The Association Between Mental Health and Educational Problems among Adolescent

Girls in Child Welfare: Moderating Role of Protective Factors

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Abstract

Child welfare involved youth are at increased risk for mental health problems that have been associated with academic and behavioral difficulties in school. Although a wide body of literature has examined factors that promote the educational success of child welfare involved youth in general, less is known about what helps them to succeed in the context of specific risk such as mental health problems. This study investigated internal (school engagement, social problem-solving) and external protective factors (caregiver type, number of school and placement changes) that buffered the relationship between mental health problems (depression and PTSD symptoms) and educational problems. Participants were 231 child welfare involved girls who were aged between 12 and 19, and who were youth of color (75%) and White (25%). Results indicated that higher levels of depression and PTSD symptoms were significantly associated with more educational problems. Each of the external protective factors significantly moderated the relationship between PTSD symptoms and educational problems. Number of school changes and type of caregiver also moderated the relationship between depression and educational problems. Girls who lived with a biological parent and moved schools less frequently fared better. Neither of the internal protective factors, school engagement nor social problem-solving skills, served as significant moderators for the relationships between mental health problems and educational problems. Findings suggest that external protective factors provide suitable targets for interventions seeking to increase the educational success of youth who have contact with the child welfare system.

Key Words: Child welfare, adolescents, depression, PTSD, educational problems

The Association Between Mental Health and Educational Problems among Adolescent Girls in Child Welfare: Moderating Role of Protective Factors

1. Introduction

Educational problems among child welfare involved youth have been well documented globally (Jay & McGrath-Lone, 2019; McGuire & Jackson, 2018; McMillen et al., 2003). Compared to their peers in the general population, youth involved in the child welfare system experience a number of academic problems, including lower grades and standardized test scores, and higher rates of school dropout (Berger et al., 2015; Jay & McGrath-Lone, 2019; Pears et al., 2018). Histories of maltreatment have also been associated with problems with interpersonal relationships in the school environment as well as social skills deficits and elevated levels of aggression (Romano et al., 2015). The negative effects of the educational problems that child welfare involved youth experience in high school have been found to continue into adulthood. Although as many as 70% of foster care youth have reported aspirations to attend college (McMillen et al., 2003), research has also shown that few enroll in higher education and only 2% attain a bachelor's degree. A systematic review of outcomes for former child welfare involved youth demonstrated that they earned less than their peers of the same age, they were more likely to live in unstable housing, and to be involved in the criminal justice system (Gypen et al., 2017).

The educational outcomes of child welfare involved youth are shaped by a complex web of factors that include their individual characteristics and abilities, their current and past environments, and their histories of maltreatment (O'Higgins et al., 2017). For adolescent girls, mental health problems, such as depression and posttraumatic stress may be of particular importance in understanding academic or behavioral issues (Threlfall et al., 2017). International research has indicated that mental health problems are disproportionately prevalent among child

welfare involved youth in general (Dubois-Comtois et al., 2021) and among girls specifically when compared with boys with similar histories of maltreatment (Barboza & Dominguez, 2017). This may be due to the higher rates of victimization among child welfare involved girls compared to boys (Barboza & Dominguez, 2017).

The link between mental health problems and educational challenges has been well established, particularly among child welfare involved youth (Bengtsson et al., 2022; Shin, 2003). For example, a study of maltreated youth in foster care found that dissociative symptoms experienced as a response to trauma were associated with poorer academic competence (Perzow et al., 2013). Similarly, a study of Danish youth demonstrated that having a mental health problem made it almost four times more likely that a youth who had been in foster care would not complete their schooling (Bengtsson et al., 2022). Nonetheless, not all girls involved in the child welfare system have experienced problems in school; some have achieved positive educational outcomes despite experiencing elevated risk such as mental health difficulties (Kothari et al., 2021). In other words, they have demonstrated educational resilience.

Resilience is classically understood to refer to "positive adaptation in the context of risk or adversity" (Masten 2014, p.9). In the context of education, students who are resilient demonstrate positive achievement and behaviors in school despite their experience of stressful events or circumstances that might otherwise hinder their success (Martin, 2013). Youth who have been involved in the child welfare system and are educationally resilient demonstrate achievement despite the presence of risk in their lives such as histories of maltreatment and associated mental health problems. In seeking to understand these better than expected educational outcomes, research has identified a number of protective factors that mitigate the negative impact of risk in students' lives (Kothari et al., 2021; O'Higgins et al., 2017).

Protective factors have been defined as the assets in an individual's life that reduce the impact of adversity on hoped for developmental outcomes (Masten & Tellegen, 2012). They may be internal to individuals or external (i.e., environmental). In the present study, internal protective factors stem from aspects of students' identities, attitudes, motivations, and skills (Tessier et al., 2018). External factors may include characteristics of students' homes, schools, and experiences in the child welfare system (Kothari et al., 2021).

It is important to distinguish protective factors from promotive factors. Promotive factors describe resources that are related to more positive outcomes no matter the level of risk that the individual faces (Masten & Tellegen, 2012). In statistical terms they often have been referred to as the main effects. In the current study, protective factors referred to assets that function specifically in the presence of high levels of risk, to buffer the negative effects on school and educational outcomes. Statistically, they are considered the interaction effects. Although a wide body of literature has explored the factors that promote the educational success of child-welfare involved youth, far fewer studies have explored internal or external protective factors that have mitigated the impact of mental problems on educational outcomes. Thus, the current study investigated the protective factors that buffered the influence of mental health problems on the educational outcomes of child welfare involved adolescent girls.

