual abuse scale is comprised of youth self-report items developed by the research team at CAUSES for the purpose of collecting information on the nature and extent of any prior sex-

ual abuse. Example questions include, “Did that person touch or play with your penis or vagina?” and “Did that person make you have sex?” Items were scored zero if youth denied such occurrences, and received a score of one if they agreed that the event had occurred. Scores for five items were summed such that greater total scores indicated more severity of abuse. Cronbach’s Alpha was .8. The mean score was .4 ($SD = 1.2$). Only 40 individuals in the sample (23%) indicated any sexual abuse.

Dependent variables. The Trauma Symptoms Checklist-Children (TSCC, Briere, 1996) was used as the measure of response to adversity in the current study and was administered at both time 1 and time 2. Only the clinical scales were used, leading to a total of 36 items. Due to the unique population studied and because an abridged version was used, the TSCC was factor analyzed using a principal axis extraction method with direct oblimin rotation (Gorsuch, 1997; Preacher & MacCallum, 2003). Items with loadings of .30 or higher were assigned to their related scales. Items were allowed to load on multiple factors if absolute values of their factor loadings were greater than .50 on multiple scales. Three interpretable factors emerged from the data and were labeled as follows: Negative Affect (e.g., feeling sad or unhappy, feeling afraid), Sexually Ruminative Thoughts (e.g., thinking about having sex, thinking about touching other people’s private parts), and Non-Sexual Rumination (e.g., remembering things that happened that I did not like, scary ideas pop into my head). For all three of these scales, higher scores indicate greater severity of symptoms.

Negative affect. Eighteen items comprised the negative affect scale. At time 1, the internal consistency for the scale was .9. The mean of the scale was 12.4 ($SD = 9.5$). Cronbach’s Alpha for items at time 2 was .9, with a mean scale score of 10.7 ($SD = 9.5$).

Sexually ruminative thoughts. Seven items represented the sexually ruminative thoughts scale. The mean at time 1 was 4.2 ($SD = 4.4$). Cronbach’s Alpha was .9. At time 2, these data followed a similar pattern. The mean for time 2 was 3.7 ($SD = 3.9$) and Cronbach’s Alpha was .8.

Non-sexual rumination. Twelve items made up the non-sexual rumination scale. At time 1, the scale had a mean of 10.3 ($SD = 7.8$) with a Cronbach’s Alpha of .9. At time 2, the scale mean was 8.0 ($SD = 6.2$), and the Cronbach’s Alpha of this scale was .9.

Proposed protective factors.

Clubs. Foster parents were asked a dichotomous yes/no question, “Is your youth involved in clubs?” It was assumed that children who were involved in such activities had foster parents who were aware of this involvement. Hence, all youth were treated as uninvolved in the event of missing data. Involvement was dummy coded (involved/not-involved). Forty-seven children were involved in some form of clubs (e.g., boys and girls club, after school programs or clubs at community centers), and 95 were not involved.

Interpersonal/emotional competence. Thirty-three items were adapted from the Socialization Domain of the Vineland Adaptive Behavior Scales (Sparrow, Balla, & Cicchetti, 1984), and several additional questions were created for the purpose of this study. Foster parents were asked to rate their youths' quality and maturity of social relationships and coping skills. Example items included "Responds appropriately when introduced to others" and "Labels happiness, sadness, fear and anger in self." Items were scored on a 3-point scale, with 0 = No, never, 1 = Sometimes or partially, and 2 = Yes, usually. Higher scores indicated greater interpersonal/emotional competence. Cronbach's Alpha was .84. The mean score was 48.25 ($SD = 12.15$), suggesting that on average youth were demonstrating moderate levels of interpersonal and emotional competence.

Positive parenting practices. Twenty-six items from the parenting practices measure (Tolan, Gorman Smith, & Henry, 2000) were administered to the youth. These items reflected the degree to which youth perceived their foster parents as providing a supportive and nurturing environment. Items included such questions as "How often has this person said something nice to you about something good you did?" and "How often has this person mentioned something good you did to someone else?" Items were rated on a 5-point scale with zero indicating "never" and four indicating "almost always." When children answered at least 50% of the items, scores of zero were used for items that were omitted. This strategy was employed based on the assumption that the protective factor positive parenting must be endorsed to be present. The mean for the scale was 79.12 ($SD = 13.10$). Cronbach's Alpha for those individuals answering all items ($N = 72$) was .91.

