ABSTRACT

RESEARCH ON SCHOOL-BASED RESILIENCE INTERVENTIONS:
A CONTENT ANALYSIS

by Kelly Marie Uetrecht

Students today face numerous risk factors that decrease their likelihood of being successful in school and life. Research has focused on identifying and supporting resilience in students, and numerous school-based interventions have been developed to address and support risk and resilience factors. In order to examine this research base holistically, a content analysis of existing literature on school-based resilience building interventions was conducted. Sixty-two pieces of literature containing data from school-based interventions providing services directly to students were identified and analyzed. Results indicated strong research methods have been utilized to collect data about interventions across different risk factors and research practices have supported implementation methods that can be utilized by school staff. A variety of methods for administration, foci, and outcome measures were documented in the literature. It is important to further analyze the collection to establish an understanding of intervention efficacy and to focus future research on ensuring treatment integrity, collecting academic outcome data, and developing interventions to address multiple risk factors.
RESEARCH ON SCHOOL-BASED RESILIENCE INTERVENTIONS:
A CONTENT ANALYSIS

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Research on School-Based Resilience Interventions: A Content Analysis

Introduction

The study of children who fail, or who are at risk to fail, is by no means a new topic. Within the last 30 years, however, the focus has turned from children who do not succeed because of adversity to those who succeed in spite of adversity (Goldstein & Brooks, 2012; Werner, 2005). These children show resilience, a hardiness that facilitates their success in the face of trauma, stress, and other challenges in their lives. According to Wright and Masten (2012), resilience can be defined as, “a pattern of positive adaptation in the context of past or present adversity” (p. 19). In other words, resilient children are those who experience adversity that puts them at an increased risk for negative outcomes yet adapt and overcome the adversity.

Although resilience processes have been studied for several decades, the importance of investigating this topic has intensified in recent years. The 2011/2012 National Survey for Children’s Health reported that 47.9% of U.S. Children ages 0-17 have faced one of nine different forms of adversity and 22.6% have experienced two incidents of adversity (U.S. Department of Health and Human Services, 2013). An increasing number of students experience some risk, or increased probability of a negative outcome or failure, because of one or multiple risk factors (Wright & Masten, 2012). Schools represent an ideal locale for implementing resilience-enhancing interventions, due to their existing involvement in children’s welfare, data collection systems, and availability of school-based mental health professionals, coupled with their unparalleled access to all school-age youth. Despite the existence of individual studies examining the impact of single school-based resilience interventions there have been very little data comparing the interventions or summarizing the extant research. The proposed study aims to fill that gap by using content analysis methodology to uncover information about the extent of research on this topic and the types of existing school-based interventions being researched.

Literature Review

Resilience represents the tendency for individuals to avoid the negative outcomes associated with adversity. Those individuals who do not display resilience face a greater chance for numerous negative outcomes that limit their opportunities to lead successful lives as productive members of society. For example, negative outcomes for individuals exposed to abuse, neglect, or trauma include lower academic achievement and impaired social and cognitive functioning (Davidson, Devaney & Spratt, 2010). Individuals facing adversity are more likely to
experience mental health issues: decreased self-esteem, interpersonal conflict, drug abuse, depression, and anxiety are all associated with childhood abuse, neglect, or trauma (Davidson, Devaney & Spratt, 2010; Felitti et al., 1998). An increased involvement in crime, limited opportunity to attain higher education, and limited participation in the labor market are also associated with childhood adversity—especially physical and sexual abuse (Davidson, Devaney & Spratt, 2010; Frederick & Goddard, 2007; Widom, 1989).

**Risk Factors**

Those characteristics and experiences of adversity that increase the likelihood of a negative outcome are called risk factors. Risk factors can occur at the individual, family, school, and community level (Christle, Harley, Nelson, & Jones, 2001). Individual risk factors include depression, substance abuse, major illness, and premature birth (Noltemeyer, 2014). Parental divorce, family conflict, and absentee parenting are a few family-level factors that place children at an increased risk for negative outcomes. Within the school peer rejection, disengagement, and low teacher expectations represent several risk factors. Finally, community poverty, exposure to violence, and residential instability are key risk factors from within the community level (Noltemeyer, 2014).

Students today face more numerous and more daunting risk factors in the form of adversity. For example, an estimated 1,634,095 youth in the US report sometimes experiencing bullying and another 1,611,809 report being bullied once or twice a week (Nansel, Overpeck, Pilla, Ruan, Simons-Morton, & Scheidt, 2001). Bullying is often precluded by or related to social isolation. Victims of bullying have been found to experience higher rates of anxiety, depression, and low self-worth (Newman, Holden, & Delville, 2005).

Similarly, a greater number of children are being exposed to family conflict and divorce. In 2011 an estimated 40-50% of marriages end in divorce. With such a high divorce rate, 24% of children will experience the divorce of their parents before the age of 12. Children whose parents divorce are more likely to experience some maladjustment in emotional, social, or academic development (Wilcox, Marquardt, Popenoe & Whitehead, 2011).

According to the National Center for Children in Poverty (2014), 45% of children in the United States live in low-income families. One out of every five children lives in a poor family; this means that 16.1% of children are living below the federal poverty line (Jiang, Ekono, & Skinner, 2014). Children exposed to poverty, particularly extreme poverty, have greater
problems in academic achievement, more behavioral problems in school, and poorer self-regulatory skills than children who do not experience poverty (Roy & Raver, 2014). These statistics illustrate the marked number of children today who are at-risk for negative outcomes.

While risk factors can occur at the individual, family, school, and community level, they are not mutually exclusive and children often experience multiple risk factors in multiple areas of their life. Nearly a quarter of U.S. children experience multiple adverse life events and with each additional risk factor present the chance for negative outcomes further increases (U.S. Department of Health and Human Services, 2013).

Protective Factors

Just as there are factors that increase the chance of negative outcomes, there are also factors that serve to buffer the effects of adversity and lessen the prospect of negative outcome. These characteristics, called protective factors, also occur at the individual, family, school, and community level (Christle, Harley, Nelson, & Jones, 2001). At the individual level social competence, autonomy, internal locus of control, work ethic, and developmental competence serve as protective factors (Noltemeyer, 2014; Noltemeyer & Bush, 2013).

Family cohesion, good communication, parental monitoring, and nurturing parenting are protective factors related to the family. Stable marital relationships among parents also serve as a protective factor at the family level (Bernard, 1991; Christle, Harley, Nelson, & Jones, 2001). Although family cohesion and marital relationships are not factors that can be accessed and changed by educational professionals, parental responsiveness and monitoring are skills that can be addressed, discussed, and potentially changed.

Parental practices that cultivate secure attachment relationships and demonstrate warmth and support lead to greater positive outcomes for all children, but especially those who have experienced adversity. This parental responsiveness and caring are linked to greater academic achievement, increased self-esteem, and decreased problem behavior in school (Noltemeyer & Bush, 2013). Similarly, parents who consistently track their children’s behavior and firmly and consistently enforce boundaries lessens the chance of drug abuse and criminal involvement in their children (Noltemeyer & Bush, 2013).

Protective factors related to schools are extremely relevant to educational personnel as they are the most easily accessed factors. The important protective factors at this level include school engagement, peer support, positive relationships with teachers and the school, and school
intervention efforts (Christle, Harley, Nelson, & Jones, 2001; Noltemeyer & Bush, 2013). Of particular importance are teacher-student relationships. A positive relationship with a fair and caring teacher have been shown to reduce delinquent behavior, lower the risk of drug use, and increase academic outcomes for youth at-risk for negative outcomes as a result of adversity (Noltemeyer & Bush, 2013).