1.1 Internal Protective Factors

Research has identified the extent to which students emotionally connect with their schools as a key internal factor in predicting their educational success (Bond et al., 2007). Emotional school engagement has been defined as the value that students place on school, feel like they belong there, and sense that they are supported by their teachers and peers (Jimerson et al., 2014). Previous studies have demonstrated that emotional school engagement has been

significantly associated with a number of positive academic outcomes in child welfare involved

youth, including increased academic confidence and achievement (Pears et al., 2013; Somers et

al., 2020). Yet, a more limited literature has identified the protective role of emotional school

engagement in buffering against the negative impact of mental health problems on school and

academic outcomes (Furlong et al., 2011) and none among child welfare samples.

Social problem-solving has been associated with a reduction in the negative effects of

mental health problems in previous studies and may represent another important internal

resource for child-welfare involved youth (Bell & D'Zurilla, 2009). Adolescents who have well

developed social problem-solving skills have been shown to find adaptive and effective solutions

to difficulties that they have encountered. They have both the skills to address problems and

positive attitudes about their abilities to cope with difficult relationships or circumstances

(D'Zurilla et al., 2002). Positive social problem-solving skills have been associated with fewer

behavioral problems such as aggression in adolescents as well as higher academic achievement

in college students (Baker, 2003; Jaffee & D'Zurilla, 2003). Despite these promising indicators,

there has been little research about the potential role of social problem-solving skills in buffering

the negative effects of mental health problems in either the general population or among youth

involved in the child welfare system.

1.2 External Protective Factors

A number of external factors have been explored in previous literature as promotive of

the educational success of child welfare involved children, including the frequency with which

youth move between home placements and schools. Greater placement stability has been

associated with several favorable educational outcomes, including positive academic growth and

achievement (Clemens et al., 2018; Villegas et al., 2014), lower rates of school dropout (Goyette

et al., 2021). Youth who experienced fewer home placements did not have to face the challenges of adapting to new home environments and benefit from greater stability in caregiver relationships, resulting in more positive educational outcomes (Tessier et al., 2018). Youth who moved placements less frequently were also more likely to be able to remain in the same school for longer periods of time and experience continuity of instruction and relationships with teachers and peers (Clemens et al., 2017). School stability has also been associated with more positive educational outcomes (Clemens et al., 2016; Pears et al., 2015). Yet, as previously noted, there is a dearth of information about the buffering or moderating effect of either placement or school stability among these youth.

Other external factors that have been explored in promoting the educational success of child welfare involved youth have included the types of placements that they live in. A small body of previous research has compared the experiences of maltreated youth who lived in out of home placements, such as foster care, to those who remain living at home with a biological parent (Maclean et al., 2016). These studies have revealed a complex picture. For example, while recent descriptive research found that the graduation rates of youth in foster care were poorer compared to child welfare involved youth who remained at home (Font & Palmer, 2024), other studies that have investigated the associated between academic achievement and out of home placement have found no relationship (Berger et al., 2015; Cusworth et al., 2021). Still further research has documented an association between out of home care and positive academic outcomes for specific groups of child welfare involved youth; notably, girls have been found to fare better than boys (Barth et al., 2020). This multifaceted picture indicates that an out of home placement may function as a protective factor in specific circumstances. However, previous

research has not investigated whether such placements act as a protective or moderating factor to mitigate the negative effects of depression and PTSD on educational outcomes in this population.

To address these gaps, this study investigated the following research questions: 1) What is the extent of mental health problems (i.e., symptoms of depression and PTSD) and educational problems experienced by child welfare involved adolescent girls? 2) To what extent are symptoms of depression and PTSD significantly associated with educational problems among these girls? 3) To what extent do internal protective factors (i.e., school engagement and social problem-solving skills) and external protective factors (i.e., placement type, placement changes, and school changes) significantly moderate the relationship between mental health problems and educational problems?

2. Methods

2.1 Institutional Review Board and Consent Procedures

All procedures for the study were approved by Institutional Review Boards of the two participating universities (Washington University and University of Missouri-St. Louis). In addition, this study was approved by the Research Committee of the state office of child protective services. Last, a Certificate of Confidentiality was secured from the Centers for Disease Control and Prevention (CDC) which was the funding agency for the study.

Written consent was obtained from the youth's legal custodian (e.g., biological parent, adoptive parent, relative, case manager), after they were referred by their case manager and expressed interest in participating in the study. Wherever possible, written consent was also secured from the youth's family support team (e.g., guardian ad litem, deputy juvenile officer, current therapist). Participants under the age of 18 provided their written assent to be involved in the study and those over the age of 18 provided their consent. During the assent/consent process efforts were made to ensure that the youth was voluntarily participating, and that no coercion

was used to comply with the case manager or any other adult. All participants were provided

with a $20 gift card to compensate them for their time in the interview, which lasted up to one

hour.

Doctoral and master's level social work students administered the assent procedures as

well as the study interview with the participants. Interviewers received comprehensive training

that included background knowledge about the population, research interviewing skills,

importance of confidentiality, and interviewer protocols for new reports of abuse, endorsements

of suicide-related items, or emotional distress experienced by the participants during the

interview. Last, confidentiality of all information shared by the participant was maintained by

de-identifying all data and storing it in a secure, password protected platform.

