Coping Styles of Maltreated Children as Related to Risk and Temperament

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Abstract

A large number of children are classified as maltreated, and these children respond to

maltreatment in different ways. Cumulative sociodemographic risk factors and

temperament both affect the socioemotional outcomes, including internalizing and

externalizing behavior problems. The purpose of this study was to determine whether the

association between risk factors and behavioral outcomes in children who have been

neglected or abused is influenced by temperamental characteristics. Social workers in

Virginia completed questionnaires about five children and adolescents who are part of

their current case load. Questionnaires included demographic questions, a Child

Behavior Checklist (CBCL), and an Emotionality Activity Sociability (EAS)

temperament assessment of the children. This study has practical applications in the area

of intervention, as children with high levels of Emotionality show more behavior

problems and may need intervention sooner than others.

Coping Styles of Maltreated Children as Related to Risk and Temperament

Literature Review

It is estimated that between 3.3 million and 10 million children are exposed to domestic violence in their home, and almost 900,000 are classified as maltreated (Moylan et al., 2010). There is no universally accepted definition of child abuse, so different federal, state, and local governments use their own (Goldman, Salus, Wolcott, & Kennedy, 2003). According to the United States federal government, child abuse is "any recent act or failure to act on the part of a parent or caretaker that results in death, serious physical or emotional harm, sexual abuse, or exploitation; an act or failure to act that presents an imminent risk of serious harm" (Goldman et al., 2003, para. 2).

Risk Factors and Cumulative Risk

Researchers have attempted to find ways to predict the likelihood of negative child outcomes. These predictive factors are referred to as risk factors. Some examples of risk factors include teenage mothers, single parents, low socioeconomic status, substance abuse, and minority status (Lengua, 2002). Parents with low education levels, poor impulse control, high stress levels, antisocial personalities, or who were themselves abused as children can also increase a child's risk (Masten & Wright, 1998). Rutter (1979) identified large family size, paternal criminality, and placement in a foster home as additional risk factors. Risk factors in the realm of maltreatment can include factors that increase the likelihood of children being abused, as well as factors that would cause a child to face worse outcomes than other maltreated children (Masten & Wright, 1998). These risk factors are not deterministic; they increase the probability or negative outcomes.

According to Masten and Wright (1998), risk factors can also compound to create even greater risk, called cumulative risk. Because this combination of factors is so common, risk is often considered in this way. Severe, prolonged maltreatment has been shown to have more negative effects, and the fact that the stressor is a person who should be caring for the child also increases the negative outcomes (Masten & Wright, 1998). Sameroff and Fiese (1990) concluded that the number of cumulative risk factors is more influential than any one individual risk factor. Masten and Wright (1998) also identified the need for research regarding the various ways in which cumulative risk influences outcomes, but propose that there may be a "ceiling effect" when cumulative risk levels reach a certain level (p. 21).

Both the research of Lengua (2002) and Masten and Wright (1998) addressed the importance of individual differences. Lengua noted that individual differences can mediate the outcomes of risk, but Masten and Wright said the differences can actually be risk factors in themselves. Some children may be more likely to be abused based on their appearance, behavior, temperament, or intelligence (i.e., dual risk). The fact that a child has been maltreated in the past can also increase the likelihood that he will be maltreated again and make him more vulnerable to the negative effects of future maltreatment; however, this possible consequence is difficult to investigate, because the effects of maltreatment are hard to separate from the effects of the other risk factors the child is facing.

Appleyard, Egeland, van Dulmen, and Sroufe (2005) proposed that the age at which risk factors occur may also affect the strength of the negative outcomes. Because of the influence of early childhood on later development, the researchers said that risk

factors during this time may cause more problems. Risks presented in middle childhood were not found to significantly affect adolescence, possibly because social influences are stronger at that point (Appleyard et al., 2005). Risks present during early childhood, however, were found to affect adolescence even after considering additional effects of middle childhood risk.

Reaction to Maltreatment

Children exposed to domestic violence and/or child abuse are more likely to experience a wide range of adverse psychosocial and behavioral outcomes (Moylan et al., 2010). Boys are more likely to have externalizing behavior problems, such as aggression or hyperactivity, than girls. The girls, on the other hand, are more likely to have internalizing behavior problems, such as depression. In addition, home violence over an extended period of time increased the risk of depression (Kennedy, Bybee, Sullivan, & Greeson, 2010). There is also some evidence to suggest that abused children tend later to abuse their own children (Moylan et al., 2010). Also, research has found behavior differences dependent on the type of maltreatment (Crittenden, 1985). Abused children tend to be more violent and angry, while neglected children feel helpless.

According to Masten and Wright (1998), the results of maltreatment can sometimes be difficult to separate from the results of the risk factors themselves. For example, some developmental problems may be caused by having young, inexperienced parents rather than from neglect. Also, simply witnessing violence at home can have some of the same effects on children as being maltreated themselves (Masten & Wright, 1998).

The study of resilience in children explores their tendency to experience typical development despite these adversities. Resilience is typically measured by school achievement, self-regulation, relationships with peers, and the ability to form secure attachments with others (Walsh, Dawson, & Mattingly, 2010). Masten (2001) defined resilience as "a class of phenomena characterized by good outcomes in spite of serious threats to adaptation or development" (p. 228).

Masten (2001) stated that resilience is not an extraordinary event, but rather a regular occurrence. It occurs as a normal part of adapting, as long as the systems involved are functioning correctly. Parental involvement among other things can aid this process, but is not necessary. Instead, it is a result of typical human adaptation. There are many different strategies that children use to cope with negative experiences and those who use a variety of different coping mechanisms appear to be more resilient than those who rely on only one (Rutter, 1981).

Lengua (2002) noted that some coping styles may help a child's development, but others may cause further problems. She names "problem solving and positive cognitive coping" (p. 158) as coping mechanisms that may help a child adjust normally. However, avoidance can cause more problems for adjustment.