Within the community high social, financial, and physical capital, neighborhood cohesion and identification with the community, and community youth organizations can aid in ameliorating adversity (Bernard, 1991; Noltemeyer, 2014; Noltemeyer & Bush, 2013). Access to resources is an important protective factor within the community level. These resources include parental opportunities to work, adequate and safe living situations, and financial resources. A community that has access to these resources or to organizations and individuals within the community that can meet the needs of students and families can serve to reduce the negative outcomes of exposure to adversity (Christle, Harley, Nelson, & Jones, 2001).

**Resilience**

With the knowledge of both risk and protective factors it is important to understand their relationship to resilience. Resilience is the occurrence of a positive outcome despite risk experiences (adversity) that generally lead to a negative outcome. This means that resilience is an inference made from variations in outcomes and cannot be measured directly (Rutter, 2012).

Risk factors are the negative characteristics and experiences that increase the likelihood of a negative outcome. When a risk factor is present and results in a negative outcome resilience is not inferred to have occurred. Protective factors are the moderating characteristics and experiences that buffer the effects of a risk factor or adversity and increase the likelihood of a positive outcome. When an individual experiences a risk factor, as well as a moderating protective factor, and a positive outcome occurs we can infer that the concept of resilience is present (Rutter, 2012). Protective factors are characteristics and experiences that would increase the likelihood of positive outcomes in all children, but when an individual has not experienced adversity they are referred to as assets. Although the asset may be the same experience as a protective factor, resilience is the occurrence of a positive outcome in spite of expected negative outcomes. An individual who experiences an asset has not experienced adversity and is not expected to have negative outcomes; thus, resilience is not inferred. Figure 1 depicts this relationship between risk and protective factors and their role in the resilience process.
It is also important to recognize that resilience is not a single attribute that determines a person’s success or failure. Although there is a conceptualization of resiliency as a trait that speaks to a personality trait of perseverance and tendency to succeed in the face of adversity, viewing resilience in this manner does not account for the complex processes involved or the context in which a given individual demonstrates resilience. Similarly, viewing resilience as a trait leads to the conclusion that resilience is an innate characteristic and cannot be changed, affected, or supported (Peterson, Blount, & McGeary, 2014). As such, we view resilience as the interaction of those risk and protective factors at the individual, family, school, and community level that leads to a positive outcome in spite of adversity, to allow for and include the understanding that resilience can be supported and enhanced in individuals (Kolar, 2011).

**Interventions**

The identification of these risk factors and protective factors and their interaction has led to the understanding that supporting or developing protective factors can help foster resilience in an individual. As such, recent research has shifted from identifying these factors to attempting to create interventions and programs to reduce risk factors and promote protective factors and resilience in at-risk children and youth. Schools have served as a platform for aiding children and providing them with services and opportunities to improve their chance of success in life for centuries. With the long history of social services and interventions in schools, some of the research on resilience interventions has been centered around and conducted in school.

Numerous school-based interventions addressing many different factors of resilience have been created. Often these interventions focus on addressing community, school, and family risk factors, as well as developing protective factors at these levels. Many interventions focus particularly on community risk factors. At-risk youth from poverty and violence stricken neighborhoods are the target of several interventions. (Brunwasser, Gilham, & Kim, 2009; Kliewer et. al, 2011; Munoz, 2002; Stirtzinger, Campbell, Green, DeSouza, & Dawe, 2001; Wyman et al., 2010). For example, Cowen, Wyman, Work, and Iker (1995) piloted an intervention to teach urban youth exposed to major stress about their feelings, social problem solving, dealing with unsolvable and solvable problems, and building self-efficacy and self-esteem. Other interventions sought to build resilience in students exposed to major violence, such as war or terrorism (Baum, 2005; Wolmer, Hamiel, Barchas, Slone, & Laor, 2011).
Figure 1. Pathways to Negative and Positive Outcomes and Their Relationship to Resilience. The terms within the circles represent examples of the concepts of risk factors, protective factors, assets, and positive and negative outcomes and demonstrate pathways through which these concepts could lead to positive or negative outcomes and the presence of resilience.
School and family risk factors are the focus of many other interventions. Interventions addressed helping students cope with school issues of social rejection and bullying (Margolin, 2007). Similarly, schools have implemented interventions to mitigate the negative effects of divorce on children (Alpert-Gillis, Pedro-Carroll, & Cowen, 1989; Sanders & Reister, 1996; Stolberg & Mahler, 1994). Somody and Hobbs (2007) implemented a small group counseling intervention in which children experiencing divorce created scrapbooks and learned to identify their feelings, develop coping skills, and experience peer support. These interventions are often designed to influence resilience by either teaching new protective skills, helping the student cope with the existing adversity, or reducing the presence of the adversity.

With such a broad range of risk and protective factors, there is also a broad range of negative outcomes that can occur. Negative outcomes can occur in academic development, social development, and emotional development (Noltemeyer, 2014). For this reason, interventions that address different risk factors use different outcome measures to gage success. The fact that the concept of resilience cannot be measured directly and can only be inferred from success on other measures also leads to the use of a broad range of outcome measures in interventions (Rutter, 2012). Some interventions measure success on academic outcomes (Stirtzinger, Campbell, Green, DeSouza, & Dawe, 2001). Others use behavioral measures to determine a positive outcome (Farrell & Meyer, 1997; Wyman et al., 2010). Finally, some interventions use mental health and resiliency measures to determine positive outcomes (Somody & Hobbs, 2007; Wolmer, Hamiel, Barchas, Slone, & Laor, 2011).

In addition to addressing different risk factors, resilience-enhancing interventions can also be applied with differential intensity. For example, some interventions have been implemented in small groups (Baum, 2005; Cowen, Wyman, Work, & Iker, 1995; Somody & Hobbs, 2007) and others in the form of classroom wide interventions (Cho, Hallfors & Sanchez, 2005; Wolmer, et al., 2011). Finally, some interventions are carried out individually (Margolin, 2007).

As research has shifted to focusing on developing interventions, schools have continued to attempt to make data-informed decisions and implement evidence-based interventions (Corwin, 2008). With the increased implementation of interventions of schools there has also been an increased focus on the implementation of interventions under “real-world” conditions (Domitrovich & Greenburg, 2000). Allocation of resources, usage of school personnel, and
adaptability to the constraints of school and classroom routines and procedures are all important aspects of intervention implementation in real world settings (Adelman & Taylor, 2000; Connell & Klem, 2000; Han & Weiss, 2005).

Rationale

With such a broad range of interventions being created and examined, there is a need to summarize the results of empirical research on interventions. Systematic reviews of school-based resilience interventions have been conducted, but have focused primarily on contextual aspects of implementing interventions, have been relatively small, and have not used rigorous analytic methods (Hart & Heaver, 2012). As of yet, no content analyses have been conducted to summarize the existing research on school-based interventions to promote resilience. Content analyses can serve to identify trends and make inferences about the state of research on a particular topic. A content analysis of current literature on school-based interventions to promote resilience serves to help reveal trends within empirical research and reveal areas in which research is lacking.