2.2 Participants

Participants were 231 adolescent girls involved in the child welfare system and who were

referred by their case managers to a group trauma treatment study due to experiences of trauma

and related emotional and behavioral problems. Baseline data (i.e., pretest interviews) from the

trauma treatment study were used for the current cross-sectional investigation. Girls were

included in the study if they were between 12 and 19 years of age and were formally investigated

and substantiated for child maltreatment by child protective services. Girls were excluded if they

were unable to read or write, lived in the same residence as another study participant, were

unable to tolerate discussing abuse or neglect, or if they had behaviors that would prohibit

participation in a group treatment program. As shown in Table 1, participants were between 12

and 19 years of age ($M = 14.8$, $SD = 1.6$). The majority of the participants (74.9%, $n = 173$) were

youth of color, most of whom ($n = 160$) were African American, with the other youth of color

identifying as Hispanic (n=4) American Indian (*n* = 4), Asian (n=1), and Other (n=4). The

remaining participants (25.1 %, *n* = 58) identified as non-Hispanic White.

2.3 Variables and Measures

2.3.1 Mental Health Variables

Depression. Depressive symptoms over the previous two weeks were measured using the

Child Depression Inventory (Kovacs, 2003). The twenty-seven items were scored on a scale

from 0-2 and then summed, with higher total scale scores indicating more severe symptoms of

depression. The CDI has demonstrated good internal consistency and test-retest reliability in a

child welfare population (Kolko et al., 2010). The internal consistency alpha coefficient for the

study sample was $\alpha = 0.90$.

PTSD Symptoms. PTSD symptoms over the previous month were measured using the

Child PTSD Symptom Scale (Foa et al., 2001). Participants rated the frequency of symptoms

described in 17 items (e.g., Trying not to think about, talk about, or have feelings about the

trauma; Having trouble falling or staying asleep) on a four-point scale from "not at all" (0) to

"five or more times a week (3). The scale has demonstrated good internal consistency and

test-retest reliability, as well as convergent validity (Foa et al., 2001). Internal consistency for the

current sample was $\alpha = 0.88$.

2.3.2 Educational Problems

An index of educational problems was created from six items assessing the participants'

academic or behavioral difficulties in their previous school year. Participants were asked if they

had: 1) engaged in physical fights with other students, 2) engaged verbal fights with teachers, 3)

engaged in physical fights with teachers, 4) skipped school without permission, 5) failed any

classes. These first five items were scored with a response scale of (Yes = 1, and No = 0). The

sixth item assessed the participants' grades in their previous year. This item was coded as (Mostly A's, B's, and C's = 0; and Mostly D's, and F's = 1). The total educational problems index had a possible range of 0-6, with higher scores indicating more educational problems.

2.3.3 Internal Protective Factors

School engagement. School engagement was measured using seven items from the Psychological Sense of School Membership scale (Goodenow, 1993). The items indicated participants' emotional engagement with their schools, peers, and teachers, the degree to which they felt included in activities at their school, were respected by teachers, felt a part of the school, and if they were noticed at school when they were good at something. Items were scored on a four-point scale from strongly disagree (1) to strongly agree (4) and then summed to form a total score, with higher scores indicating higher levels of engagement. Convergent validity was established in a previous study with a foster care population in which significant correlations were found between the seven-item scale and measures of academic achievement (White, 2005). Internal consistency for the current sample was $\alpha = 0.78$.

Social Problem-Solving Skills. Social problem-solving skills were measured using the Social Problem-Solving Inventory-Revised: Short Form (SPSI-R: S; (D'Zurilla et al., 2002). The scale assesses ability to adapt, cope, and resolve everyday problems. The 25 items were rated on a five-point scale from "Not at all true of me" (0) to "Extremely true of me" (4) with higher scores indicating greater problem-solving facility. Previous research has demonstrated the reliability and validity of the SPSI-R: S across various populations (D'Zurilla et al., 2002). Internal consistency for the current sample was $\alpha = 0.82$.

2.3.4 External Protective Factors

Number of School Changes. School changes were measured as the number of times the girls had reported changing schools in the middle of the school year since they were in sixth grade.

Number of Placements. Number of placements were measured as the number of different *types* of placements that the adolescent had lived in during the past year.

Caregiver Type. A dichotomous variable was created to indicate whether the participant was living with their biological parent(s) (coded as 1) or in another placement type such as foster family, group home, relative's home, or adoptive family (coded as 0).

2.4 Data Analysis

Univariate statistics and frequencies were used to describe the levels of mental health problems, educational problems, and internal and external protective factors. Pearson product-moment correlations were used to calculate the bivariate relationships between all independent, dependent, and control variables (i.e., age; ethnicity coded as 0 = youths of color; 1 = non-Hispanic, white). Finally, a series of multiple regression and moderation analyses were conducted (Hayes, 2018). These analyses tested the interaction of the independent and moderating variables and then provided simple slopes for each level of dichotomous moderators and each quartile for continuous moderators. The simple slopes described the differential impact of a significant moderator on the relationship between the independent and dependent variables. In order to estimate the effect size of the moderators that were significant, Cohen's f^2 local effect size estimates were generated (Selya et al., 2012). The f^2 statistic measures the impact of a single variable, in this case the interaction between the predictor and hypothesized moderator within a multiple regression equation.

3. Results

3.1 Descriptive Analyses

Table 1 shows the frequencies of educational problems and types of caregiver settings reported by the participants. The majority of participants (72.73%, n = 168) reported experiencing at least one school problem. The most frequently reported problem was failing a class, endorsed by 40.69% (n = 94) of participants, followed by engaging in physical fights with other students (35.06%, n = 81). Approximately one fourth of participants reported skipping school (26.41%, n = 61) and getting in verbal fights with teachers (25.11%, n = 58). Less frequently reported problems were receiving low grades (9.09%, n = 21) and getting in physical fights with teachers (0.87%, n = 2). The most commonly endorsed caregiver or placement type among the participants was living with their biological parent (39.39%, n=91). The other participants lived with foster carers (28.1%, n = 65), relatives (13.9 %, n = 32), in group homes (9.5%, n = 22), with adoptive parents (7.4 %, n = 17), or in a correctional facility or other kind of care (1%, n = 2).

