

Running Head: SPECIFIC STRESSORS IN CHILDREN

Specific Stressors and the Specific Stress Symptoms They Elicit in School-Age Children

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Introduction

School-age children experience stress much the same as adults do; both common, everyday stress and also atypical, larger-scale stress. Children may have difficulty knowing how to cope with their stress and how to describe what they are feeling or experiencing. Pediatric nurses have a good opportunity to discuss these stressful experiences and to guide and teach children how to cope. It is important that healthcare professionals be able to diagnose and treat stress, as it can lead to other problems in the child, such as the development of psychiatric disorders or initiate physical diseases (Lau, 2002).

Although there have been several studies examining stress in children, many of these have been based on adult perception's of the child's stress experience. The problem stemming from this view is that adults may not appreciate certain events that, while seeming harmless and simple to an adult, may actually be quite stressful through a child's eyes (Lau, 2002). Some of these particular childhood stressors may also occur quite regularly (Lewis, Siegel, & Lewis, 1984). Other studies tend to focus on specific stressful events in a child's life, such as an illness in the family or a natural disaster, as opposed to more common but stressful events in children's lives.

Because stress does have such a major impact on school-age children, it is also important to establish if certain stressors determine certain stress symptoms. This can be helpful in diagnosing and treating a child experiencing stress. As McMahon, Grant, Compas, Thurm, & Ey (2003) point out, there has been no study that has "yet tested full specificity models (including examination of specific mediating and moderating pathways) of the role of stress in the etiology of a particular psychological outcome." Therefore, the purpose of this study is to characterize the relationships between specific stressors and the specific stress symptoms they elicit in school-age children. We will also look for a direct relationship between these results and the gender of the child.

Review of Literature

Stressors

Stressors are defined as “external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (Lazarus & Folkman, 1984). In order to look at stress experienced by children, Lewis, Siegel, and Lewis (1984) examined stressors in 2,480 5th and 6th grade children. A list of 20 stressors was developed from asking these children “What happens that makes you feel bad, nervous, or worry?” The instrument contained this list of stressors and asked the children to rate on a “badness” scale of one (not bad) to five (terrible) how they would feel if the item happened to them and to also indicate if and how often the stressor happened to them. Overall, there was an increase in the intensity of the “badness” of the stressor and the frequency of it occurring, but females rated 14 of the stressors more bad than males. The mean badness rating of all stressors was 3.28 for females and 2.82 for males. Although the boys and girls differed in their badness ratings, the rank of the badness ratings between the two groups was highly correlated ($\rho = 0.96$, $p < .01$). Of the six highest badness rankings among boys and girls, four of the stressors related to interactions with parents. The results show that chronic problems were most often the main source of children’s stress. The data also suggest that “there are strains in childhood that may not be appreciated as such by adults” (Lewis et al., 1984). The approach of this study was to use a list of stressors that were defined by 5th and 6th grade children, as opposed to previous studies of childhood stress which used instruments containing stressors thought by adults to be stressful to children.

Many of the commonly cited stressors by school-age children can be attributed to present issues and current events. Parents fighting or separating is a very common stressor in today’s world. Each year, the parents of one million children obtain a divorce (US Census Bureau, 2000). Even though this has become a very common stressor, it is not a *normal* stressor. This event is very stressful to a child, and the child may need assistance and

interventions in order to cope during this stressful period. While the above cited stressor has become more common in recent years, two frequently cited stressors have been prevalent repeatedly in the past and present. Feeling left out of the group is a common and normal occurrence among school-age children. School-age children form friendships during this time and often may feel like they are outside of the group. Another common stressor, fighting about the rules with either a parent or teacher, is normal during this period of development. School-age children are beginning to test their boundaries by challenging authority in order to develop a sense of self. These stressors are very common and normal during this developmental stage.