Caseworker agency support. Foster parents were asked nine questions about how satisfied they were with the support they received from their DCFS caseworker. Example items included questions such as "The information I was given about [the child's] history of emotional and behavioral problems and needed health services was:" and "I can always count on the child's caseworker to help me if I'm in trouble." This questionnaire was only given at time 1. Parents answered Likert items on a 1–5 scale, with higher scores indicating greater levels of dissatisfaction. Cronbach's Alpha was .83. The average score was 23.12 ($SD = 7.49$) out of a possible 45, indicating that caregivers were on average moderately satisfied with caseworker services.

Data analysis

Separate stepwise regressions were conducted predicting each of the dependent variables at time 2, using the forward selection method. This strategy allowed for the examination of the unique predictive power of variables while providing sufficient statistical power to detect effects and minimize Type II errors. All dichotomous variables were dummy-coded such that scores of one indicated presence of the effect and scores of zero represented absence.

The stepwise regressions were conducted with sets of theoretically meaningful variables entered together. First, potential confounding variables such as physical and sexual abuse variables were entered. Variables such as time between data collection points and youth level of sexual behavior problems did not significantly correlate with trauma scores and therefore were not entered into the analyses.

Demographic characteristics (gender, age) were entered in the second block. The dependent variable at time 1 was entered third (negative affect, sexually ruminative thoughts, or non-sexually ruminative

thoughts). Fourth, various protective factors were entered (involvement in clubs, emotional/interpersonal competence, positive parenting practices, caseworker agency support). Finally, interactions between variables were entered (e.g., sexual abuse \times club involvement, sexual abuse \times caseworker agency support). When interactions were found to be significant, the model was re-run if necessary to ensure that the main effect of the variables composing the interaction effect was controlled. Analyzing the data this way allowed us to control for potentially confounding variables before testing for the presence of protective factors (main effects) and protective factor subtypes (interaction effects) in accordance with Luthar et al.'s (2000) paradigm.

Results

Negative affect

Results of the regression analyses are summarized in Tables 1–3. Table 1 presents results for the negative affect findings. Higher scores on the childhood sexual abuse variable predicted increased negative affect ($\beta = .36, p < .001$). Controlling for sexual abuse, gender also predicted negative affect, with boys scoring lower than girls on average ($\beta = -.25, p < .01$). To examine the change in negative affect, the effects of negative affect at time 1 were entered next ($\beta = .49, p < .001$). In terms of hypothesized protective factors, only the parenting practices scale emerged as a significant predictor of time 2 negative affect ($\beta = -.15, p < .01$).

Table 1
Summary of stepwise regression (forward selection) analysis for variables predicting negative affect at time 2 ($N = 142$)

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Sexual abuse	2.23	.49	.36***
Step 2			
Sexual abuse	2.09	.48	.48***
Gender	-5.44	1.64	-.25**
Step 3			
Sexual abuse	.82	.46	.13
Gender	-4.06	1.45	-.19**
Negative affect—time 1	.50	.07	.49***
Step 4			
Sexual abuse	.83	.45	.13
Gender	-3.94	1.43	-.18**
Negative affect—time 1	.50	.07	.50***
Positive parenting practices	-.11	.05	-.15*

Note: $R^2 = .13$ for Step 1; $\Delta R^2 = .06$ for Step 2; $\Delta R^2 = .20$ for Step 3; $\Delta R^2 = .02$ for Step 4.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 2
Summary of hierarchical regression analysis for variables predicting sexually ruminative thoughts at time 2 ($N = 142$)

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Sexual abuse	.53	.21	.21**
Step 2			
Sexual abuse	.05	.22	.02
Sexually ruminative thoughts—time 1	.36	.07	.42***
Step 3			
Sexual abuse	.07	.22	.03
Sexually ruminative thoughts—time 1	.33	.08	.39***
Caseworker agency support	-.01	.06	-.01
Club involvement	-1.14	.73	-.12
Step 4			
Sexual abuse	-.20	.24	-.08
Sexually ruminative thoughts—time 1	.42	.08	.49***
Caseworker agency support	.01	.05	.01
Club involvement	-.77	.71	-.08
Caseworker agency support \times sexual abuse	.09	.03	.24**
Club involvement \times sexual abuse	1.12	.51	.19*