The purpose of the present study was to conduct a content-analysis to examine what information is missing from empirical research on school-based resilience interventions and where there is sufficient information to compare interventions. Considering the unparalleled access of school personnel to affect risk and protective factors across the general child and adolescent population, this content analysis focused on school-based interventions that address individual, family, school, and community risk factors. Examining the content of current research, identifying the gaps, and determining if differences exist in the characteristics of interventions based on the specific risk factors present provides relevant information for researchers and schools that ultimately helps further the state of research, improve school-based interventions, and enhance the outcomes for children exposed to adversity.

The specific research questions addressed in this study include:
1. What are the characteristics of the extant research on school-based interventions designed to foster individual, school, family, or community protective factors for students exposed to adversity – and what gaps in the current research are revealed?

   Characteristics of the research examined included:
   • What types of research designs are used and how frequently?
   • At what intensity are interventions implemented?
- Who is implementing the interventions?
- What experienced risk factors do the interventions address?
- What are the outcome measures used to determine a positive outcome and how are they collected?
- What are the foci of the interventions (i.e., to teach new skills, cope with emotional results, etc.)?
- What are the demographic characteristics of the samples?
- Were the interventions effective and by how much?

2. Are there significant differences in the research design, intensity of the intervention, outcome measure used, and focus of the intervention of this research based on the risk factors present?

**Methodology**

**Design**

This study utilized content analysis methodology. Content analysis is, “…a research technique for making reliable and valid inferences from texts to the contexts of their use” (Krippendorf, 2013, p. 24). In other words, content analysis is a systematic method for identifying characteristics in text specified by the researchers. Within educational psychology, content analyses are often utilized to identify characteristics of research articles on a particular topic and make inferences about the current state of research and knowledge based on the content of those articles (Krippendorf, 2013). Content analysis has several advantages as a methodology. Content analysis is unobtrusive to conduct and the inclusion of any archived communications, such as dissertations, results in broad applicability. Furthermore, content analysis allows for the detection of trends (Kondracki, Wellman, & Admundson, 2002). Critiques of content analyses primarily address the limited inferences that can be drawn and the inability to evaluate causality (Kondracki, Wellman, & Admundson, 2002).

Content analyses have been used to summarize and explore diversity-related literature (Brown, Shriberg, & Wang, 2007), race and ethnicity publications (Noltemeyer, Proctor, & Dempsey, 2013), and research published in the *Journal of Counseling Psychology* (Debbiesiu, Roser, & Bums, 2013) and *School Psychology International* (Little, Akin-Little, & Lloyd, 2011). Similarly, the content analysis in this study helped to summarize the current state of research on school-based resilience interventions and evaluate trends.
Materials

A specific coding manual (see Appendix A) was developed to help accurately and consistently identify certain characteristics within the studies. The coding manual provided detailed instructions for coding 32 variables. Variables coded included identifying information about the article (i.e. authors, title, year of publication), type of intervention described, risk factor of the studied sample, gender and race of the sample, focus of the intervention, and discipline of the journal. Item 12 (an item related to study exclusionary criteria and of particular interest in the study) identified the risk factor present in the sample population addressed in the literature. The categories for item 12 were chosen based on preliminary searches of relevant articles. After coding the first several articles, the coding manual was edited to include “multiple” for item 11 (Administration of Intervention) and to include “depression” for item 12 (Risk Factor). These changes, which are reflected in Appendix A, were made because initial attempts to code articles demonstrated frequent occurrences of multiple individuals responsible for administration of the intervention and a high number of articles focusing on the risk factor of depression.

Procedures

Article identification. The first step within this content analysis was to search for and acquire all relevant articles. ERIC, Education Full text, Educational Research Complete, PsychINFO, Psychological and Behavioral Sciences Collection, Social Science Citation Index, Google Scholar, MEDLINE and Dissertation Abstracts were used to identify relevant articles. Keywords included: resilience, school-based intervention, “exposure to violence, social rejection, abuse, at risk, divorce, family conflict, poverty, low income, community violence, adversity, and social isolation. These key words were used individually and in combination to search the resources. A Miami University librarian was then consulted to aid in identifying any other potential resources.

After a brief perusal of the abstracts to eliminate any articles that clearly did not relate to the topic, relevant articles were retained and their reference list and literature reviews were consulted to ensure that no relevant articles had been missed. A relevant article was operationally defined as an article that meets the eligibility criteria of distinguishing features, research respondents, key variables, research methods, cultural and linguistic range, time frame, and publication type defined in the attached document (see Appendix B for specific eligibility criteria across these dimensions).
After a full list of articles had been obtained and agreed upon by myself and my advisor, an expert in the field was provided with the eligibility criteria and a full reference list of articles found thus far. The expert was asked if they were aware of any additional articles that may have been missed. No additional articles were suggested by the expert. The eligibility criteria and process for identifying research articles were based on the guidance of Lipsey & Wilson (2001).

**Content analysis.** Once a full list of articles was agreed upon by the researchers, each article was coded according to the coding manual. The code for each variable was placed into an SPSS database with the corresponding variables listed in the same order as in the manual. To maximize inter-rater reliability, three randomly selected articles were first coded together by the primary researcher and a trained undergraduate student. The research team discussed any discrepancies in coding, and further refined the coding manual as described previously to improve future consistency in rating. Next, three additional randomly selected articles were coded individually by each researcher. Discrepancies were once again discussed and two additional articles were coded together. Three additional randomly selected articles were coded individually compared to ensure inter-rater reliability. Cohen’s Kappa (κ) was calculated to determine the level of inter-rater reliability across each of the variables to be coded, and Landis and Koch’s (1977) criteria was used to interpret the acceptability of the resulting Cohen’s Kappa values (Welkowitz, Cohen, & Ewen, 2006). All variables except item 15, a determination of whether treatment integrity was assessed by researchers, had Kappa values above 0.60 (p < 0.001), indicating substantial agreement among raters. The interrater reliability for item 15 was found to be Kappa = .045 (p < 0.001), and therefore results of statistics calculated for item 15 should be interpreted with caution.

Qualitative notes summarizing each article and providing descriptions were also kept in a separate document. Information summarized in these notes includes the time and session and program length of the intervention. Whether the sample studied was comprised of elementary, middle or high school students was also included in these notes. Finally, overall impressions and any other feelings towards the articles were included.

**Data Analysis**

To answer the first research question, descriptive statistics were calculated for each variable to summarize the characteristics of extant resilience intervention research. For categorical variables, the number and percentage of articles meeting criteria for each category
were reported. For continuous variables, \( n \)’s, means, standard deviations, and ranges were reported.

To answer the second research question, descriptive statistics were calculated and qualitative analysis of the frequencies were conducted. Significance based statistics, such as Chi Square and Fischer’s Exact Test, were not conducted because of the number of categories containing a value of 0.

**Protection of Human Subjects**

The methodology of content analysis uses text as the subject of study. Consequently, human participants are not a part of this study and Institutional Review Board approval was not needed.

**Results**

A total of 62 pieces of literature containing data about the efficacy of school-based resilience-building interventions were found. All of the literature found was published in the form of peer-reviewed journal articles. Dissertations and other forms of publication were included in the search, but no relevant literature was found that met the eligibility requirements. Of those articles 19, or 30.6%, were published between the years 1984 and 2000. Forty-three articles, or 69.4%, were published between the years 2001 and 2014.