Stress Symptoms

Stress symptoms are a direct result of stressors, and are defined as “both subtle and dramatic cognitive, emotional, and physical responses in the body that are often manifested as perceptible symptoms” (Ryan-Wenger, Sharrer, & Wynd, 2000). Sharrer and Ryan-Wenger (2002) used self-report of children to examine stress symptoms. Children in grades two through six were asked five questions pertaining to stress, stress symptoms, and coping. Out of the 470 responses listed at least four times by children, the findings revealed two major stress symptom categories. The first was cognitive/emotional symptoms, in which children described feelings of nervousness, sadness, etc. The other included symptoms such as headaches or stomachaches, which were placed in the category of physiological symptoms. The researchers cite that due to the extensiveness of the list of cognitive/emotional and physiologic symptoms reported by the sample, the results “clearly indicate that school-age children are capable of reflecting upon their own responses to stressful events in their lives...” (Sharrer & Ryan-Wenger, 2002). When compared to adult complaints/symptoms of stress, Sharrer and Ryan-Wenger found that few of the symptoms are represented in the children’s responses.

Sharrer and Ryan-Wenger (2002) argue that while emotions are probably the same in boys and girls when they are stressed, “the manifestation of “mad” is probably more externalized behaviorally by boys and internalized physically and emotionally by girls.”

Internalization of symptoms can be described as “problems that are mainly within the self,” while externalization “comprises problems that mainly involve conflicts with other people and with their expectations of the child” (Achenbach & Rescorla, 2001). The female children in Sharrer and Ryan-Wenger’s study (2002) were found to describe significantly more symptoms at an average of 2.8, compared to 1.8 for the males. “Mad” was the most commonly cited cognitive/emotional symptom, but there was only a slight difference in the number of males (24%) and females (16.7%) citing this symptom.

Specificity of individual stressors for specific symptoms

In a study by McMahon et al. (2003), researchers examined fifteen years of studies that, intentionally or unintentionally, examined specificity between specific stressors and resulting stress symptoms. The researchers cite the fact that “very few investigators have *intentionally* tested for specificity relations between particular stressors and particular psychological outcomes.” In this review of previous research, specificity is defined as “stressors within a particular category that were (are) related to internalizing but not externalizing outcomes, or externalizing but not internalizing outcomes.” The review’s main focus looked at stressor-outcome specific studies, those of which involved the categorization of internalizing or externalizing outcomes (symptoms). Their findings show that comparable studies have given conflicting results. Specific stressors, such as exposure to violence, physical abuse of the child, and divorce, were found to result in either internalizing or externalizing outcomes, depending on the study. Each study that follows contained children in age groups that were similar to or the same as the specified age group of this study.

One group of studies in this review examined stressors that had a direct impact on the child. A stressor subgroup in this section included physical abuse of the child and showed separate studies revealing different findings related to the resulting stress symptoms. Two studies found that children who are physically abused show internalization of their stress symptoms (DePaul & Arruabarrena, 1995; Murata, 1994). Contrastingly, a study by Feldman et

al. (1995) found that children who were physically abused were specifically associated with externalizing symptoms. Still even different results were found in other similar studies. Oppositional Defiant Disorder and Conduct Disorder, which are considered externalizing symptoms, were specifically associated with physical abuse in a study by Ackerman, Newton, McPherson, Jones & Dykman (1998). Crittenden, Claussen, and Sugerman (1994) found in their study that depressive symptoms resulted from physical abuse, which fall under the category of internalizing symptoms.

Besides physical abuse, other forms of stressors that have a direct impact on the child have stress symptoms that differ, as well. The results of two separate studies show that sexual abuse in children is specifically related to symptoms of Posttraumatic Stress Disorder (PTSD) (Deblinger, McLeer, Atkins, Ralph, & Foa, 1989; Dykman et al. 1997). PTSD symptoms can also be described as internalizing symptoms. On the other hand, externalizing symptoms were shown to be specifically related to sexual abuse in a study by Lynch and Cicchetti (1998).

Along with forms of abuse, neglect of a child also resulted in conflicting findings. Physical neglect was specifically associated with externalizing symptoms (DePaul & Arruabarrena, 1995), while emotional neglect was found to have specificity to inattention symptoms (i.e. internalizing symptoms) by Crittenden, Claussen, & Sugerman (1994). General maltreatment of a child showed no specificity, as it was related to both internalizing and externalizing behaviors (Lynch & Cicchetti, 1998).

Attar, Guerra, & Tolan (1994) conducted a study in which the results revealed that aggressive symptoms, which are internalizing symptoms, were a result of exposure to violence. This differed from the results of Lynch & Cicchetti (1998), which concluded that this stressor led to depressive symptoms, or externalizing symptoms.