Coping can be classified based on different purposes. Rutter (1981) described coping as having "the dual function of problem-solving and of a regulation of emotional distress" (p. 345). Coping mechanisms can be classified in several different ways. These divisions are based on purpose (problem-solving or controlling emotion), what is being done (action, stopping action, looking for more information), and when the coping occurs (before or after the stress). Rutter stated that not all coping is effective, but it is difficult

to distinguish between effective and ineffective coping. In a later publication, Rutter (1987) identified four specific classifications of coping mechanisms. The first group reduced the impact that the stress has on the individual. A second type worked to stop negative outcomes and a third improved the individual's view of himself. The final group either looked for new opportunities, or kept current opportunities from ending.

Masten (2001) provided several possible models of interaction effects of a moderator on the cause-effect relationship between risk factors and outcomes. Based on one of the individual models, she described intelligence, motivation, and effective parenting as possible moderators. As another facet of individual differences, temperament may also have a moderating effect.

Temperament

Temperament has been defined in different ways by various researchers. Akker, Deković, Prinzie, and Asscher (2010) described temperament as "the biologically based core of individual differences in style of approach and response to the environment that is stable across time and situations" (p. 485). Buss and Plomin (1984) stated that temperament is inherited and is apparent in early childhood. They listed the components of temperament as emotionality, activity, and sociability. Their book described each of the different facets and includes questionnaires that can be filled out by parents or teachers in order to determine a child's temperament. They also explained that temperament is not necessarily consistent throughout all of childhood and adulthood, but temperament in childhood is predictive of later behavior. Trofimova (2010) further noted that temperament and personality are both dynamic, and are constantly interacting with each other; a slight change in one will lead to a change in the other.

Different theories include other facets in addition to emotionality, activity, and sociability, but these three remain the most consistent between the theories (Prior, 1992). Prior's review of the research on temperament, included descriptions of the stability of temperament as well as factors that may influence it. Activity and emotionality were reported to be the most stable, though stability increased closer to the extremes. The modern version of the Galen-Hippocrates temperaments uses the scales of emotionality and activity to determine which of the four temperaments a person has (Trofimova, 2010). Thomas and Chess use a list of characteristics to classify temperament into three categories: difficult, easy, and slow to warm up (Goldsmith et al., 1987).

A study by Lengua (2002) showed the relationship between the emotionality aspect of temperament and resilience in children. She found that positive emotionality predicted positive adjustment and negative emotionality was a predictor of adjustment problems. There was support both for and against temperament as a moderator in the relationship between risk and outcomes. Temperament should have an effect on how a child responds to maltreatment, because it is commonly accepted that temperament will affect how a child responds to stress.

Risk and Temperament

Some studies have shown that temperament can affect risk in the form of parenting. Parents will respond differently to a sociable child than they will to an emotional or highly active child. Ganiban et al. (2010) looked at temperament in adolescents and the relationships they had with their parents. They found that parents were more likely to treat children differently based on individual differences if the child was sociable or emotional.

In another study, Akker et al. (2010) found that over time there was a relationship between temperament and parenting styles. Infants behaving normally were positively correlated to positive parenting, while expressiveness was associated with less positive parenting. Parents of typical children did not show the increases in positive parenting that were shown by parents of more expressive children, but this may be because they showed more positive parenting to begin with and did not have as much room for improvement (Akker et al., 2010). It was also mentioned that social fear in children may be "related to less negative parenting across all children, because parents see these children as vulnerable and react be being especially careful" (p. 493). In this scenario, temperament is considered a dual risk when coupled with cumulative sociodemographic risks.

Differential Susceptibility

In contrast to the dual risk hypothesis, Belsky (2005) proposed that temperament might serve as both a risk and a protective factor. Specifically, some children who are most affected by negative parenting may also be strongly affected by positive parenting (Belsky, Bakermans-Kranenburg, & van IJzendoorn, 2007). These children are said to demonstrate differential susceptibility rather than vulnerability. Many children who express negative emotions were seen to benefit more from positive, communicative parents than other children (Belsky et al, 2007). The study found that children who were considered vulnerable benefitted from their environment instead of suffering.

In the study by Belsky et al. (2007), emotionality was divided into positive and negative emotionality. Infants with high levels of negative emotionality were found to be more sensitive to the effects of parenting types. Negative parenting had strong negative influences on the children, but positive parenting had a strong positive impact. The

authors specifically mention that toddlers who had shown high levels of negative

emotionality as infants also display more self control than their peers with lower levels of

negative emotionality, but only when parents communicated with the child and used

positive parenting techniques (2007).

<center>**Purpose of Research**</center>

The purpose of this study was to examine the association between cumulative

sociodemographic risk factors and the problem behaviors exhibited by children who have

been neglected or abused, and whether those problem behaviors are influenced by

temperament. Children with many risk factors were expected to exhibit more problem

behaviors than those with fewer risk factors. Consistent with the differential susceptibility

hypothesis, it was also expected that children with lower emotionality and activity scores

and higher sociability scores (i.e., positive temperamental attributes) would be less

affected by their environment and would not display as many externalizing problem

behaviors, as their peers with more negative temperamental characteristics, who

responded more to both high and low levels of cumulative risk.

<center>**Methods**</center>

Participants

This study was conducted through the Department of Social Services at a center

in Virginia. Ten social workers were each asked to provide anonymous information about

five children and adolescents between the ages of six and eighteen in their current case

load, bringing the total number of possible questionnaires up to 50. Fourteen packets

were returned, yielding a response rate of 28%. The age range for the youth was selected

because of the valid age range for the Child Behavior Checklist that will be used. Social

workers were asked to complete the questionnaires about the youth so that no children would be directly involved in the data collection. Participants differed in gender, ethnicity, age, religion, and socioeconomic status (SES). No personally identifying information was collected about the youth or social workers.