Descriptive analyses (means and SD's) of the independent and dependent variables are shown in Table 2. Results indicated that the participants' mean depression score was 11.71 (SD = 8.25); 39% of the adolescents reported scores $\geq$ 13, indicating that they scored in the clinical range ($\geq$ 13) as established by (Kovacs, 2003). For PTSD, the mean score was 16.72 (SD = 10.83), with 54% of participants scoring in the clinical range (>15) (The International Society for Traumatic Stress Studies, n.d.). The total mean school engagement score was 20.6 (SD = 3.85). The two most strongly endorsed items were related to receiving respect (89.61%) and interest (87.45%) from their teachers, and 74.89% of the girls believed that they were a part of the school. The mean social problem-solving score was 11.55 (SD = 2.67). Results of the external

protective factors (Table 2) indicated that over half of the girls who participated in the study

(55.0%, *n* = 127) had changed schools at least once in the middle of the school year since sixth

grade. The mean number of mid-year school changes was 1.23 (*SD* =1.59). Most of the girls in

the study (59.3%, *n* = 137) had also lived in more than one placement setting over the previous

year. The mean number placements that the girls had lived in was 2.25 (*SD* = 1.47).

3.2 Correlational and Moderating Analyses

Results of the analyses of the associations between mental health problems and

educational problems indicated that girls with higher levels of depression (*r* = 0.16, *p* = .02) and

PTSD (*r* = 0.13, *p* = .04) reported more educational problems (Table 3). Likewise, analyses

between the protective factors and educational problems showed that girls who had lower levels

of school engagement (*r* = -0.28, *p* <.001) and who had a greater number of home placements (*r*

= 0.13, *p* < .05) experienced more educational problems. Analyses of demographic variables

indicated that youths of color reported more school problems than non-Hispanic white youths (*r*

= -.15, *p* < .05), and older youths reported more school problems than their younger counterparts

(*r* = .17, *p* < .01). Thus, ethnicity and age were included as control variables in the multiple

regression models. The other protective factors, number of school changes, living with a

biological parent, or levels of social problem-solving skills were not significantly associated with

the girls' educational problems.

Results of the moderating analyses indicated that school changes was a significant

protective factor in the relationship between both mental health variables and educational

problems (see Table 4). The interaction between depression and school changes was significant

(*b* = .015, *se* = .006, *t* = 2.583, *p* = .01, f^2 = .025). The moderating effect of school changes was

further investigated using simple slopes at quartiles. As shown in Figure 1, depression had no

significant impact on school problems when there were no school changes ($b = .009$, $se = .011$, $t = .797$, $p = .426$). The impact of depression on educational problems was significant and increased when there was one ($b = .024$, $se = .009$, $t = 2.590$, $p = .01$), two ($b = .039$, $se = .010$, $t = 3.681$, $p < .001$) or three ($b = .054$, $se = .0144$, $t = 3.761$, $p < .001$) school changes. The Johnson Neyman technique showed that the relationship between depression and educational problems reached and maintained significance at or above .66, or at 1 or more school changes (when rounding the estimated Johnson-Neyman predicted moderator value to the nearest scale value).

Likewise, the interaction between PTSD and school changes was also significant ($b = .011$, $se = .005$, $t = 2.344$, $p < 0.02$, $f^2 = .020$). PTSD was not significantly associated with educational problems when there were no school changes ($b = 0.003$, $se = 0.009$ $t = .334$ $p < .739$), or one school change ($b = .013$, $se = .007$, $t = 1.896$, $p < .059$); however, when there were two school changes ($b = .024$, $se = .007$, $t = 3.121$, $p < 0.002$), or three school changes ($b = .035$, $se = .0104$, $t = 3.327$, $p < .001$) PTSD was significantly associated with educational problems (Figure 2). The Johnson-Neyman technique indicated that the relationship between PTSD and educational problems reached significance at or above 1.04, or rounded to the nearest scale value, at one or more school change.

Although the number of placements did not significantly moderate the relationship between depression and educational problems, it was a significant moderator between PTSD and educational problems ($b = .010$, $se = .004$, $t = 2.198$, $p < .029$, $f^2 = .017$). As indicated in Figure 3, PTSD was not significantly associated with educational problems when participants had lived in only one placement ($b = .002$, $se = .009$, $t = .228$, $p < .82$), or two placements ($b = .013$, $se = .007$, $t = 1.724$, $p < .086$). However, the association between PTSD and educational problems was significant when participants had lived in three placements ($b = .023$, $se = .008$, $t = 2.914$, p

< 0.004) or four placements ($b = 0.033$, $se = .01$, $t = 3.098$, $p < 0.002$). The Johnson-Neyman

technique indicated that the relationship between PTSD and number of placements reached

significance at 2.15; or rounded to the nearest scale value at 2 placements.

Caregiver type also functioned as a significant moderator in the relationship between

depression and educational problems ($b = -.058$, $se = .019$, $t = -3.09$, $p < .002$. $f^2 = .038$). The

moderating effect of placement type on depression was investigated using simple slopes for each

of the two placement types. As shown in Figure 4, higher depression resulted in more

educational problems for girls who lived in placement settings other than with their biological

parents ($b = .051$, $se = .013$, $t = 3.992$, $p < .001$) while depression had no significant impact on

educational problems for girls who remained living with their biological parents ($b = -.006$, $se =$

$.014$, $t = -.466$, $p < .64$).