**Research Design**

An analysis of the research design methodology used in the articles describing school-based resilience-building interventions is shown in Table 1. Quasi-experimental design was the most frequently used research methodology (51.6%). Correlational research and descriptive research were not utilized in any of the articles.
Table 1.
Frequency of Research Design

<table>
<thead>
<tr>
<th>Design</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlational</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Causal-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Comparative</td>
<td>4</td>
<td>6.5%</td>
</tr>
<tr>
<td>Descriptive</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Quasi-experimental</td>
<td>32</td>
<td>51.6%</td>
</tr>
<tr>
<td>Experimental</td>
<td>24</td>
<td>38.7%</td>
</tr>
<tr>
<td>Single-Subject</td>
<td>1</td>
<td>1.6%</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

**Intensity of Intervention**

The interventions described in the literature were most frequently implemented in a small group setting (54.8%). Individual interventions were rarely utilized (3.2%). Four interventions (6.5%) contained small group and individual components. Table 2 displays the frequency with which different levels of intensity were implemented. Qualitative analysis of summaries also revealed that across intensities interventions lasted an average of six to eight weeks and occurred once or twice a week. Typical sessions lasted between 30 minutes and one hour.
Table 2.
Frequency of Intensity of Intervention

<table>
<thead>
<tr>
<th>Intensity</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>2</td>
<td>3.2%</td>
</tr>
<tr>
<td>Small Group</td>
<td>34</td>
<td>54.8%</td>
</tr>
<tr>
<td>School-Wide</td>
<td>22</td>
<td>35.5%</td>
</tr>
<tr>
<td>Combined</td>
<td>4</td>
<td>6.5%</td>
</tr>
</tbody>
</table>

Administration of the Intervention

Analysis of the persons responsible for administration of the intervention is displayed in Table 3. The general education teacher was most frequently responsible for implementing the intervention in the studies (27.4%). School psychologists were the least frequently used individual for facilitating the intervention (4.8%). Twenty-one percent of studies utilized multiple individuals to administer the intervention. Qualitative analysis of article summaries revealed that when multiple individuals were responsible at least one was usually a teacher. School psychologists, school counselors, school social workers, and researchers were also among those administering the intervention when multiple facilitators were utilized.
Table 3.
Administration of the Intervention

<table>
<thead>
<tr>
<th>Person Responsible</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Psychologist</td>
<td>3</td>
<td>4.8%</td>
</tr>
<tr>
<td>Mental Health Professional</td>
<td>10</td>
<td>16.1%</td>
</tr>
<tr>
<td>Teacher</td>
<td>17</td>
<td>27.4%</td>
</tr>
<tr>
<td>Volunteer</td>
<td>5</td>
<td>8.1%</td>
</tr>
<tr>
<td>Researcher</td>
<td>13</td>
<td>21%</td>
</tr>
<tr>
<td>Multiple</td>
<td>13</td>
<td>21%</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

Risk Factor of Sample

Table 4 shows an analysis of the risk factor experienced by the sample population of each study. Exposure to violence (35.5%) and depression (19.4%) were the most common risk factor among the sample. None of the articles from the present study implemented interventions with populations exposed to physical abuse. Low socio-economic status (9.7%) and social rejection (11.3%) were also less commonly the risk factor present among the sample. Fourteen of these articles (22.6%) focused on populations with individual risk factors. Eleven articles (17.7%) addressed populations with family risk factors. Populations that experienced school risk factors were addressed in only eight articles (12.9%). The most frequent category of risk factor experienced by the sample populations was community risk factors (46.8%).
Table 4.
Risk Factor Experienced by Sample

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Abuse</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Exposure to Violence</td>
<td>22</td>
<td>35.5%</td>
</tr>
<tr>
<td>Low SES</td>
<td>6</td>
<td>9.7%</td>
</tr>
<tr>
<td>Social Rejection</td>
<td>7</td>
<td>11.3%</td>
</tr>
<tr>
<td>Family Conflict</td>
<td>10</td>
<td>16.1%</td>
</tr>
<tr>
<td>Multiple</td>
<td>2</td>
<td>3.2%</td>
</tr>
<tr>
<td>Depression</td>
<td>12</td>
<td>19.4%</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>4.8%</td>
</tr>
</tbody>
</table>

Dependent Variable

None of the articles analyzed in the present study used academic outcomes alone as the dependent variable and measure of change in the students. Mental health outcomes were most frequently used as the dependent variable in the studies (50%). Qualitative analysis of article summaries revealed that behavioral and mental health outcomes were most often used in combination. Academic outcomes were also utilized in combination with behavioral or mental health outcomes by some articles. Analysis of the frequency with which different dependent variables were utilized is displayed in Table 5.
Table 5.
Dependent Variable of the Study

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Outcomes</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Behavioral Outcomes</td>
<td>6</td>
<td>9.7%</td>
</tr>
<tr>
<td>Mental Health Outcomes</td>
<td>31</td>
<td>50%</td>
</tr>
<tr>
<td>Coping/Resiliency Outcomes</td>
<td>3</td>
<td>4.8%</td>
</tr>
<tr>
<td>Multiple</td>
<td>18</td>
<td>29%</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>6.5%</td>
</tr>
</tbody>
</table>

Outcome Measures

Table 6 displays the frequency of the use of different outcome measures in the studies examined. Norm-referenced rating scales were most frequently used to measure outcomes by researchers (59.7%). Observation, existing school-data, and norm-referenced tests were never used as the sole outcome measure. Qualitative analysis of summaries revealed that the “other” category consisted mainly of researcher created rating scales. Studies that utilized multiple outcome measures commonly used norm-referenced rating scales in combination with interview or existing school data.
Table 6.
Frequency of Outcome Measure Use

<table>
<thead>
<tr>
<th>Outcome Measure</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norm-referenced Test</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Norm-referenced Rating Scale</td>
<td>37</td>
<td>59.7%</td>
</tr>
<tr>
<td>Existing School Data</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Interview</td>
<td>1</td>
<td>1.6%</td>
</tr>
<tr>
<td>Observation</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Multiple</td>
<td>17</td>
<td>27.4%</td>
</tr>
<tr>
<td>Researcher Created Rating Scale</td>
<td>7</td>
<td>11.3%</td>
</tr>
</tbody>
</table>

Focus of the Intervention

Analysis revealed that the frequency with which teaching new skills (43.5%) and coping with the results of the adversity (35.5%) were the focus of the intervention at similar rates among the studies. Combined foci and other foci were used less frequently. Table 7 shows the frequency of different foci of interventions. Qualitative summaries of case notes revealed that the interventions included components such as modeling, role play, discussion, video modeling, guided activities, instructional lessons, and games.
Table 7.
Focus of the Intervention

<table>
<thead>
<tr>
<th>Focus</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teach New Skills</td>
<td>27</td>
<td>43.5%</td>
</tr>
<tr>
<td>Cope with Adversity</td>
<td>22</td>
<td>35.5%</td>
</tr>
<tr>
<td>Combined</td>
<td>11</td>
<td>17.7%</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>3.2%</td>
</tr>
</tbody>
</table>

Treatment Integrity

Thirty-six articles (58.1%) assessed treatment integrity of the intervention. Thirteen articles (20.9%) did not assess treatment integrity and it was unclear in 13 articles (20.9%) if treatment integrity was assessed.