Of the packets returned, data were obtained for a total of seven males and seven females. Nine youth were Caucasian and five were racial minorities. Six youth lived with married parents. Two of the youth had three siblings, five had two siblings, five had one sibling, and two were only children.

Measures

Data were collected through anonymous questionnaires with social workers (see Appendix A). Names of parents and youth were not requested or involved in the research process. The questionnaires had sections addressing cumulative risk, behavior problems, and cumulative risk.

Cumulative Risk. The first set of questions addressed the demographics and risk factors of the youth–the number of children in the family, socioeconomic status determined by whether the family receives Temporary Assistance for Needy Families (TANF), race/ ethnicity, and the type of abuse the youth has experienced. Additional questions asked whether the youth's parents are teenagers, and whether they are married. Scores could range from 0 to 5. In the current sample, scores ranged from 0 to 2, with a mean risk score of .93.

Behavior Problems. The next section of questions looked for evidence of resilience using the Teacher Report Form for the Child Behavior Checklist (CBCL) (Achenbach & Rescorla, 2001). The norms for the Child Behavior Checklist were

developed using a sample of 1,753 children and adolescents between the ages of six and eighteen across the United States. Values for test-retest reliability and inter-rater reliability are both very high. Criterion validity is acceptable (Child behavior checklist, n.d.). The test has recently be revised, and is now included in the Achenbach System of Empirically Based Assessment (ASEBA).

The questions in this section are scored according to eight scales and two subscales. The behavior problem categories that are included are "Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule-Breaking Behavior, and Aggressive Behavior" (ASEBA, 2010, p. 4). The first three are included in the subscale Internalizing Behavior Problems, while the last two are included in the subscale Externalizing Behavior Problems. Minimum, maximum, mean, and possible scores for each scale and subscale are presented in Appendix B.

Temperament. A third set of questions assessed the temperament of the youth using Buss and Plomin's (1984) Emotionality Activity Sociability (EAS) measure of temperament. The teacher ratings form was used in the present study. This teacher rating form was developed experimentally by Buss and Plomin because the study of temperament began looking for additional sources of information beyond just the parents (Buss & Plomin, 1984).

Some items in this measure include "Child cries easily," "Child is very sociable," and "Child is very energetic." Social workers responded to each item, rating it from 1 to 5, with 1 meaning "not characteristic or typical of the child" and 5 meaning "very characteristic or typical of your child." Scores were calculated for four scales:

Emotionality, Activity, Sociability, and Shyness, with possible scores of 1 to 5 for each. In the current sample, scores for the Emotionality scale ranged from 1.2 to 5, with a mean score of 2.667. Scores for the Activity scale ranged from 1.6 to 5, with a mean score of 2.922. Scores for the Sociability scale ranged from 2 to 4.6, with a mean score of 3.489.

Procedure

The first step in the research process was obtaining permission from the Social Services supervisor at the Human Services Center. The investigator e-mailed the social services supervisor for a center in Virginia and asked for permission to give questionnaires to the social workers at the center. Once approval was given, the investigator gave a packet for each social worker to the supervisor, who then gave the packets to the social workers.

Each social worker at the center was given a packet containing a brief, non-technical description of the study, an informed consent form, and five copies of the questionnaire. They were asked to complete the questionnaires for five of the children or adolescents in their current caseload. Social workers were given two weeks to complete the questionnaires. At the conclusion of the study, all materials from each participant were placed into a large envelope and the envelope was sealed. This step helped to ensure confidentiality as only the researcher was able to see the completed questionnaires. Anonymity was provided by not requesting any personally identifying information about the participants or the children. The supervisor collected the envelopes from the social workers, and the researcher retrieved the envelopes from the supervisor at the center.

Because of the authority of the supervisor over the participants, precautions were taken to ensure voluntary participation. Participants were assured that their jobs would

not in any way be impacted by either their participation or decision not to participate.

This assurance was provided by having all materials collected in sealed envelopes that

did not identify the social workers. Only the investigator was able to see the completed

questionnaires and the supervisor had no way to know who completed the forms or chose

not to do so.

<div align="center">**Results**</div>

Demographic and risk data were first analyzed for frequency. Bivariate

correlations between behavior problems and temperament scales were then calculated.

Research questions were then evaluated using bivariate regression and multiple

regression with temperament as the predictor and behavior problems as the outcome. A

moderator analysis was not conducted due to small sample size and limited power.

Fourteen questionnaires were returned with the demographics and CBCL sections

completed; nine of those also included completed EAS sections. The SPSS software was

used for all data analysis.

Descriptives

Information was gathered regarding 14 children and adolescents. These youth

ranged in age from 6 to 18 years of age and were evenly divided by gender. Nine youth

were Caucasian and five were racial minorities (see Figure 1a). Six youth lived with

parents who were married, and twelve of them had less than three siblings. None of the

youth had teenage parents or families who were receiving TANF. Thirteen of the youth

were physically abused, sexually abused, neglected, or two of the three (see Figure 1b).