The interaction between caregiver type and PTSD was also significant ($b = -.032$, $se =$

$.015$, $t = -2.19$, $p < .03$, $f^2 = .017$). Similarly, more severe PTSD symptoms were associated with

a greater number of educational problems for girls who lived with caregivers who were not their

biological parents ($b = 0.029$, $se = .009$, $t = 3.06$, $p < 0.003$), whereas there was no significant

association for girls who lived with their biological parents ($b = -0.006$, $se = .013$, $t = -.47$, $p <$

$.65$) as shown in Figure 5. Finally, there were no significant interactions between the mental

health variables and school engagement, or between the mental health variables and social

problem-solving skills in predicting educational problems among the participants.

Results indicated that the effect sizes (Cohen's f^2) of the significant interactions across

models ranged from .017 to .038. A comparison of the strength of the moderators across models

suggested that caregiver type (i.e., living with biological parents) was the strongest protective

factor, particularly in mitigating the influence of depression on educational problems among the

girls. Although this effect has been considered small by Cohen (1988), Aguinis, et al. (2005)

found that the average f^2 in tests of moderation over a 30-year period was .009. Thus, it was

suggested that the general Cohen guidelines may possibly understate the strength of the f^2 values

of interaction terms (Aguinis, et al., 2005).

4. Discussion

The current research explores protective factors that buffer the relationship between

mental health problems and educational problems for adolescent girls involved in the child

welfare system. Whereas previous research has primarily examined factors that contribute to the

educational resilience of all child welfare youth (O'Higgins et al., 2017), the present study used

moderating analyses to investigate the mitigating effects of protective factors among youth with

mental health problems. Because this study utilized cross-sectional baseline data from a sample

of child welfare-involved girls who were recruited for a trauma intervention study, the

participants reported high levels of PTSD and depressive symptoms, placing them at increased

risk for educational problems (Bengtsson et al., 2022; Shin, 2003). More than a third (39%)

reported depressive symptom scores in the clinical range and more than half (54%) reported

scores in the clinical range for PTSD.

One of the important findings of this study is that external protective factors significantly

mitigate the impact of mental health problems on the girls' educational problems compared to

the internal protective factors. For example, fewer school changes buffered the negative impact

of depression and PTSD symptoms on participants' number of educational problems. Although

school stability has been previously identified as a promotive factor (i.e., significantly correlated

with fewer school problems or positive academic outcomes) among welfare involved youth

(Clemens et al., 2016; Pears et al., 2015), the current study indicates that child welfare-involved

youth who have symptoms of depression or PTSD may be more likely to benefit from continuity of their school environment. School changes may be particularly detrimental to youth who have existing mental health problems due to a disruption in support from peers and teachers who are cognizant of their needs. Youth may also experience a disruption in school based mental health services when they move between institutions. It is notable that the analyses further indicated that it only took one school change for the relationship between mental health problems and educational problems to become significant. More than half (55%) of the girls in the study moved schools at least once in the middle of the school year. Youth in out of home placements are a highly mobile population and move schools considerably more often than youth in the general population (Pears et al., 2015) despite legislation designed to ensure school stability and reduce interruptions in education for children in foster care (Every Student Succeeds Act, 2015). This high degree of mobility is a serious concern when considered in tandem with the high rates of mental health problems present in the population.

Similarly, placement stability also functioned as an external significant protective factor, moderating the relationship between PTSD symptoms and educational problems. Although previous research has found that fewer home placements was significantly associated with positive academic outcomes among a general population of child welfare involved youth (Clemens et al., 2018; Goyette et al., 2021; Villegas et al., 2014), the findings of the current study indicate the positive benefit of fewer placement disruptions on educational outcomes for youth who are experiencing symptoms of posttraumatic stress. Previous research has demonstrated the value of continuity in the social, emotional, and academic environment provided by caregivers in uninterrupted placements, specifically in promoting positive educational outcomes (Tessier et al., 2018). Moreover, other research has shown that foster youth

who live with caregivers who provide more academic support and who have higher expectations for their education are more likely to be academically successful (Cheung et al. 2012). Youth who experience PTSD symptoms that impede their success in school may benefit especially from maintaining emotionally secure and lasting relationships with caregivers who are familiar with their socioemotional and educational needs.

Results also indicated that living with biological parents mitigates the negative impact of depression and PTSD symptoms on educational problems for child welfare involved girls. Indeed, remaining in the family home emerged as the strongest protective factor. This finding adds to the complex literature that has explored the impact of out of home placement on the school success of child welfare involved youth (Maclean et al., 2016), contrasting with previous studies that have found a positive association between out of home placement and educational outcomes (Barth et al., 2020). A wide body of literature has documented the relationship between consistent parental involvement in educational activities during adolescence and positive educational outcomes in the general population (Hill & Tyson, 2009). Additionally, studies have found a similarly positive association between parental involvement in education and adolescent mental health (Wang et al., 2019). The inconsistencies across studies with child welfare youth may be due, in part, to the degree of parent or caregiver involvement in the youths' school activities, as well as their mental health status. Other factors have been shown to be important. For example, caregiver support, as well as parental engagement, acceptance, and having a positive parent-child relationship have all been associated with educational resilience in children who have experienced maltreatment (Yoon et al., 2019). Future research is needed to explore the specific influence of the youth-caregiver relationship in mitigating the role of mental health problems on educational outcomes among maltreated children. It is also worth noting that

girls in the current sample who lived with a biological parent likely reflected cases where a successful reunification had taken place or where they had been assessed as being able to remain in the home safely. More functional family dynamics and parental responsiveness to services may also help to explain the different experiences of girls with mental health problems who remain living at home.