Note: $R^2 = .04$ for Step 1; $\Delta R^2 = .14$ for Step 2; $\Delta R^2 = .02$ for Step 3; $\Delta R^2 = .06$ for Step 4.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Sexually ruminative thoughts

The results of the stepwise analyses are summarized in Table 2. However, since significant interactions were found, these analyses were re-run hierarchically to force the previously non-significant main effects into the model. Higher levels of sexual abuse predicted increased sexually ruminative thoughts ($\beta = .21$, $p < .01$). Controlling for history of sexual abuse, time 1 sexually ruminative thoughts predicted time 2 sexually ruminative thoughts ($\beta = .42$, $p < .001$). None of the protective factors main effects analyses was significant; however, the interaction of caseworker agency support and sexual abuse was significant ($\beta = .24$, $p < .01$), as was the interaction of clubs and sexual abuse ($\beta = .19$, $p < .05$).

The interaction effects were further analyzed using the Modgraph program (Jose, 2003) and Preacher, Curran, and Bauer (2003) simple slopes' program. These analyses of caseworker agency support were examined on dichotomized data using a median split. A graph of the results is presented in Figure 1. For those low in caseworker agency support, as abuse severity increased, ruminative sexual thoughts increased significantly ($\beta = .91$, $t = 1.99$, $p < .05$). For those high in perceived caseworker agency support, as abuse severity increased, ruminative thoughts remained relatively stable ($\beta = -.20$, $t = -.85$, $p = .40$).

The results for the interaction of sexual abuse severity by membership in clubs are shown in Figure 2. For those individuals who are not involved in clubs, sexual abuse severity is not significantly related to

Table 3
Summary of stepwise regression analysis (forward selection) for variables predicting non-sexually ruminative thoughts at time 2 ($N = 142$)

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Sexual abuse	1.28	.32	.32***
Step 2			
Sexual abuse	1.21	.32	.30***
Gender	-2.42	1.10	-.17*
Step 3			
Sexual abuse	.56	.33	.14
Gender	-2.19	1.03	-.16*
Non-sexual rumination—time 1	.30	.07	.38***
Step 4			
Sexual abuse	.65	.33	.16
Gender	-2.30	1.02	.17
Non-sexual rumination—time 1	.29	.06	.37***
Interpersonal/emotional competence	-.08	.04	-.16*

Note: $R^2 = .10$ for Step 1; $\Delta R^2 = .03$ for Step 2; $\Delta R^2 = .12$ for Step 3; $\Delta R^2 = .03$ for Step 4.

* $p < .05$.

*** $p < .001$.

increased sexually ruminative thoughts ($\beta = -.20, t = -.85, p = .40$). However, if individuals are involved in clubs, increased severity is predictive of increased sexually ruminative thoughts ($\beta = .92, t = 1.99, p < .05$).

Non-sexual rumination

The results of these analyses are summarized in Table 3. Sexual abuse predicted increased non-sexual rumination ($\beta = .32, p < .001$). Girls exhibited more non-sexual rumination than boys ($\beta = -.17,$

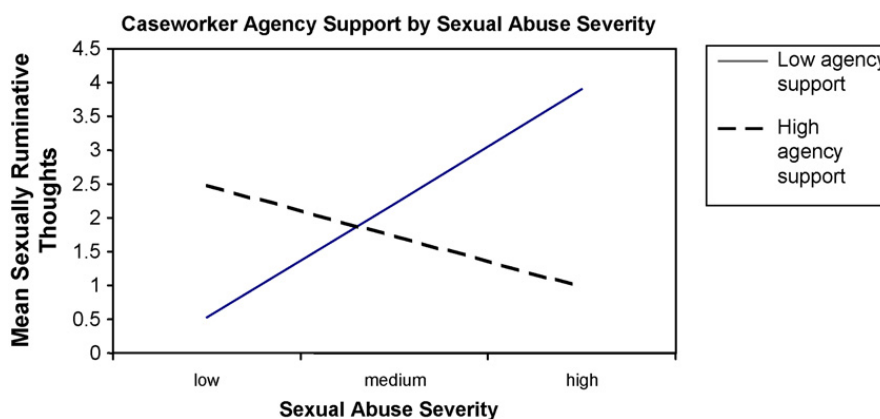


Figure 1. Interaction of severity of sexual abuse and level of caseworker agency support in predicting sexually ruminative thoughts.