Cumulative risk scores were calculated on a scale of zero to nine based on the

responses to many of the demographic questions. One point was given for each: racial
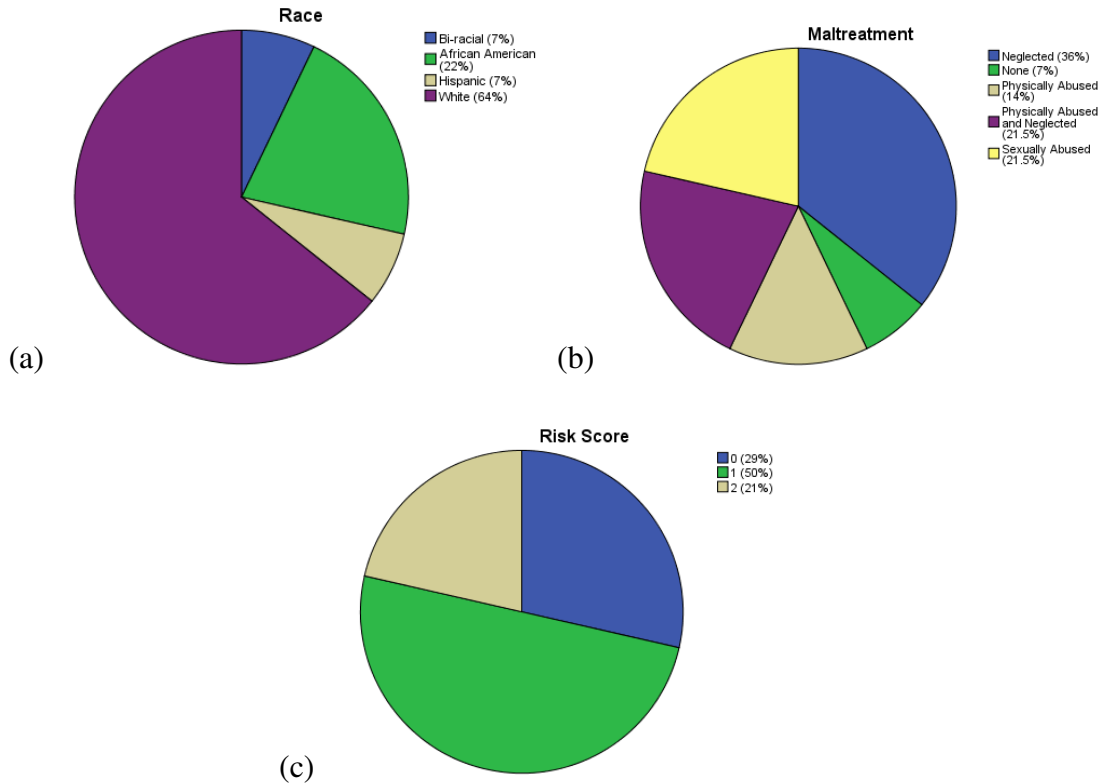
Figure 1. Pie charts showing (a) the racial distribution of youth, (b) types of maltreatment suffered by youth, and (c) risk scores of youth (N = 14).

minority, four or more children in the family, currently receiving TANF, unmarried parents, and having teenage parents. All children and adolescents in this sample received scores between zero and two (see Figure 1c).

Correlations

Pearson's r was used to calculate correlations between cumulative risk, behavior problems, and temperament. Cumulative risk was not found to be correlated to any of the scales for behavior problems or temperament, but there were several significant correlations between scales for behavior problems and temperament. Specifically,
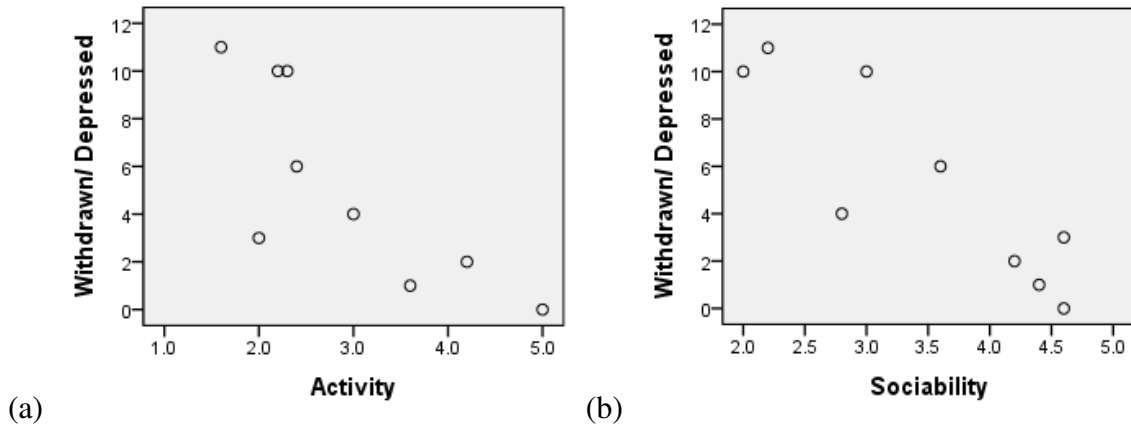
(a)   (b)

Figure 2. Scatter plots showing correlation of Withdrawn/Depressed behavior problems

with (a) Activity, and (b) Sociability (N = 9).

Activity had a negative correlation with Withdrawn/Depressed behavior problems with *r*

= -.799 and *p* =.010. Sociability also had a negative correlation with Withdrawn/

Depressed behavior problems with *r* = -.880 and *p* =.002 (Figure 2). These correlations

indicated that higher Activity and Sociability were associated with lower

Withdrawn/Depressed behavior problems.

Emotionality had positive correlations with Anxious/Depressed behavior

problems (*r* = .856, *p* =.003), Social Problems (*r* =.797, *p* =.010), Aggressive Behavior (*r*

=.689, *p* =.040), and Externalizing Behavior Problems (*r* = .672, *p* =.047) (Figure 3).