Contrary to expectations, neither of the internal protective factors, school engagement nor social problem-solving skills in this study, significantly reduced the negative impact of mental health problems on educational problems. However, results did indicate that higher levels of school engagement are significantly associated with fewer educational problems at the bivariate level. These findings are consistent with previous research indicating the important influence of a sense of belonging to school on positive educational outcomes in child welfare involved youth (Pears et al., 2013; Somers et al., 2020). Additionally, results suggest that school engagement functions as a promotive factor and does not significantly mitigate the negative effects of depression and PTSD symptoms on educational outcomes. Last, social problem-solving skills were not significantly associated with educational problems among the participants, as either a protective or a promotive factor. This is inconsistent with previous literature that indicates that higher levels of interpersonal problem-solving skills are associated with positive academic performance (Baker, 2003; Wentzel, 1991). However, these previous studies were not conducted with child welfare youth, nor with youth with mental health problems which may account for the difference in results. Because ineffective problem-solving skills and an avoidance coping style is common among populations who experience trauma and symptoms of PTSD (Bal et al., 2003), and evidence indicates that these skills can be improved among girls in child welfare (Auslander et al., 2020), more research is warranted on social problem-solving in this population.

4.1 Limitations and implications for future research and practice

The results of this study should be considered in light of several limitations. First, the sample of this study were youth who were referred by child protective services for a trauma treatment study, and therefore, may not be representative of the general population of child welfare youth in terms of their severity of mental health problems. Additionally, most of the sample was African American, and 100% female, and thus, future research would benefit by a more diverse sample in terms of gender, race, and ethnicity. Second, the focus of the study is on protective factors among adolescents and is limited in increasing our understanding of developmental differences in protective factors from early childhood to older youth. Future research that includes younger children may be useful for identifying specific modifiable protective factors that can be addressed through interventions before or at the early phases of when some of the educational deficits occur in this population. Relatedly, the data from this study are cross-sectional; longitudinal designs that examine the protective impact of internal and external factors on educational outcomes over time is warranted. Last, the sample size of this study is relatively small, and a larger sample size for future research in this area would be beneficial, particularly in untangling the protective nature of the other types of placement types, such as foster care, relative care, and group homes.

Future research should investigate more fully the role that the external protective factors identified here play in mitigating the negative effects of mental health problems on school functioning. For example, further study is needed to understand the unexpected finding that number of placements was a significant protective factor for PTSD but not for depression. Future research is also needed to identify other factors that may account for the finding that living with a biological parent is a protective factor such as the varying types and nature of child welfare

involvement (e.g., in home services) or school and community level factors such as connections with teachers, peer support, or participation in community or school-based mental health services.

The findings of the study emphasize the importance of identifying and addressing the mental health needs of youth who have contact with the child protective services whether they live in an out of home placement or remain with a biological parent. Routine screening and early intervention have the potential to not only mitigate mental health symptoms but equally as important to positively impact the academic trajectories of these vulnerable youth. Furthermore, strategies to increase placement and school stability should be prioritized in cases where adolescent mental health is a concern. On a local level this might include offering targeted training to caregivers. Previous research has indicated that placement stability is increased when foster carers have access to sufficient social support, are able to create secure relationships with the youth in their care, and understand their traumatic experiences (Vanderwill et al., 2021). Future studies might investigate the effectiveness of these strategies for supporting the parents of youth who receive in home child welfare services.

It is also important that professionals working in educational settings (e.g., foster care liaisons, school social workers) and child welfare professionals collaborate to identify students who are at risk due to mental health problems. There is some evidence to indicate that school-based programs can be effective in supporting both child welfare involved students and their caregivers. For example, previous research has found that advocacy support in schools directed toward foster carers are associated with fewer placement moves (Sabourin et al., 2024). Additionally, interventions that provide wrap around case management services for child welfare involved youth, providing mental health services and seeking to address issues such as those

associated with placement mobility have shown some promise in increasing academic achievement and behavioral outcomes (Keeney et al., 2024). However, despite these promising indications, there is currently a lack of rigorous research investigating school-based models of support for youth in care (Sabourin et al., 2024). Further intervention studies are warranted to evaluate existing interventions and to develop further school-based interventions that specifically seek to identify and build on protective factors that mitigate the negative effects of mental health problems for child welfare involved youth.

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Table 1

Frequencies of caregiver type and educational problems (N = 231)

Variable	n	%
Caregiver type		
Biological parent	91	39.39
Foster family	65	28.14
Other relative's home	32	13.85
Group home	22	9.52
Legal adoptive family	17	7.36
Other	2	0.86
Educational problems (type)		
Skipped school	61	26.41
Physical fights with students	81	35.06
Failed a class	94	40.69
Verbal fights with teachers	58	25.11
Low grades	21	9.09
Physical fights with teachers	2	0.87
Educational problems (number)		
0	63	27.27
1	77	33.33
2	50	21.65
3	25	10.82
4	15	6.49
5	1	0.43

Table 2

Means (M) and standard deviations (SD) of variables (N = 231)

	M (SD)
Educational problems	1.37 (1.20)
Depression	11.71 (8.25)
PTSD	16.72 (10.83)
School engagement	20.60 (3.85)
Social problem-solving skills	11.55 (2.67)
Number of placements	2.25 (1.47)
School changes	1.23 (1.59)

Table 3

Correlations between independent and dependent variables (N = 231)