Demographic Characteristics of Samples

Descriptive statistics were calculated to analyze the race, gender, and SES information of the sample populations in the studies. Table 8 displays the analysis of demographics. Thirty-two articles (51.6%) did not include information about the race of the sample and 44 articles (71%) did not include information about the SES of the population.
Table 8.
Frequency of Demographic Characteristics of the Sample Population

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;60% White</td>
<td>9</td>
<td>14.5%</td>
</tr>
<tr>
<td>&gt;60% Black</td>
<td>6</td>
<td>9.7%</td>
</tr>
<tr>
<td>&gt;60% Hispanic</td>
<td>3</td>
<td>4.8%</td>
</tr>
<tr>
<td>&gt;60% Other</td>
<td>2</td>
<td>3.2%</td>
</tr>
<tr>
<td>Mixed, none over 60%</td>
<td>7</td>
<td>11.3%</td>
</tr>
<tr>
<td>Mixed</td>
<td>3</td>
<td>4.8%</td>
</tr>
<tr>
<td>Missing</td>
<td>32</td>
<td>51.6%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-25% Male</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>26-50% Male</td>
<td>23</td>
<td>37.1%</td>
</tr>
<tr>
<td>51-75% Male</td>
<td>25</td>
<td>40.3%</td>
</tr>
<tr>
<td>76-100% Male</td>
<td>4</td>
<td>6.5%</td>
</tr>
<tr>
<td>Missing</td>
<td>10</td>
<td>16.1%</td>
</tr>
<tr>
<td><strong>SES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>76-100% Low</td>
<td>7</td>
<td>11.3%</td>
</tr>
<tr>
<td>51-75% Low</td>
<td>5</td>
<td>8.1%</td>
</tr>
<tr>
<td>26-50% Low</td>
<td>2</td>
<td>3.2%</td>
</tr>
<tr>
<td>0-25% Low</td>
<td>4</td>
<td>6.5%</td>
</tr>
<tr>
<td>Not Specified</td>
<td>44</td>
<td>71%</td>
</tr>
</tbody>
</table>

**Age and Grade**

The average number of participants in the studies was 503.62 individuals. The mean age and grade for each article was calculated. The average age of participants in the study was 11.20 years old. The average grade of participants was 5.84. The mean, minimum, maximum, and standard deviation for number of participants, mean age, and mean grade can be found in Table 8.
Table 8.
Participants, Age, and Grade

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant N</td>
<td>503.62</td>
<td>5053</td>
<td>2</td>
<td>987.57</td>
</tr>
<tr>
<td>Mean Age</td>
<td>11.20</td>
<td>17.50</td>
<td>6.00</td>
<td>2.44</td>
</tr>
<tr>
<td>Mean Grade*</td>
<td>5.84</td>
<td>11.50</td>
<td>.50</td>
<td>2.59</td>
</tr>
</tbody>
</table>

*.5 represents Kindergarten; also, interventions addressing multiple grades were averaged

Differences by Risk Factor

No noticeable differences were found in the choice of research design based on risk factor; percentages of articles utilizing certain research designs appeared to occur at similar rates across risk factors based on qualitative analyses of the frequencies.

The intensity at which the interventions were implemented appeared to vary across risk factors (see Table 9). The use of small group interventions occurred more commonly in articles addressing family conflict. One-hundred-percent of articles with the population risk factor of family conflict/divorce utilized a small group setting. Similarly, the use of school-wide interventions occurred frequently in articles addressing multiple risk factors. All of articles addressing multiple risk factors implemented the intervention school-wide.
Table 9.
Percentage of Articles with Different Intensity of Intervention by Risk Factor

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Individual</th>
<th>Small Group</th>
<th>School-Wide</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Abuse</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Exposure to Violence</td>
<td>0%</td>
<td>54.5%</td>
<td>40.9%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Low SES</td>
<td>0%</td>
<td>50%</td>
<td>50%</td>
<td>0%</td>
</tr>
<tr>
<td>Social Rejection</td>
<td>14.3%</td>
<td>42.9%</td>
<td>14.3%</td>
<td>28.6%</td>
</tr>
<tr>
<td>Family Conflict</td>
<td>0%</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Multiple</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Depression</td>
<td>0%</td>
<td>41.7%</td>
<td>58.3%</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>33.3%</td>
<td>33.3%</td>
<td>0%</td>
<td>33.3%</td>
</tr>
</tbody>
</table>

The use of different outcome measures appeared to be consistent across risk factors.

The focus of the intervention appeared to vary based on the risk factor of the sample studied (see Table 10). The focus of coping with the effects of adversity was commonly observed in articles addressing populations exposed to violence. Sixty-three percent of these articles implemented interventions focused on coping with the results of adversity, whereas 13.6% focused on teaching new skills, and 22.7% focused on doing both. The focus of teaching new skills frequently occurred in articles addressing populations experiencing social rejection, depression, and Low SES. Of the articles addressing populations experiencing social rejection 85.7% focused on teaching new skills, whereas 14.3% focused on coping with the results of adversity. All of the articles addressing populations at-risk for depression focused their interventions on teaching new skills. The focus of teaching new skills was not observed in populations experiencing family conflict. None of the articles addressing this population contained interventions designed to teach new skills.
Table 10.
Percentage of Articles with Each Focus of Intervention by Risk Factor

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Teach New Skills</th>
<th>Cope with Adversity</th>
<th>Combined</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Abuse</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Exposure to Violence</td>
<td>13.6%</td>
<td>63.6%</td>
<td>22.7%</td>
<td>0%</td>
</tr>
<tr>
<td>Low SES</td>
<td>50%</td>
<td>16.7%</td>
<td>16.7%</td>
<td>16.7%</td>
</tr>
<tr>
<td>Social Rejection</td>
<td>85.7%</td>
<td>14.3%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Family Conflict</td>
<td>0%</td>
<td>60%</td>
<td>40%</td>
<td>0%</td>
</tr>
<tr>
<td>Multiple</td>
<td>0%</td>
<td>0%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Depression</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>43.5%</td>
<td>35.5%</td>
<td>17.7%</td>
<td>3.2%</td>
</tr>
</tbody>
</table>

**Discussion**

As researchers continue to develop school-based interventions designed to foster resilience and increase positive outcomes for students, it becomes increasingly important to understand the state of that research. Knowledge of the content and quality of research investigating interventions serves to inform researchers, practitioners, and schools about what interventions exist, how these interventions could be used in schools, and how the success of students can be fostered. This study functions as a first step in the process of summarizing and analyzing literature on school-based resilience-building interventions that could eventually inform school action and student outcomes.

**Trends in the Existent Literature**

The data in this study demonstrate there is a large collection of research that exists. Sixty-two articles were identified that examine school-based interventions addressing at least seven different types of adversity faced by students. Overall, most of the articles utilized rigorous
research designs, including randomized-controlled trials, experimental, and quasi-experimental designs. Only 9.7% of the literature examined the efficacy of an intervention without the use of experimental and control groups. Surprisingly, however, only 58% of articles assessed treatment integrity. Although research examining school-based resilience interventions is generally using sound methods for conducting research, the low number of studies measuring treatment integrity is concerning. Without knowing the fidelity with which the interventions were implemented, it is difficult to be sure that the results of the study are an accurate measure of the impact on student outcomes. Future research might benefit from measuring treatment integrity to strengthen the validity of their studies.

The results of this study also demonstrate trends in the literature that support the feasibility for practical implementation of these school-based interventions. Trends observed within the literature in the intensity of the intervention, the individual responsible for implementing the intervention, and the outcome measures utilized suggest that many of the practices examined in the existing research could be implemented by school-based personnel without researcher involvement.

For example, regarding the intensity of the intervention, the vast majority of interventions were implemented at the small group or school-wide level. Of the studies examined, 54.8% provided interventions to small groups of students whereas 35.5% provided interventions to entire grades or schools (either as one large group or through several small groups). Interventions were rarely administered solely at the individual level. Small group and school-wide interventions allow a greater number of students to be aided with relatively fewer resources than if interventions were being delivered individually and have been found to be equally effective (Cawthon, 2009). The percentage of interventions examined in this study using small group and school-wide interventions provides promising evidence that schools may be able to efficiently promote resilience in a larger number of students.