Internalizing Behavior Problems also had a positive correlation with Emotionality (*r*

=.784, *p* =.012). Internalizing Behavior Problems had a negative correlation with

Sociability (*r* = -.676, *p* =.046) (Figure 4 and Appendix C). These significant associations

indicated that higher Emotionality was related to higher levels of Anxious/Depressed

behavior problems, Social Problems, and Aggressive Behavior. Higher Emotionality was
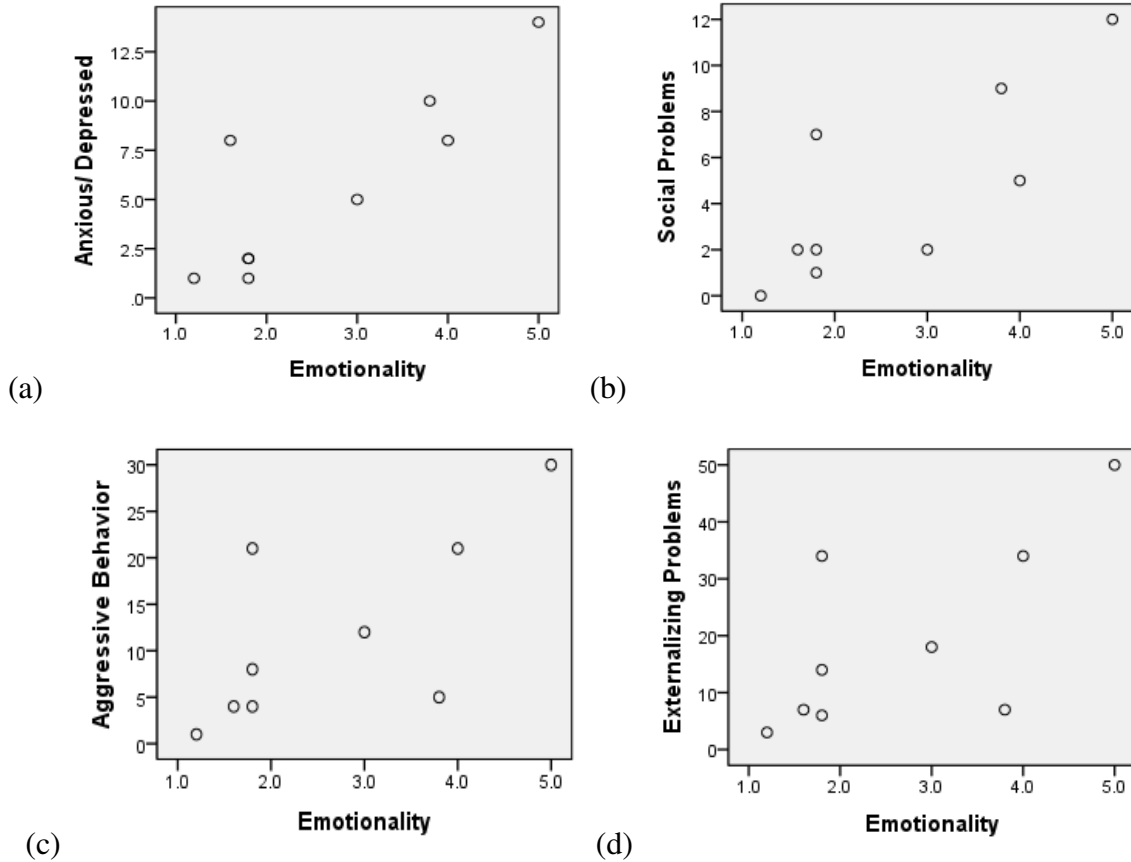
(a)   (b)

(c)   (d)

Figure 3. Scatter plots showing correlation of Emotionality with (a) Anxious/Depressed behavior problems, (b) Social Problems, (c) Aggressive Behavior, and (d) Externalizing Behavior Problems (N = 9).

also associated both with higher Internalizing Behavior Problems and with higher Externalizing Behavior Problems.

Regressions

Multiple regression analyses were used to determine the relationship between behavior problems (outcomes) and both cumulative risk and temperament (predictors) (Appendix D and Appendix E).
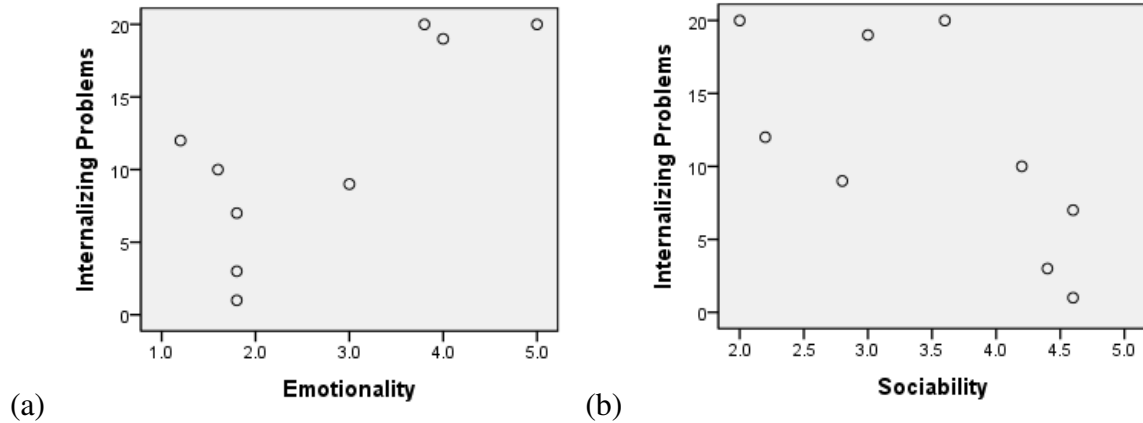
(a)   (b)

Figure 4. Scatter plots showing correlation of Internalizing Behavior Problems with (a) Emotionality and (b) Sociability (N = 9).

Anxious/Depressed Behavior Problems. The overall regression for Anxious/Depressed behavior problems was not statistically significant, R = .863, R^2 = .744, adjusted R^2 = .489, $F(4, 4)$ = 2.912, p = .163, ns. The regression equation accounted for 74.4% of the variance in Anxious/Depressed behavior scores. The regression analysis revealed that Emotionality was the only significant predictor of Anxious/ Depressed behavior problems, β = .897, p = .003. This finding indicated that high Emotionality was associated with high Anxious/Depressed behavior problems. Cumulative Risk (β = .067, p = .814, ns), Activity (β = .108, p = .754, ns), and Sociability (β = -.038, p = .914, ns) were not significant predictors of Anxious/Depressed scores.