Marital violence exposure to children was another stressor that showed conflicting results among separate studies. Exposure to the battering of a child's mother was shown to cause internalizing symptoms in one study (Levendosky & Graham-Bermann, 1998), which was

similar to the results from another study done by Rossman, Bingham, & Emde (1997) that showed that internalizing symptoms were reported in children exposed to parental violence. Contrastingly, Sternberg et al. (1993) found that children who witnessed parental violence showed specificity for externalizing symptoms.

As revealed, there is no absolute concrete evidence for specificity between stressors and stress symptoms. Different studies looking at similar stressors have come up with different, and sometimes totally opposite, results. McMahon et al. (2003) concluded after their thorough review that “there is a need to develop and test specific models that examine the complex relations between stress and psychopathology...Such research is necessary to develop an empirically supported model of the role of stress in the etiology of developmental psychopathology.”

Research Questions/Hypotheses

In this study we will look to answer the following research questions:

1. What kinds of stressors do school-age children experience?
 - a. Does the type of stressor differ by gender?
2. What kinds of stress symptoms do school-age children experience?
 - a. Do total symptom scores differ by gender?
 - b. Does the type of symptom experienced differ by gender?
3. Is there a relationship between type of stressor, level of exposure, frequency, currency, and severity of stressors and total symptom scores?

The hypotheses of the study are as follows:

1. Females will have higher total symptom scores than males.
2. The more direct effect of the stressor (type of stressor), the higher the total symptom score will be: School stressors < Family < Personal
3. As level of exposure increases, the total symptom score will increase:
All > It happened to you = You did it > You saw it happen > You heard about it.

4. If the stressor occurred more than one time (frequency), the total symptom score will be higher than if the stressor occurred only once.
5. If the stressor still bothers the child (currency), the total symptom score will be higher than if the stressor no longer bothers the child.
6. The more upset the child was when the stressor occurred (severity), the greater the total symptom score will be.

Human Subject Concerns

This study was reviewed by the Institutional Review Board (IRB) at The Ohio State University prior to administration. Once approved, both written parental consent and child's verbal assent were obtained in order to participate in the study. Respect to human dignity and justice of the participants was ensured by adhering to the principles of the right not to be harmed, the right to self-determination, the right to full disclosure, and the right to privacy. Children's responses to the study materials are confidential, available only to the researchers who were present at the data collection session. Data forms have ID numbers rather than names on them. The forms are available only to the senior honors student and the professor. Data forms are kept in locked files in the professor's office, separate from the consent forms. The list of ID numbers and names are kept separate from the data forms. Data was reported in aggregate form, in large enough groups (i.e. 10 children) that individual participants cannot be identified, e.g. if there are only six minority children, then data would not be reported according to race or ethnic group. That variable would be deleted from the SPSS data file at the point that it was discovered during data analysis to prevent further analyses that may reveal the identity of a particular child. A letter to parents that described the study included the above information, the type of data that was to be obtained from the children and the procedures to be taken if the child became upset, or if the child revealed something that suggests that he/she is in danger, or a danger to him/herself.

During the procedure, the possibility existed that some children could become upset when recalling stressful experiences. The data collectors included nursing students and pediatric nurses who are trained to recognize children's signs of distress and trained in methods to calm distressed children.

Procedure

Sample

The sample for this study included male and female students, grades three through six. The children were required to be able to speak and read English and also to be in the appropriate grade for the child's age. Students in Severely Emotionally Disabled (SED) classes were excluded from this study because they have unique stressors beyond those of average children, and we do not want to interrupt their daily routines. A power analysis resulted in the sample size of at least a total of 56 children from the school (Cohen, 1988). To calculate sample size, we used $\alpha=0.05$ and set the power at 0.80. The effect size is moderate at 0.25 for t-test for comparisons across groups, such as male or female.

Procedure

After IRB approval was obtained, letters were then sent home from school to the parents/legal guardians of qualifying children. The letter included the following: an explanation of the study, a parental consent form, a form pertaining to the demographics of the child (see attached forms), and a stamped envelope addressed to the professor. The child then returned the completed forms to a box kept in the principal's office.