Also promising to the feasibility of implementation is the observed trend of using teachers (general and special education) to administer and facilitate the interventions. General education teachers were the most frequently identified individuals responsible for implementing the intervention as either the sole interventionist (27.4% of studies) or in combination with other individuals (21% of studies). Mental health professionals (such as school counselors, social workers, etc.) and school psychologists were also frequently responsible for implementing the
interventions. These individuals are already in the school setting and are typically invested in the success of the students, school, and community. Schools commonly struggle to obtain resources, both financial and otherwise, and by having teachers and other school personnel implement interventions it allow them to utilize existing resources to address student concerns and increase resilience (Ham & Sewing, 1988; National High School Center, 2010). Qualitative analysis of article summaries also indicated that interventions frequently occurred during already scheduled classes or intervention periods. Scheduling and finding time to implement interventions is a common problem faced by schools, but it is an important aspect in the efficacy of school-based intervention, particularly at the secondary level; By integrating interventions into existing structures and school routines, schools can further increase the feasibility, practicality, and efficacy of implementing potential resilience-building interventions in the school (National High School Center, 2010).

Finally, results of this study demonstrate a trend towards using time and resource efficient outcome measures. Norm-referenced rating scales were the most often used outcome measure, as the sole outcome measure (59.7% of studies) and in combination with interview or existing school data. Other methods of measuring outcomes such as interview, observation, or norm-referenced tests are more time-consuming to complete than norm-referenced rating scales. Utilizing rating scales allows researchers to collect information quickly and easily about students (Elliott, Busse, Gresham, 1993). Likewise, schools can quickly and easily assess the outcomes of the interventions using the same rating scales.

Also of note were the observed trends in the dependent variables across the studies. Mental health outcomes were the most frequently identified dependent variable in studies (50% of all the studies examined). Qualitative analysis demonstrated that even when studies used multiple dependent variables, mental health outcomes were most frequently one of the variables. Recently schools have been attempting to increase mental health supports in schools and implement multi-tiered mental health services (Rosen & Cowen, 2014). Research utilizing mental health outcomes may be easily identified and utilized by schools attempting to develop a tiered system of services. However, it is concerning that academic outcomes served as the dependent variable for less than 29% of intervention studies. The primary goal of a school is to provide an education as measured by academic performance. With a focus on data-based decision making a lack of data demonstrating an impact on the academic performance of
students, schools may be more hesitant to adopt an intervention (Corwin, 2008). Future research might focus on assessing the resulting academic outcomes of interventions designed to address mental health, behavioral, or other outcomes.

Although the quality of research and characteristics of the interventions are important features of the existent literature to analyze, information about the populations involved in the studies is also pertinent. Understanding the trends in the risk factor, race, socio-economic status, and gender of the intervention participants can potentially aid in identifying areas or populations for further research. Knowledge of the sample populations in existing literature can also help schools ascertain interventions specific to their students’ needs. Information about race and socio-economic status were missing from the majority of studies; therefore, very little can be concluded about the populations in these areas. The lack of information on race and socio-economic status is concerning because designing interventions and supports that are socially and culturally appropriate is important to successfully supporting students (Sugai et al., 2000). Without demographic information it is difficult to identify if practices are culturally and contextually responsive. The gender of the populations in the studies fell between 25% and 75% male in 77.4% of studies, indicating that very few studies were designed to address a single population. Information on age and grade demonstrated that literature exists for interventions addressing Kindergarten through high school students. Overall, it appears that interventions have been designed for all ages, grades, and genders.

Also of great interest is the information collected in regards to the risk factor present in the populations. With this knowledge, researchers can determine risk factors that need to be addressed and interventions addressing specific populations can be examined collectively. Over a third of the pieces of literature included in this study evaluated interventions designed to address students who had been exposed to violence. This indicates a strong base of research in the area. It is also important to note that many of these interventions were implemented in countries outside of the U.S. that had recently experienced political conflict or war, although some did address U.S. students exposed to gang or community violence. It might be helpful to examine articles addressing exposure to war or political conflict and articles addressing gang and community violence separately in order to determine any potential differences.

Depression, family conflict, and social rejection were individually addressed in a number of articles (between 6 and 12 pieces of literature). Each of these risk factors, therefore, has some
research base and provides some probable interventions for schools to use. There is, however, potential for further expansion and exploration of interventions addressing these specific risk factors. The results of this study also revealed no evidence of literature containing school-based interventions to address students who had experienced physical abuse. There may be several reasons for this lack of literature. Children are less likely to report physical abuse than any other form of abuse and disclosures of abuse do not always lead to the end of abuse (Palmer, Brown, Rae-Grant, & Loughlin, 1999). As such, children who experience physical abuse may be less likely to let others know, or they may be more difficult for schools to identify. The extreme nature of physical abuse in comparison to the other risk factors may also contribute to the lack of school-based interventions. It may be that when schools identify students exposed to physical abuse they refer to outside resources for more intensive support from highly qualified professionals. Studies have shown that teachers and other school personnel do not feel knowledgeable about abuse and as a result are less likely to report or become involved with abuse cases (McIntyre, 1986). Moving forward research might want to determine the cause for the lack of literature on school-based interventions and potentially design interventions to fill the gap or include literature that focuses on interventions outside of school.

Literature about resilience notes the role that individual, family, school, and community risk factors can have on the likelihood of negative outcomes (Christle, Harley, Nelson, & Jones, 2001). While individual, family, school, and community risk factors appear to be addressed by interventions in the literature at similar rates, the small number of articles addressing multiple risk factors (3.2%) is concerning. The probability of a child experiencing negative outcomes increases with the number of risk factors they experience (U.S. Department of Health and Human Services, 2013). The children most in danger of failing to succeed do not appear to be supported by interventions found in the literature. Future research may want to focus on providing intervention and support to students who experience multiple risk factors.

Resilience literature also describes the importance of protective factors on the individual, family, school, and community level (Christle, Harley, Nelson, & Jones, 2001). The results of this study indicated that interventions were attempting to provide students with protective factors only on the individual level. The interventions were designed to enhance things such as developmental competence, an internal locus of control, social competence, and problem-solving skills. Specific inclusion criteria of this study (intervention must be given directly to students)
may have excluded interventions designed to build family, school, and community protective factors. Interventions for enhancing family, school, and community protective factors often focus on collaboration, training, and programming for and with parents, teachers, and community agencies and would, therefore, have been excluded due to the lack of student involvement (Bernard, 1991). Moving forward it may be beneficial to examine interventions provided through schools that address parents, school, staff and communities to determine what literature exists.

Upon examining the literature by risk factor, it appears that two characteristics of the interventions are related to the risk factor of the populations. Both the focus of the intervention and intensity at which the intervention was administered appeared to vary depending on the risk factor of the sample. Articles addressing risk factors that involved specific, traumatic experiences (such as exposure to violence or family conflict) focused on coping with the results of adversity most often. Articles addressing more general life circumstances or individual risk factors (such as low socio-economic status, social rejection, and depression) appeared to focus more on teaching new skills. Teaching new skills cannot necessarily prevent further exposure to violence or family conflict, so focusing on coping with the psychological and emotional results of the adversity seems more appropriate. For risk factors such as social rejection and depression, learning certain skills (such as social skills) could help prevent further adverse experiences (Beirman, 2004; Garber et al., 2009). Researchers appear to be focusing their interventions on the strategy that will provide the most support relative to the risk factor. A portion of studies across risk factors did focus on both teaching new skills and coping with the results of adversity. Students benefit strongly from learning strategies for coping with adversity and learning new skills to serve as protective factors (Doll & Lyon, 1998). Perhaps school-based interventions are limited by time and resource and are, therefore, forced to focus on a single aspect.