Withdrawn/Depressed Behavior Problems. The overall regression for Withdrawn/Depressed behavior problems was statistically significant, R = .965, R^2 = .93, adjusted R^2 = .861, $F(4, 4)$ = 13.381, p = .014. The regression equation accounted for 93% of the variance in Withdrawn/Depressed behavior scores. Individually, the regression analysis revealed that Sociability was the only significant predictor of

Withdrawn/ Depressed behavior problems, β = -.571, p = .030. This finding indicated that

high Sociability was associated with low Withdrawn/Depressed behavior problems.

Cumulative Risk (β = .225, p = .183, ns), Emotionality (β = .138, p = .412, ns), and

Activity (β = -.409, p = .072, ns) were not significant predictors of Withdrawn/Depressed

scores.

Somatic Complaints. The overall regression for Somatic Complaints was not

statistically significant, R = .866, R^2 = .749, adjusted R^2 = .499, $F(4, 4)$ = 2.991, p = .157,

ns. The regression equation accounted for 74.9% of the variance in Somatic Complaints

scores. The regression analysis revealed that Activity was the only significant predictor

of Somatic Complaints, β = -094, p = .043. This finding indicated that high Activity was

associated with low Somatic Complaints. Cumulative Risk (β = -.349, p = .259, ns),

Emotionality (β = -.172, p = .579, ns), and Sociability (β = .8, p = .071, ns) were not

significant predictors of Somatic Complaints scores.

Social Problems. The overall regression for Social Problems was not statistically

significant, R = .901, R^2 = .812, adjusted R^2 = .625, $F(4, 4)$ = 4.33, p = .092, ns. The

regression equation accounted for 81.2% of the variance in Social Problems scores. The

regression analysis revealed that Emotionality was the only significant predictor of Social

Problems, β = .756, p = .038. This finding indicated that high Emotionality was

associated with high Social Problems. Cumulative Risk (β = -.169, p = .501, ns), Activity

(β = -.436, p = .191, ns), and Sociability (β = .419, p = .214, ns) were not significant

predictors of Social Problems scores.

Thought Problems. The overall regression for Thought Problems was not

statistically significant, R = .902, R^2 = .813, adjusted R^2 = .627, $F(4, 4)$ = 4.355, p = .092,

ns. The regression equation accounted for 81.3% of the variance in Thought Problems scores. The regression analysis revealed that Emotionality (β = .686, p = .050) and Activity (β = .583, p = .037) were significant predictors of Thought Problems. This finding indicated that high Emotionality and high Activity were associated with high Thought Problems. Cumulative Risk (β = -.09, p = .716, ns) and Sociability (β = -.461, p = .178, ns) were not significant predictors of Thought Problems scores.

Attention Problems. The overall regression for Attention Problems was not statistically significant, R = .764, R^2 = .584, adjusted R^2 = .169, $F(4, 4)$ = 1.406, p = .375, ns. The regression equation accounted for 58.4% of the variance in Attention Problems scores. The regression analysis revealed none of the four predictors, Cumulative Risk (β = -.353, p = .360, ns), Emotionality (β = .152, p = .701, ns), Activity (β = -.634, p = .199, ns), or Sociability (β = .768, p = .143, ns), were significant predictors of Attention Problems scores.

Rule-Breaking Behavior. The overall regression for Rule-Breaking Behavior was statistically significant, R = .976, R^2 = .953, adjusted R^2 = .906, $F(4, 4)$ = 20.178, p = .006. The regression equation accounted for 95.3% of the variance in Rule-Breaking Behavior scores. Individually, the regression analysis revealed that Emotionality (β = .788, p = .003), Activity (β = -.716, p = .007), and Sociability (β = .925, p = .003) were significant predictors of Rule-Breaking Behavior. This finding indicated that high Emotionality, low Activity, and high Sociability were associated with high Rule-Breaking Behavior. Cumulative Risk (β = .165, p = .226, ns) was not a significant predictor of Rule-Breaking Behavior scores.

Aggressive Behavior. The overall regression for Aggressive Behavior was statistically significant, $R = .969$, $R^2 = .939$, adjusted $R^2 = .877$, $F(4, 4) = 15.277$, $p = .011$. The regression equation accounted for 93.9% of the variance in Aggressive Behavior scores. Individually, the regression analysis revealed that Emotionality ($\beta = .792$, $p = .005$), Activity ($\beta = -.658$, $p = .014$), and Sociability ($\beta = .858$, $p = .006$) were significant predictors of Aggressive Behavior. This finding indicated that high Emotionality, low Activity, and low Sociability were associated with high Aggressive Behavior. Cumulative Risk ($\beta = .029$, $p = .836$, ns) was not a significant predictor of Aggressive Behavior scores.

Internalizing Behavior Problems. The overall regression for Internalizing Behavior Problems was not statistically significant, $R = .924$, $R^2 = .854$, adjusted $R^2 = .708$, $F(4, 4) = 5.851$, $p = .058$, ns. The regression equation accounted for 85.4% of the variance in Internalizing Behavior Problems scores. The regression analysis revealed that Emotionality was the only significant predictor of Internalizing Behavior Problems, $\beta = .64$, $p = .043$. This finding indicated that high Emotionality was associated with high Internalizing Behavior Problems. Cumulative Risk ($\beta = .141$, $p = .525$, ns), Activity ($\beta = -.263$, $p = .342$, ns), and Sociability ($\beta = -.281$, $p = .325$, ns) were not significant predictors of Internalizing Behavior Problems scores.