The study was conducted during lunchtime at school, in a specified, private classroom. Pizza was served instead of the regular school lunch. The research team was comprised of the senior honors student, the professor, and two other senior nursing students to assist the children with filling out the forms. The participants of the study were then given a brief explanation of the study. The children were given an opportunity to decide whether or not to participate at that time. Those who did want to participate were asked to verbally state that they

would like to be given the study instruments. If they did not want to participate, they could stay in the room, enjoy the pizza, and ask for a word puzzle to work on instead. Children who participated were also told that they did not have to answer every question but could leave items blank if they wanted to.

The questionnaires were distributed to each child by the research team. The senior honors student then read the directions to the children. The entire questionnaire was read to the younger children (3rd, 4th grades), while the older children were permitted to complete the forms themselves (5th, 6th grades). Once the questionnaire was finished, they were collected by the research team. Pizza was served to the children, and at the end of data collection, they received a certificate from The Ohio State University College of Nursing for their service as a participant in a research study. All children who had parental permission received a small prize regardless of whether or not they completed the study. The children then returned to normal school day activities at the end of the session.

Operational Definitions

The *Feel Bad Scale* (Lewis, Siegel & Lewis, 1984) was used as a list of common stressors experienced by school-age children. Children were asked to select one of the stressors that they had experienced most recently. Research by Lazarus and colleagues noted that, compared to single traumatic events, persistent “daily hassles” could be a more pervasive source of stress with equally negative effects on the individual’s psychological, behavioral and physiologic systems (Lazarus & Folkman, 1984). Similar research in children has not been conducted, but the theory is intuitively appealing. The best way to identify events that are daily hassles or significant life events for children is to ask the children themselves. Therefore, children were asked to identify events that were stressful, or made them “feel bad, nervous or worried” (Lewis, Siegel & Lewis, 1984). Children’s responses were incorporated into the 20-item Feel Bad Scale (FBS). School-age children report that their most frequently occurring stressors are feeling sick, having nothing to do, not having enough money to spend, being pressured to

get good grades, and feeling left out of the group (Lewis et al., 1984). The authors then examined the relationship between children's appraisal of "badness" and frequency with which stressors occurred. There was a predictable linear relationship with 10 of the 20 items on the Feel Bad Scale, in that perceived severity increased as frequency of the stressors increased. Paradoxically, children who had never experienced two of the stressors (separation of parents, and being pressured to try something new) ranked them highest in "badness". This finding introduced the concept that anticipation of an event may be more stressful than the actual event.

In this study, the list of items on the Feel Bad Scale was presented to the children, from which they chose their most recent stressor. Then, they were asked to check the box that best described their proximity to the stressor, if it happened more than one time, if it still bothers them, and how bothered or upset they felt right after it happened.

To measure stress symptoms, a brief screening questionnaire, the Pediatric Symptom Checklist (PSC), was used (Jellinek & Murphy, 1988; Jones, Latkowski, Green & Ferre, 1996). The PSC is a 35-item instrument scored on a scale of 0, 1 and 2 (never, sometimes, and often). The items include emotions, behaviors and patterns, such as feels sad, feels hopeless, teases, blames others, takes things that do not belong to him or her, and fidgety. The instrument has been validated with preschool, elementary and middle school children, general pediatric populations, high risk children, and inner city children. Compared with the Clinicians' Global Assessment Scale, the PSC has 79% agreement, 95% sensitivity, and 68% specificity for middle income children, and 92% agreement, 88% sensitivity and 100% specificity for lower income children (Jellinek & Murphy, 1999). A score on this screening tool of 28 or higher indicates significant psychosocial impairment and follow-up by a health care provider is recommended by the authors.

Analysis

Demographic characteristics of the subjects are described with frequency and percentages. For statistical analysis, an alpha level of significance will be set at <0.05 . The type of analysis used is described in the table attached according the research question (RQ) or hypothesis (H).