The results of this study also suggest that the intensity of the intervention may be related to the risk factor of the population. In particular, interventions addressing family conflict were always administered at the small group level. Interventions addressing other risk factors were also sometimes administered at the school-wide level. The other risk factors could potentially be experienced by the majority of a school populations (war exposure, low SES), but family conflict is generally experienced by a smaller portion of a school population (Wilcox, Marquardt, Popenoe & Whitehead, 2011). Without the majority of the population experiencing family
conflict, a school would be unnecessarily wasting resources and students’ time administering the intervention school-wide.

**Limitations**

This study had a number of limitations that should be taken into account when interpreting its results. The first limitation is that the topic of resilience is a broad and ill-defined concept that encompasses an extensive set of risk and protective factors. As a result it is difficult to ensure that all of the existing literature that falls under the umbrella of resilience was included as part of this study. As a result this study may actually underrepresent the amount of existing literature on school-based resilience building interventions overall or of those that address specific risk factors. The specific inclusion criteria and article selection process may have also inadvertently excluded certain types of literature. There may be a large amount of literature on physical abuse or other risk factors, but they are all missing a key aspect required by the inclusion criteria for this study.

Similarly, the broad nature of the topic results in a limited number of “experts” in the area. Many researchers are knowledgeable about the concept of resilience, but the vast array of risk factors and intervention foci make it difficult for any one person to be knowledgeable about all school-based resilience-building interventions. Future research may benefit on analyzing these as separate topics based on risk factor or another characteristic in order to identify more poignant and complete conclusions about the state of research and implications for practice.

Another limitation is that the present study only investigated published literature. There might be studies being done that are not being published. Future studies should examine journal article submissions and unpublished work. Unpublished research may not be rigorous enough for publication. Researchers and reviewers may also feel that school-based resilience-building interventions are not relevant enough to publish. In order to gain a complete picture of the literature on the topic all of these factors need to be examined.

Finally, a major limitation of this study is that conclusions cannot be made about the actual effects of the interventions. Without knowing whether or not interventions are effect schools and researchers cannot identify interventions and studies to replicate and utilize in practice. Future researchers may benefit from conducting a meta-analysis of the existing literature.
Future Directions for Research

While the results of this study have provided researchers and schools with a basic understanding of the existing literature on school-based resilience building interventions, there is still much to be learned. Future research should focus on ensuring treatment integrity and measuring the fidelity with which the school-based interventions have been implemented. Increased focus on treatment integrity will further strengthen the validity of the literature.

In order to continue to make these interventions possible for school-based implementation without researcher involvement, future research should begin to measure academic data and include demographic and cultural information about the sample populations. Including academic data will help schools identify interventions that positively impact their students across all domains. Including demographic and cultural information will help researchers and schools to identify culturally responsive practices.

Notably missing from the results of this study is literature addressing populations experiencing multiple risk factors and interventions designed to promote family, school, and community protective factors. Future research may want to address populations exposed to multiple risk factors due to their increased risk for negative outcomes. Family, school and community protective factors can also play a role in promoting resilience, but were not included in this study because of lack of student involvement. Physical abuse is also addressed outside of the school setting. Expanding inclusion criteria of future research to include interventions delivered outside of school or to parents, teachers, and communities could provide information about interventions to address physical abuse and family, school, and community protective factors.

Finally, future research should attempt to collect and summarize information about the efficacy of these interventions in both the short and long term. Without knowledge of the efficacy it is difficult to draw conclusions about the quality of existent literature on school-based resilience building interventions.

Conclusion

The results of this study reveal there is a moderate a collection of literature about school-based resilience-building interventions. In general, strong research methods have been utilized to collect data about interventions across different risk factors and research practices have supported implementation methods that can be easily employed by schools. With the abundance
of literature and the variety of administration, foci, and outcome measures it is important to further analyze the collection to establish a better understanding of differences in characteristics, efficacy, and populations served in order to more accurately inform decisions about research and school implementation.
References


Corwin, J. (2008). The importance of data-based decision making. In E.B. Goldring, & M. Berends (Eds.), *Leading with data: Pathways to improve your school* (pp. 5-15).


Appendix A

CODING MANUAL FOR CONTENT-ANALYSIS

This manual contains detailed instructions for coding each of the variables from the articles included in the meta-analysis. Each bold term corresponds to the variable names in the SPSS database (these are listed in the same order).

1. **Authors**- write the names of the authors as they would appear in a reference list (e.g., “Mcloughlin, C.S., & Noltemeyer, A.L.”)

   *Variable: String*

2. **Year**- Write the date of publication

   *Variable: Scale*

3. **Time Frame**- Write the number associated with the time frame in which the study was published

   *Variable: Nominal*

4. **Title**- Write the full title of the publication

   *Variable: String*

5. **Journal**- Write the full title of the journal the article is published in (if it is not in a journal, leave blank)

   *Variable: String*

6. **Page #**- Write the page numbers where the publication can be found, if applicable (e.g., “112-129”)

   *Variable: Numeric*

7. **Design**- Write the number associated with the category that describes the research design used (e.g., select “1” if it is a correlational design).

   *Variable: Nominal*
   *Categories: 1 = Correlational, 2 = Causal-comparative*
8. **Design**

- Design 2- Describe the design in words if it doesn’t match the other categories

9. **Participant**

- ParticipantN- Write the total number of participants included in the analysis for which you are writing an entry

  *Variable: Scale*

10. **Intervention Intensity**

- Write the number associated with the category that best describes the type of intervention being investigated in the analysis

  *Variable: Nominal*

  *Categories:*
  1 = Individual
  2 = Small group
  3 = School-wide

11. **Administration of Intervention**

- Write the number associated with the category that best describes the person(s) who implemented the intervention being investigated in the analysis

  *Variable: Nominal*

  *Categories:*
  1 = School Psychologist
  2 = Other mental health professional
  3 = Teacher
  4 = Volunteer unaffiliated with the school
  5 = Researcher
  6 = Multiple/combination
  7 = Other

12. **Risk Factor of Sample Studied**

- Write the number associated with the category that best describes the risk factor experienced by the sample being investigated in the analysis

  *Variable: Nominal*

  *Categories:*
  1 = physical trauma
  2 = exposure to violence
  3 = low socioeconomic status
  4 = social rejection
  5 = family conflict or divorce
  6 = multiple risk factors
  7 = depression
  8 = other
13. **DVofInterest1** - Write the number corresponding with the category that describes the outcome variable being investigated in this particular analysis

Variable: Nominal
Categories: 1 = Academic outcomes  
2 = Behavioral outcomes  
3 = Mental health outcomes  
4 = Coping/resiliency outcomes  
5 = Other  
6 = Multiple measures

14. **Collection of Outcome Measures** - Write the number associated with the category that best describes if treatment integrity was assessed

Variable: Nominal
Categories: 1 = Norm-referenced test  
2 = Norm-referenced rating scale  
3 = Existing school data  
4 = Observation  
5 = Student/Parent/Teacher interview  
6 = Other  
7 = Multiple

15. **Treatment Integrity** - Write the number associated with the category that best describes if treatment integrity was assessed

Variable: Nominal
Categories: 1 = Yes  
2 = No  
3 = Unclear

16. **Focus of the Intervention**

Variable: Nominal
Categories: 1 = Teach new skills  
2 = Cope with emotional results of adversity  
3 = Combined  
4 = Other

17. **Category of Protective Factor** - Write the number of the category that best describes the type of risk or protective factor addressed by the intervention.