Externalizing Behavior Problems. The overall regression for Externalizing Behavior Problems was statistically significant, $R = .972$, $R^2 = .945$, adjusted $R^2 = .89$, $F(4, 4) = 17.146$, $p = .009$. The regression equation accounted for 94.5% of the variance in Externalizing Behavior Problems scores. Individually, the regression analysis revealed that Emotionality ($\beta = .792$, $p = .004$), Activity ($\beta = -.683$, $p = .010$), and Sociability ($\beta =$

.887, p = .004) were significant predictors of Externalizing Behavior Problems. This finding indicated that high Emotionality, low Activity, and low Sociability were associated with high Externalizing Behavior Problems. Cumulative Risk (β = .082, p = .544, ns) was not a significant predictor of Externalizing Behavior Problems scores.

Discussion

The hypothesis that youth with lower Emotionality and Activity scores and higher Sociability scores would display fewer Externalizing Behavior Problems was only partially supported. Lower Emotionality scores and higher Sociability scores were found to be associated with lower Externalizing Behavior Problems. Lower Activity scores, however, were found to be related to higher Externalizing Behavior Problems.

Consistent with temperament research , Emotionality was positively correlated with both Internalizing and Externalizing Behavior Problems (Rothbart & Bates, 1998). In the presence of high levels of risk, including those experienced by the current sample of maltreated children, research would suggest that those with higher levels of Emotionality would show more negative outcomes (behavior problems), but in the presence of supportive environments, they would also show better outcomes (see Belsky, 2005). Unfortunately, the current sample was too small to test this hypothesis. In the current study, Emotionality was found to be positively correlated with Anxious/Depressed behavior, Social Problems, Aggressive Behavior, Internalizing Behavior Problems, and Externalizing Behavior Problems. Regression analysis showed high Emotionality to be related to high levels of Thought Problems and Rule-Breaking behavior as well.

The initial hypothesis that cumulative risk would be associated with negative outcomes was not supported. No evidence was found in the current study to show that risk affects problem behaviors. Cumulative risk is a well supported concept, however, so the lack of correlation between risk and problem behaviors may be related to the small sample size and therefore limited statistical power of the test. It is also possible that maltreatment as a risk in itself is stronger than the ones measured in this study.

It should also be noted that analyses were limited in power due to the small sample size, so differences need to be larger in order to show statistical significance. Despite this fact, the strongest correlations revealed in this study involved temperament, the section of the questionnaire with the smallest sample size. Given these findings, it is possible that temperament is a robust predictor, though further analyses are needed with a larger sample size.

Conclusions

This research has practical applications in the area of intervention. Children and adolescents with different temperaments react differently to maltreatment. Youth with higher levels of Emotionality also showed higher levels of behavior problems on average, so those youth may need intervention sooner and longer than others. Social workers may need to be more involved with some families based on the Emotionality levels in the children. According to the idea of differential susceptibility, some youth with higher levels of Emotionality may also be more responsive to the intervention of the social workers (Belsky et al., 2007).

Limitations

One limitation that may have affected the results of this study was the sample size used. Information was gathered for 14 children and adolescents, and only nine of those 14 questionnaires were complete. Differences would have to be much greater in order to be statistically significant for the sample size due to the limited power of the analyses (Warner, 2008). While several correlations were present, the previously studied correlation between risk and behavior problems was not supported by the study.

Also, some questions in the CBCL and the EAS were difficult for social workers to answer based on limited exposure to the youth. A youth's parent or teacher would be a more ideal person to complete the questionnaires, but asking them to do so would not allow for the same level of anonymity.

Future Research

Future research in this area could expand upon the current study and explore the association interaction between cumulative risk and temperamental characteristics in younger children and adults. Adults who were maltreated as children can also be surveyed to see if the effects remain, or are primarily seen in children. The present study could be repeated with a much larger sample size, or within a different at risk population. Future studies could investigate this model in groups of children who have lost a parent or whose parents are incarcerated. Studies could gather data about the children from parents and teachers in addition to the social workers in order to gather a more complete picture of behavior and temperament.

The results of the current study point specifically to future research involving child Emotionality levels. High Emotionality was correlated with Externalizing Behavior

Problems as a subscale, but also with several more specific problem behavior scales, both

internalizing and externalizing. Further research can look at the interaction between

Emotionality and cumulative sociodemographic risk in predicting both overall and

specific behavior problems.

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Appendix A

PART I
Demographics

Gender _____

Race/Ethnicity _____

Number of children in family _____

Is the family currently receiving TANF? _____

Are the child's parents married? _____

Are the child's parents teenagers? _____

Has the child been neglected or abused? (circle one)

     Neglected   Abused   Both   Neither

Has the child repeated any grades? If yes, which ones?

_____

PART II
Child Behavior Checklist

This test is copyrighted. Therefore, only sample questions are included. The directions are accurate to the directions given to participants.

*Below is a list of items that describe pupils. For each item that describes the pupil **now or within the past 2 months**, please circle the **2** if the item is **very true or often true** of the pupil. Circle the **1** if the item is **somewhat or sometimes true** of the pupil. If the item is **not true** of the pupil, circle the **0**. Please answer all items as well as you can, even if some do not seem to apply to this pupil.*

-Acts too young for his age.
-Bragging, boasting
-Argues a lot
-Cruelty, bullying, or meanness to others
-Bites fingernails
-Apathetic or unmotivated
-Feels dizzy or lightheaded
-Easily jealous
-Fears going to school

PART III
EAS Temperament Survey for Children: Teacher Ratings
(Buss & Plomin, 1984)

Rate each of the items for your student on a scale of 1 (not characteristic or typical of the child) to 5 (very characteristic or typical of your child). If you have not had the experience of observing the child in any of the following situations, please mark "not observed."