Variable	1	2	3	4	5	6	7	8	9	10
1. Depression	-									
2. PTSD	.75***	-								
3. No. of placements	.12	.13*	-							
4. No. of school changes	.01	.02	.22***	-						
5. Caregiver type	.20**	.21**	-.14*	-.21**	-					
6. School engagement	-.40***	-.19**	-.01	.04	-.12	-				
7. Social problem-solving	-.45***	-.37***	-.03	.12	-.02	.20**	-			
8. Educational problems	.16*	.13*	.13*	.10	.05	-.28***	-.08	-		
9. Ethnicity	.11	.05	-.11	-.11	.04	-.04	-.07	-.15*	-	
10. Age	.01	-.06	.13	.30***	-.17*	-.03	.04	.17**	-.02	-

*p< .05; ** p< .01; *** p< .001

Table 4

Results of Moderating Analyses

	B	SE B	R^2
Models with Depression as Independent Variable			
Depression	0.009	0.011	0.107
Number of school changes	-0.148	0.082	
Depression x Number of school changes	0.015*	0.006	
Age	0.114*	0.049	
Race	-0.403*	0.177	
Depression	0.007	0.018	0.091
Number of placements	-0.043	0.103	
Depression x Number of placements	0.008	0.007	
Age	0.109*	0.049	
Race	-0.440*	0.007	
Depression	0.051***	0.013	0.121
Caregiver type	0.837**	0.276	
Depression x Caregiver type	-0.058**	0.019	
Age	0.125**	0.047	
Race	-0.479**	0.174	
Depression	-0.015	0.046	0.364
School engagement	-0.094**	0.036	
Depression x School engagement	0.001	0.002	
Age	0.120*	0.046	
Race	-0.439*	0.175	
Depression	-0.005	0.038	0.084
Social problem-solving skills	-0.043	0.051	
Depression x Social problem-solving skills	0.003	0.003	
Age	0.123*	0.048	
Race	-0.433*	0.179	
Models with PTSD as Independent Variable			
PTSD	0.003	0.009	0.095
Number of school changes	-0.147	0.086	
PTSD x Number of school changes	0.011*	0.005	
Age	0.125*	0.049	
Race	-0.377*	0.177	

PTSD	-0.008	0.013	0.097
Number of placements	-0.134	0.104	
PTSD x Number of placements	0.010*	0.004	
Age	0.107*	0.048	
Race	-0.387*	0.005	
PTSD	0.030**	0.010	0.095
Caregiver type	0.707*	0.301	
PTSD x Caregiver type	-0.032*	0.015	
Age	0.135**	0.048	
Race	-0.454*	0.176	
PTSD	-0.027	0.035	0.141
School engagement	-0.115**	0.037	
PTSD x School engagement	0.002	0.002	
Age	0.124**	0.046	
Race	-0.429*	0.172	
PTSD	0.002	0.029	0.076
Social problem-solving skills	-0.043	0.054	
PTSD x Social problem-solving skills	0.001	0.003	
Age	0.132**	0.048	
Race	-0.414*	0.178	

*p< .05; ** p< .01; *** p< .001

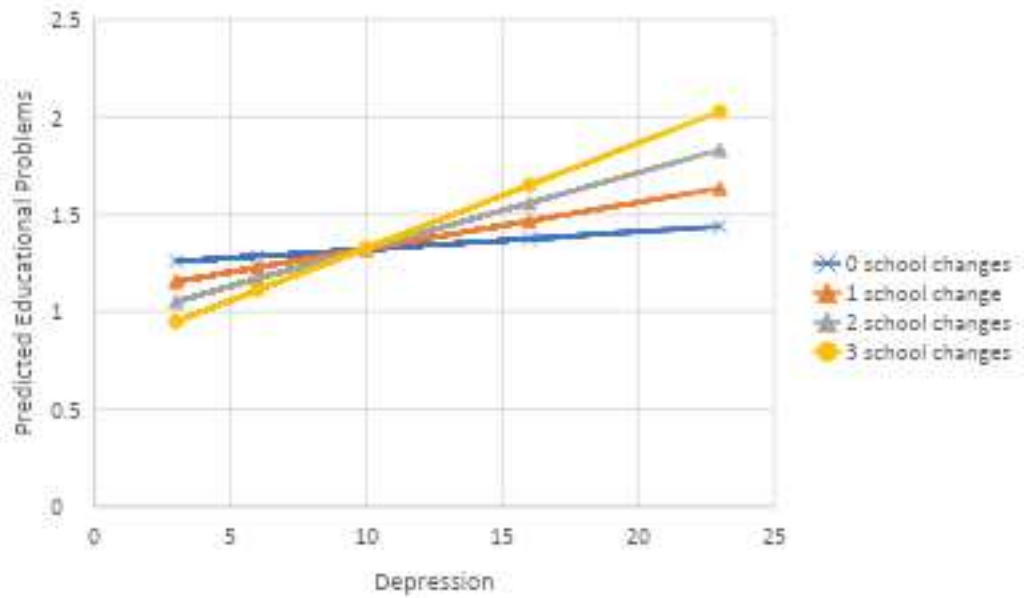Figure 1. Interaction between depression and school changes