| Research Question (RQ) or Hypothesis (H) | Variables | Analysis Method |
|--|--|--|
| <p>RQ1. What kinds of stressors do school-age children experience?</p> <p>a. Does the type of stressor differ by gender?</p> | <p>Stressors</p> <ol style="list-style-type: none"> 1. Personal 2. Family 3. School <p>Gender</p> <p>Male</p> <p>Female</p> | <p>Stressors selected from the Feel Bad Scale will be sorted into the 5 categories to the left. Frequencies and percentages will be reported for the total sample and by gender.</p> <p>A chi-square analysis will be used to compare types of stressors by gender.</p> |
| <p>RQ2: What kinds of stress symptoms do school-age children experience?</p> <p>a. Do total symptom scores differ by gender?</p> <p>b. Does the type of symptom experienced differ by gender?</p> <p>Hypothesis: Females will have higher total symptom scores than males.</p> | <p>Pediatric Symptom Checklist item scores and total scores</p> <p>Gender:</p> <p>Male</p> <p>Female</p> | <p>Symptoms will be reported in a table in rank order from highest to lowest frequency. The number of children and percentages who experienced each one will also be reported in the table.</p> <p>PSC total scores will be reported with range, mean and standard deviation for total sample and by gender.</p> <p>Gender differences in total PSC scores will be examined by independent t-test.</p> |

| | | |
|--|--|---|
| <p>RQ3: Is there a relationship between type of stressor, level of exposure, frequency, currency, and severity of stressors and total symptom scores?</p> <p>Hypotheses:</p> <p>The more direct effect of the stressor, the higher the Total Symptom score will be: Personal Stressor > Family > School</p> <p>As level of exposure increases, the total symptom score will increase: All > It happened to you = You did it > You saw it happen > You heard about it.</p> <p>If the stressor occurred more than one time, the total symptom score will be higher than if the stressor occurred only once.</p> <p>If the stressor still bothers the child, the total symptom score will be higher than if the stressor no longer bothers the child.</p> <p>The more upset the child was when the stressor occurred, the greater the total symptom score will be.</p> | <ol style="list-style-type: none"> 1. Stressor types 2. Level of exposure 3. Frequency 4. Currency 5. Severity 6. PSC total scores | <p>A correlation matrix, will be used to measure strength and significance of relationships between the nominal level variable (1), ordinal level variables (2-5) and interval level variable (6) using a Spearman correlation, phi or eta, depending upon the level of the variable.</p> <p>To test the hypotheses, mean total symptom scores by group (level of stressor variables 1-5) will be ranked and compared with the hypothesized rankings.</p> |
|--|--|---|

Results

Sample

The convenience sample consisted of 23 children ages 8-12, in third through sixth grade. Six boys and 17 girls participated. All of the participants described themselves as White. The study was done at a suburban, private elementary school in the Midwestern United States. The distribution of total scores on the symptom scale compared to stressor-related variables is shown in Table 1.

What kinds of stressors do school-age children experience?

Only 11 of the 20 stressors on the Feel Bad Scale were selected by one to four children (four children: pressure for good grades & not good enough at sports; three children: left out of the group; two children: having parents separate, homework not done & smaller than others; 1 child: sister fights with me, can't dress the way I like, overweight, don't get along with teacher, moving to a new place, & feeling sick). The 20 stressors listed on the Feel Bad Scale were categorized as personal, school or family-related stressors. Personal stressors, such as "feeling sick" and "not being good enough at sports," were chosen by 43.5% of the participants. Another 43.5% of the children chose a social stressor that they had experienced recently. Examples include "being pressured to get good grades" and "feeling left out of the group." The remaining 13% of the sample described a family stressor, such as "having parents separate" or "fight with parents about rules," as their recent stressor.

Does the type of stressor differ by gender?

No differences were found between the type of stressor and the gender of the child (Chi-square = 0.353, $p=0.838$).

What kinds of stress symptoms do school-age children experience?

All 35 of the symptoms listed on the Pediatric Symptom Checklist were experienced either "sometimes" or "often" by the participants. The number of students experiencing each

symptom ranged from 2 to 19. Table 2 shows the six most common symptoms experienced by 60% to 76% of the children. Each stressor that children experienced elicited anywhere from 4 to 29 different symptoms of 35 possible symptoms on the Pediatric Symptom Checklist.

Does the type or symptoms experienced or total symptoms score differ by gender?

A series of chi square analyses on the frequency with which symptoms were experienced by boys versus girls showed that girls more frequently experienced aches and pains ($\chi^2 = 6.021$, $p = .049$), and fear of new situations ($\chi^2 = 7.394$, $p = .025$), while boys more frequently experienced getting into trouble with the teacher ($\chi^2 = 6.145$, $p = .046$), feeling irritable and angry ($\chi^2 = 7.412$, $p = .028$), and having less fun ($\chi^2 = 5.799$, $p = .05$). Total symptom scores did not differ significantly by gender (Table 1).