1. Child tends to be shy. (Shyness)
2. When with other children, this child seems to be having a good time. (Sociability)
3. Child cries easily. (Emotionality)
4. At recess, child is always on the go. (Activity)
5. Child tends to be somewhat emotional. (Emotionality)
6. When child moves about, s/he usually moves slowly. (reversed, Activity)
7. Child makes friends easily. (reversed, Shyness)
8. Child is full of vigor when s/he arrives in the classroom in the morning. (Activity)
9. Child likes to be with people. (Sociability)
10. Child often fusses or cries. (Emotionality)
11. Child likes to chat with neighbors. (Sociability)
12. Child is very sociable. (reversed, shyness)
13. Child is very energetic. (Activity)
14. Child takes a long time to warm up to strangers. (Shyness)
15. Child prefers to do things alone. (reversed, Sociability)
16. Child gets upset easily. (Emotionality)
17. Child prefers quiet, inactive games to more active ones. (reversed, Activity)
18. Child tends to be a loner. (reversed, Sociability)
19. Child reacts intensely when upset. (Emotionality)
20. Child is very friendly with strangers. (reversed, Shyness)

Appendix B

Table 1. *Possible scores for each behavior problem scale and subscale; and minimum, maximum, and mean scores for the current sample (N=14).*

	Possible		Current Sample		
	Min	Max	Min	Max	Mean
Anxious/Depressed	0	32	0	14	4.07
Withdrawn/Depressed	0	16	0	11	4
Somatic Complaints	0	18	0	2	0.21
Social Problems	0	20	0	12	2.93
Thought Problems	0	20	0	5	1.36
Attention Problems	0	52	0	37	14.64
Rule-Breaking Behavior	0	24	0	20	6.14
Aggressive Behavior	0	40	1	30	10.86
Internalizing Behavior	0	66	0	20	8.29
Externalizing Behavior	0	64	1	50	17

Appendix C

Table 2. *Bivariate correlation for behavior problem scales with cumulative risk and temperament scales (N=9).*

	Anxious/Depressed	Withdrawn/Depressed	Somatic Complaints	Social Problems
Risk	-0.267	-0.136	-0.325	-0.412
Emotionality	.856**	0.408	-0.053	.797**
Activity	-0.203	-0.799**	-0.402	-0.427
Sociability	-0.294	-.880**	0.299	-0.112

	Thought Problems	Attention Problems	Rule-Breaking Behavior	Aggressive Behavior
Risk	-0.044	-0.391	-0.414	-0.224
Emotionality	0.601	0.185	0.641	.589*
Activity	0.347	-0.22	-0.398	-0.386
Sociability	-0.179	0.339	0.198	0.17

	Internalizing	Externalizing
Risk	-0.261	-0.316
Emotionality	0.784*	0.672*
Activity	-0.638	-0.392
Sociability	-.676*	0.182

* significant to $p \leq .05$
** significant to $p \leq .01$

Appendix D

Table 3. *Results of multiple regression analysis to predict behavior problem scales with Cumulative Risk and temperament scales, by outcome variable and predictor (N=9).*

Outcome / Predictor	Intercept	b	β	Outcome / Predictor	Intercept	b	β
Anxious/Depressed	-3.677			**Attention Problems**	12.091		
Cumulative Risk		0.465	0.067	Cumulative Risk		-4.501	-0.353
Emotionality		3.108	0.897*	Emotionality		0.97	0.152
Activity		0.443	0.108	Activity		-7.773	-0.634
Sociability		-0.172	-0.038	Sociability		6.367	0.768
Withdrawn/Depressed	15.587			**Rule-Breaking Behavior**	-12.3		
Cumulative Risk		1.419	0.225	Cumulative Risk		1.59	0.165
Emotionality		0.436	0.138	Emotionality		3.815	0.788***
Activity		-1.525	-0.409	Activity		-4.087	-0.716**
Sociability		-2.343	-0.571*	Sociability		5.812	0.925*
Somatic Complaints	0.66			**Aggressive Behavior**	-16.583		
Cumulative Risk		-0.37	-0.349	Cumulative Risk		0.436	0.029
Emotionality		-0.092	-0.172	Emotionality		5.949	0.792**
Activity		-0.589	-0.94*	Activity		-5.827	-0.658*
Sociability		0.552	0.8	Sociability		8.366	0.858**
Social Problems	-2.169			**Internalizing Behavior**	12.571		
Cumulative Risk		-1.04	-0.169	Cumulative Risk		1.514	0.141
Emotionality		2.328	0.756*	Emotionality		3.452	0.64*
Activity		-1.581	-0.436	Activity		-1.671	-0.263
Sociability		1.673	0.419	Sociability		-1.963	-0.281
Thought Problems	-0.288			**Externalizing Behavior**	-28.884		
Cumulative Risk		-0.067	-0.09	Cumulative Risk		2.026	0.082
Emotionality		0.258	0.686*	Emotionality		9.764	0.792**
Activity		0.378	0.853*	Activity		-9.914	-0.683**
Sociability		-0.225	-0.461	Sociability		14.178	0.887**

* significant to $p \leq .05$
**significant to $p \leq .01$

Appendix E

Table 4. *Results of multiple regression analysis to predict behavior problem scales with Cumulative Risk and temperament scales (N=9).*

	R	R	Adjusted R	$F(4,4)$
Anxious/Depressed	0.863	0.744	0.489	2.912
Withdrawn/Depressed	0.965	0.93	0.861	13.381*
Somatic Complaints	0.866	0.749	0.499	2.991
Social Problems	0.901	0.812	0.625	4.33
Thought Problems	0.902	0.813	0.627	4.355
Attention Problems	0.764	0.584	0.169	1.406
Rule-Breaking Behavior	0.976	0.953	0.906	20.178**
Aggressive Behavior	0.969	0.939	0.877	15.277*
Internalizing Behavior	0.924	0.854	0.708	5.851
Externalizing Behavior	0.972	0.945	0.89	17.146**

* significant to $p \leq .05$
**significant to $p \leq .01$