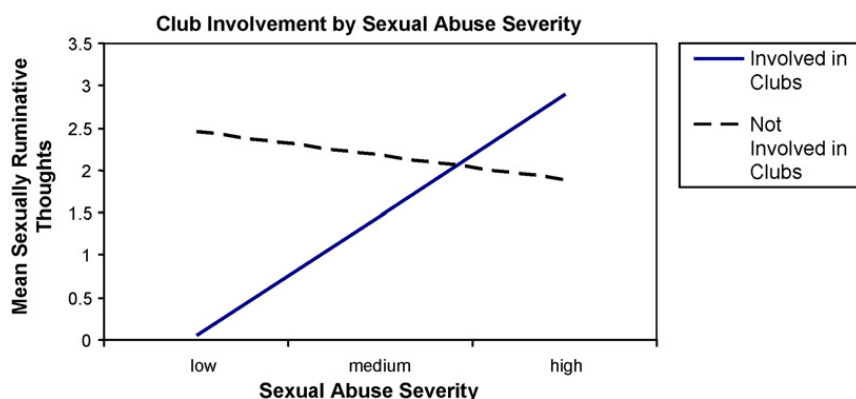


Figure 2. Interaction of severity of sexual abuse and involvement in clubs predicting sexually ruminative thoughts.

$p < .05$). Non-sexual rumination at time 1 predicted non-sexual rumination at time 2 ($\beta = .38, p < .001$). Finally, increased interpersonal and emotional competence predicted lower time 2 non-sexual rumination, controlling for time 1 non-sexual rumination ($\beta = -.16, p < .05$).

Discussion

This study found that protective factors at the level of the individual, foster family, and youths' interaction with extended community (club involvement and caseworker agency) were associated with relatively greater changes in trauma symptoms over time among highly disadvantaged youth in the child welfare system. Using an abridged version of the trauma symptom checklist (Briere, 1996), three composite scores were first derived (negative affect, sexually ruminative thoughts, and non-sexually ruminative thoughts); these scores served as the dependent variables. This study found an association between positive changes in trauma symptom checklist scores and several hypothesized protective factors. Gender (boys) and positive parenting practices predicted greater decreases in negative affect; the interaction of caseworker agency support by sexual abuse and club involvement by sexual abuse predicted greater decreases in sexually ruminative thoughts. Finally, interpersonal and emotional competence predicted greater decreases in non-sexually ruminative thoughts over time. These findings are further discussed according to Luthar et al.'s (2000) paradigm.

Main effects

Several main effects emerged across the analyses. According to Luthar et al.'s (2000) paradigm, significant main effects are termed protective because they influence the dependent variable at all levels of risk; level of risk in this study was defined by youth reports of severity of prior sexual or physical abuse. A main effect for gender was found in the analysis of negative affect; females were associated with less improvement in negative affect across the two time points, with physical and sexual abuse history held constant. This finding is consistent with prior research in the adult literature (Butler & Nolen-Hoeksema, 1994; Nolen-Hoeksema, 1993; Nolen-Hoeksema & Corte, 2004; Nolen-Hoeksema, Morrow, & Fredrickson, 1993; Nolen-Hoeksema, Parker, & Larson, 1994), which suggests that female youth have

higher levels of rumination, which in turn produces and maintains higher levels of negative affect, such as depression and anxiety. It is, therefore, noteworthy that gender also significantly predicted rumination throughout most of the non-sexually ruminative thoughts regression analysis (Table 3). However, gender was not significant at the fourth and final step, possibly due to low power or correlations among the independent variables in the analysis.

Positive parenting practices were also associated with decreased negative affect at time 2. This literature has primarily explored the effect of parenting practices among youths' biological parents (e.g., Quamma & Greenberg, 1994; Taylor, 1996). The current study adds to the literature in that it studied positive parenting practices among foster parents in a highly vulnerable child welfare population. It appears, then, that positive parenting variables continue to promote improvements in psychiatric symptoms, even at multiple levels of risk (e.g., sexual abuse history) and among youth in the child welfare system beginning to demonstrate sexual behavior problems.

Efforts to predict non-sexually ruminative thoughts led to one main effect. Emotional and interpersonal competence was the only variable that predicted lower non-sexually ruminative scores at time 2. This finding may be explained by the broader rumination literature which posits that rumination results from the inability to find mastery-oriented solutions to problems (Nolen-Hoeksema, 1998, 2000). The emotional and interpersonal competence items all appear to measure the individual's ability to display overt skills in affect management and social competence, which should lessen the need for more passive coping strategies such as rumination.