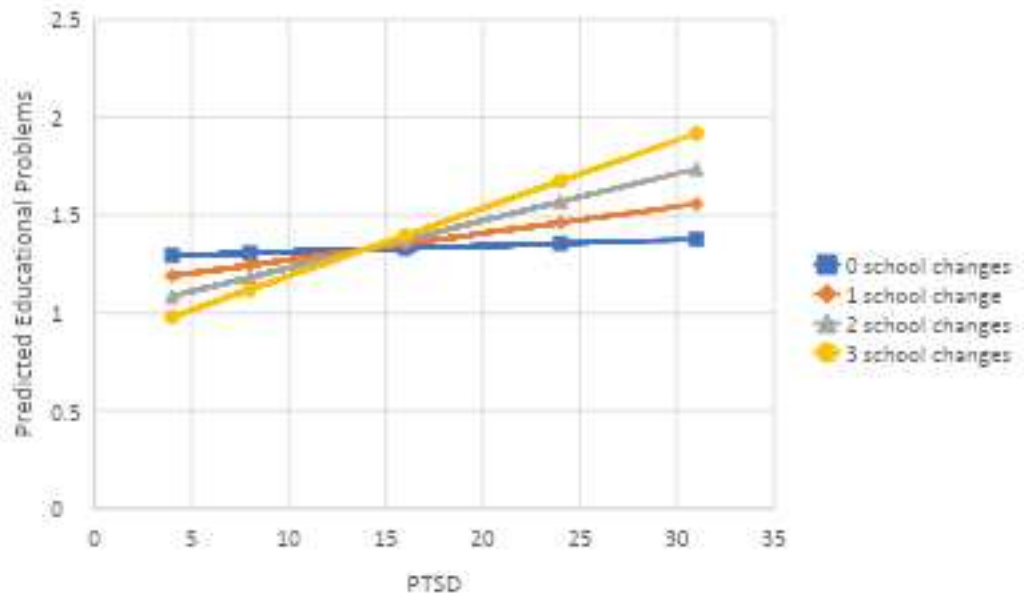Figure 2. Interaction between PTSD and school changes

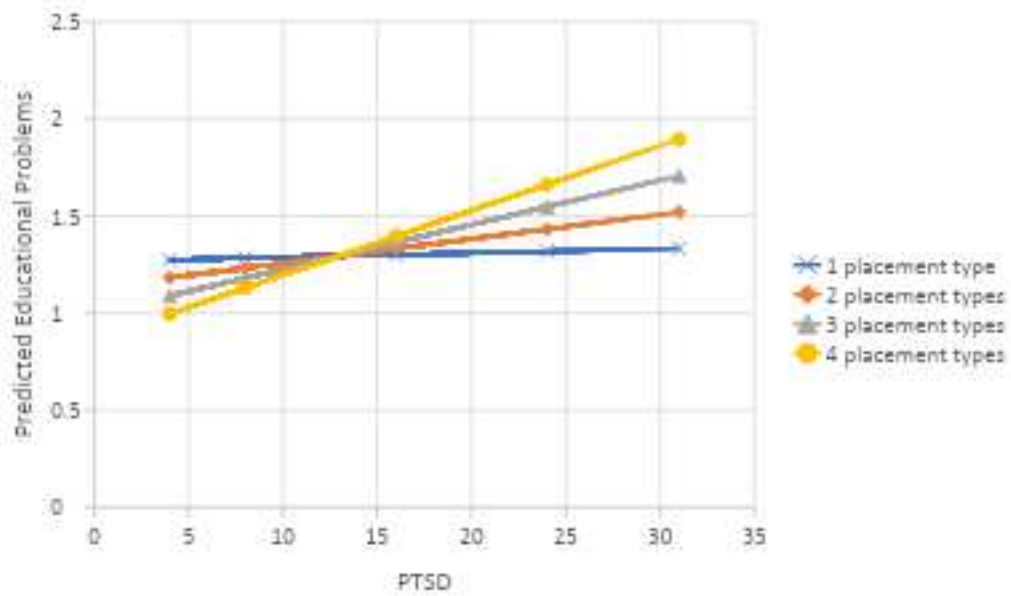Figure 3. Interaction between PTSD and number of placements
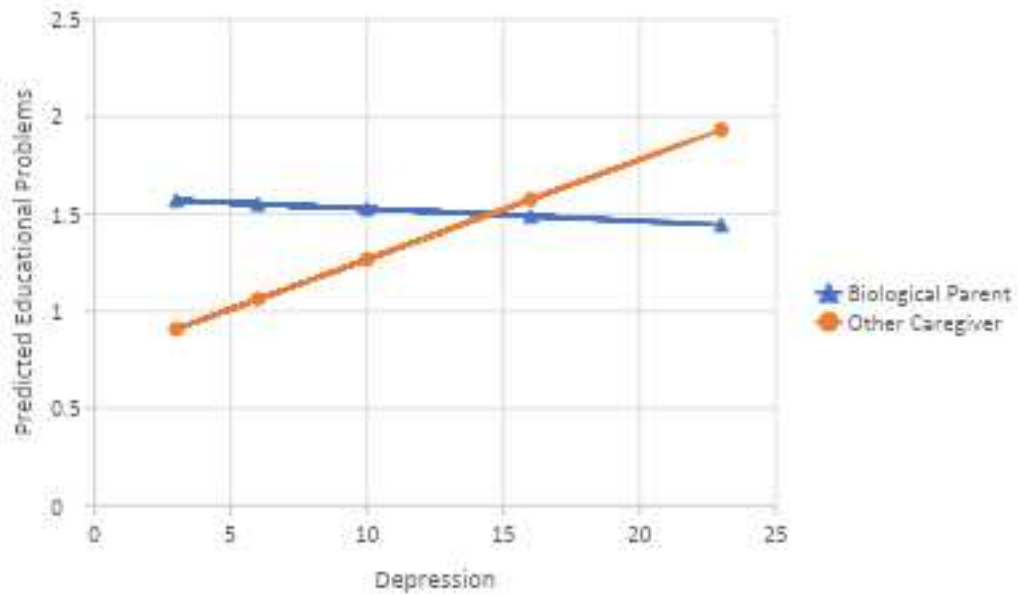
Figure 4. Interaction between depression and caregiver type

Figure 5. Interaction between PTSD and caregiver type