Variable: Nominal
Categories: 1 = Family  
2 = School  
3 = Community  
4 = Individual
18. **Race** – Write the number associated with the category that describes the racial makeup of the participants being studied for this analysis

*Variable: Nominal*

*Categories:*
- 1 = greater than 60% White
- 2 = greater than 60% Black
- 3 = greater than 60% Hispanic
- 4 = greater than 60% other minority
- 5 = mixed, none more than 60%
- 6 = mixed, cannot estimate proportions
- 7 = cannot tell

*THESE CATEGORIES WERE TAKEN FROM LIPSEY & WILSON (2001)*

19. **Exact Percentage of White students** - Write the exact percentage, if available.

*Variable: Scale*

20. **Gender** – Write the number associated with the category that describes the gender makeup of the participants being studied for this analysis

*Variable: Nominal*

*Categories:*
- 1 = 0-25% male
- 2 = 26-50% male
- 3 = 50-75% male
- 4 = 76-100% male
- 5 = cannot tell

21. **Exact Percentage of Gender** - If available, include the exact percentage of the sample that was male.

*Variable: Scale*

22. **SES** – Write the number associated with the category that describes the socio-economic makeup of the participants being studied for this analysis

*Variable: Nominal*

*Categories:*
- 1 = 76-100% low SES
- 2 = 51-75% low SES
- 3 = 26-50% low SES
- 4 = 0-25% low SES
- 5 = not specified

23. **Exact Percentage of low SES** - If available, include the exact percentage of the sample that was low SES.
Variable: Scale

24. MeanGradeOfSample- Specify approximate or exact mean grade-level of the sample

Variable: Scale

25. MeanAgeOfSample- Specify approximate or exact mean age of the sample.

Variable: Scale

26. EffectSize- Write the effect size observed in the study

Variable: String

27. PageWhereESDataFound- Write the page number(s) where the correlation/e.s. data were found (for subsequent meta-analysis)

Variable: String

28. PublicationForm

Variable: Nominal
Categories: 1 = peer-reviewed journal
2 = professional newsletter
3 = book
4 = technical report
5 = dissertation
6 = conference paper
7 = other (we need to track what types are represented with this option)

29. DisciplineOfJournal– Select the number associated with the discipline of the first author (find in “about the author” or google them)

Variable: Nominal
Categories: 1 = psychology
2 = school psychology
3 = teacher education
4 = special education
5 = educational administration
6 = health related field
7 = other (we need to track what fields are represented with this option)
30. **HowArticleFound** - Select the number associated with the way in which the article/resource was located

*Variable: Nominal*

*Categories:*
- 1 = keyword search
- 2 = reference list search
- 3 = expert recommendation

31. **ArticleTopic** - Select the number associated with the primary topic of the article

*Variable: Nominal*

*Categories:*
- 1 = Our interest was a primary research question/focus
- 2 = Our interest was not a primary research question/focus, but relevant data were included

32. **Notes** - Write any notes regarding questions or concerns with the data here

*Variable: String*
Appendix B

Study Eligibility Criteria

(modified from Noltemeyer, Ward, & Mcoulign, accepted pending minor revisions)

1. **Distinguishing features**- The study must include data on the effectiveness of school-based resilience interventions aimed at a population who have experienced trauma, adversity, or other significant risk factors. The interventions must be delivered directly to students (not to parents).

2. **Research respondents**- Eligible studies must involve participants in grades kindergarten through 12 at the time intervention data were collected.

3. **Key variables**- Studies must report data on the effectiveness of a school-based intervention designed to increase resilience.

4. **Research methods**- Research designs that provide some measure of the efficacy of an intervention. Also, only studies without egregious methodological flaws will be included.

5. **Cultural and linguistic range**- Articles from the United States as well as foreign countries, published in English will be included. These articles will be included because children in countries other than the United States experience different kinds of stress, trauma, and risk factors than those in the United States. Including these articles will allow us to synthesize information and better understand the mechanisms that lead to resilience in different cultures.

6. **Time frame**- Only studies conducted since 1960 will be included. This year was selected because Goldstein & Brooks (2012) indicate that the study of resilience originated about 50 years ago.

7. **Publication type**- Both published and non-published material will be eligible. This may include peer-reviewed journal articles, non-refereed journal articles, book chapters, dissertations, government reports, technical reports, and presentation proceedings.

Steps for Identifying, Locating, and Retrieving Research Reports That Meet the Eligibility Criteria

1. Search for all possible articles within the following databases: ERIC, Education Full Text, Educational Research Complete, PsycINFO, Psychological and Behavioral Sciences Collection, Social Science Citation Index, Google Scholar, MEDLINE, and Dissertations Abstracts. A Miami University librarian will also be contacted aid in identifying other useful resources for obtaining articles. Keywords will be used to identify relevant articles that describe the effectiveness of a school-based intervention designed to increase resiliency (keywords may include: resilience, resilience intervention, at-risk, school-based, exposure to violence, social rejection, abuse, and at-risk). When applicable, the * symbol will be used to search for multiple variations on these words (e.g., “resilienc*” may produce articles with the words “resilience” “resiliency” and “resilient”). When searching, a list will be created that includes exactly which keywords were used.

2. Each article will be screened based upon the title, abstract, and quick perusal of the article. Any articles that appear to meet the Eligibility Criteria based on this process will be dropped into the Dropbox folder “Found through keyword searches in databases.” Then, the person who found that article will open up SPSS and enter information about the article (e.g., author names, date, journal, title…see Codebook created for this purpose), even if it ultimately is abandoned for some reason (so that we can keep track of what % were abandoned for one reason or another). If the resource is unavailable (e.g., can’t be retrieved from library), the person who found it using the keyword search...
will add it to the list “unavailable” in Dropbox and then add the article information available into SPSS----I will later try to find these.

3. After identifying an initial pool of articles, the literature reviews and reference sections of each publication will be consulted to ensure that no relevant articles were missed. Any additional references that seem to have data we are seeking will be searched and found. If they appear to meet the eligibility criteria, the articles will be added to Dropbox in the folder “Found by consulting the reference lists of articles identified through keyword searches.” The information on the article (author, year, etc.) will also be added to SPSS. If the resource is unavailable (e.g., can’t be retrieved from library), the person who found it using the keyword search will add it to the list “unavailable” in Dropbox and then add the article information available into SPSS----I will later try to find these.

4. After a full list of articles has been obtained and agreed upon by the two of us, an expert in the field will be provided with the eligibility criteria and a full reference list of articles found thus far. These experts will be asked to add any additional articles they are aware of that might have been missed. These articles will then be searched, and if they meet the screening criteria they will be added to the Dropbox folder “Found through the final expert review of our list of articles” and the article information will be added to SPSS.

5. After this entire process, we will begin coding the studies using the codebook created specifically for this purpose (in Dropbox). If a study must be withdrawn for any reason (e.g., it turns out the criteria were not met), then this will be indicated in SPSS (these studies will obviously not be included in meta-analysis calculations).