Interactions

The prediction of sexually ruminative thoughts at time 2 led to two interaction effects. Again, after controlling for time 1 sexually ruminative thoughts, prior sexual and physical abuse history and demographic variables, the interaction of both DCFS caregiver support by sexual abuse and club involvement by sexual abuse significantly predicted time 2 sexual rumination. Post hoc analyses allowed for further investigation of these effects.

Examining Figure 1, it becomes apparent that youth with sexual abuse histories whose foster parents do not believe they are supported by their DCFS caseworkers have the highest levels of sexually ruminative thoughts. The slope of the low-support agency line is significantly greater than zero while the high-support agency line is not significantly different from zero. According to Luthar et al.'s (2000) typology, this suggests that caseworker support is a protective-stabilizing variable. Luthar et al. (2000) describe this as occurring when the characteristic provides stability in competence despite increasing risk. This finding underscores the need to pay increased attention to the types of caseworker efforts that result in increased perceived support among foster parents, particularly among youth with significant sexual abuse histories.

Examining Figure 2, it appears that the club involvement by sexual abuse interaction resembles the protective-reactive typology. According to Luthar et al.'s (2000) paradigm, this occurs when an attribute such as club involvement provides adaptive advantage but less so at higher levels of adversity. The largest mean differences occur at low levels of self-reported sexual abuse: Youth with low levels of reported sexual abuse have a negligible mean level of sexually ruminative thoughts if they are involved in clubs. However, as sexual abuse history increases, sexual rumination increases significantly. This finding suggests that the greatest benefits of club involvement may be realized for youth without significant sexual abuse histories. Extra-curricular activities are often less structured and involve close and often confusing

social interactions. Involvement among sexually abused youth may require intensive monitoring and support from parents and caseworkers to realize the benefits typically seen in the extra-curricular activity literature.

Limitations

There are four limitations to this study. First, several variables were poorly operationalized. For example, involvement in club activities was represented in the study by a binary variable (involved/not involved). Ideally, extra-curricular activity variables such as club involvement should explore the effect of the amount of time spent in these activities or the effect of the type of activity on the resilience process. The second limitation involves the lack of psychometric support for several variables. For example, interpersonal/emotional competence is a variable that was adapted from the Vineland Adaptive Behavior Scales, which is an interview tool. However, in the current study, the items were given to foster parents in a paper-pencil format. The third limitation is that this study did not track youth over long enough periods of time to investigate the potential long-term behavioral effects of the protective factors. It is possible that over time, protective factors will play a role in decreasing the likelihood of sexual behavior problems.

A final limitation regards the level of missing data and the efforts to handle them. Most notably, parenting practices and club involvement had relatively high frequencies of missing data, and as a result, we had to make a key decision that would allow us to use these variables. Our decision in both cases was to replace missing data with zeros. While not appropriate in many cases, this approach to missing data in the current study was deemed conservative and likely to reduce the probability of Type I errors. For example, by replacing missing data in the club involvement variable with zero, we only studied youth who were involved in clubs and had foster parents who were able to report the involvement.

Conclusions

This study has three primary strengths. First, the design was longitudinal, allowing for the exploration of the association between changes over time in trauma symptoms and hypothesized protective factors. Second, this study controlled for the effects of early abuse and neglect and trauma scores at time one. Finally, this study used a mix youth self-report and foster parent self-report measures. In fact, the majority of hypothesized protective factors (club involvement, satisfaction with child welfare agency, and interpersonal/emotional competence) were derived from foster parent self-report while the dependent variables (trauma scales) and severity of sexual abuse were youth self-report. The use of multi-source data increases the rigor of a study by lessening the potential influence of response bias (Briere, 1992).

Overall, this investigation adds to the literature in its study of a highly vulnerable population. It is encouraging to find that highly vulnerable youth can still be affected by such variables as positive parenting practices and the presence of a supportive child welfare agency. Emotional and interpersonal competence also exists in this population and may play a role in lessening future levels of trauma symptoms. Future research should use a more sophisticated research design to explore in greater detail the possible moderating role of extra-curricular activities, such as club involvement. This study further illustrates that protective factors can vary in their significance and effect across different types and levels of vulnerability.

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