Does type of stressor predict the type of symptom experienced?

Each of the 20 stressors was correlated with each of the 35 symptoms to determine if there were any significant relationships among them. Only four stressors and symptoms showed significant relationships, using the nonparametric eta correlation with symptoms as the dependent variable, although one could expect at least that many to be significant by chance alone. Table 3 shows the four stressors and their related symptoms. No significant relationships between the three categories of stressors (personal, social, family) and specific symptoms were noted.

Is there a relationship between type of stressor, level of exposure, frequency, currency, and severity of stressors and total symptom scores?

The nonparametric statistic, eta, showed small correlations between the stressor variables and total symptoms scores (Table 3). The level of exposure to stressors had insufficient variability to include in further analyses, i.e. the stressor happened to all of the children, versus “heard about it” or “saw it happen,” or “I did it.”

Females will have higher symptom scores than males.

This hypothesis was supported by the data, but the scores for females were not significantly higher than those for males (see Table 1).

The more direct effect of the stressor, the higher the total symptom score will be: Social < Family < Personal.

The results showed that the personal stressors have the lowest total symptom scores, followed by social stressors. Family stressors have the highest total symptom scores (Table 1).

As level of exposure to stressors increases, the total symptom score will increase: All > It happened to you = You did it > You saw it happen > You heard about it.

We were unable to analyze this hypothesis due to lack of variability in the level of exposure measure.

If the stressor occurred more than one time, the total symptom score will be higher than if the stressor occurred only once.

The hypothesis was supported by the data but was not statistically significant. Only two children reported the stressor occurring only once, thus making it difficult to analyze this data.

If the stressor still bothers the child, the total symptom score will be higher than if the stressor no longer bothers the child.

This hypothesis was supported by the data but was not statistically significant.

The more upset the child was when the stressor occurred, the greater the total symptom score will be.

This hypothesis was not supported by the data. However, the total symptom score did go in the direction expected. The score was lower for children that stated the stressor did not bother them, while the total symptom score was greater for children that revealed that the stressor either upset them a little or a lot.

Discussion

Sample

The convenience sample of 23 children consisted of 17 girls and 6 boys, therefore the results may be more similar to the female school-age population than boys. This sample is not representative of the male to female ratio at the participating school nor does it represent the American population. This overrepresentation of females may be accounted for in the fact that females in general are more likely to share feelings and personal stories and also are more likely to express themselves than their male counterparts. Research has shown that women are more likely to report symptoms and seek healthcare than men (Centers for Disease Control, 2005). There were no minority participants in the study, thus somewhat limiting the generalization of the results to Caucasians. This percentage of Whites in the research was similar to that of the participating elementary school, but it is not a comparative percentage to the American school-age population, which is about 20% Black.

Of the two stressors that occurred most frequently in this study (being pressured to get good grades & not being good enough at sports) only being pressured to get good grades was similar to findings in previous research by Lewis, Siegel and Lewis (1984). These two stressors were not in the top 10 stressors listed by Ohio and Washington school-age children in the study by Ryan-Wenger, Sharrer, and Campbell (in press). The children in our small sample were from a parochial school, which may have made them different with respect to parental emphasis on good grades. Student and school performance on state proficiency tests may add to the pressure. In addition, group sports participation by both boys and girls was highly valued at this school, and they may have felt pressure from parents or peers to perform well in the athletic arena.

The results of this research show that school-age males and females share similar types of stressors. A personal stressor was described by 33.3% of the males, compared to 47.1% of the female participants. Compared to 16.7% of the males, 11.8% of the females chose to

describe a stressor pertaining to the family. Of the social stressors, 50% of the male participants and 41.2% of the females most recently experienced this type of stressor.

Although the types of stressors experienced by school-age children are similar between the sexes, research has shown that there are differences in how males and females assess their stressors. More girls (41.2%) than boys (16.2%) rated their stressor as “it upset me a lot.” Similarly, in a study by Lewis, Siegel, and Lewis (1984), females were found to rate 14 of 20 stressors more bad than males. The mean badness rating of all stressors was 3.28 for females and 2.82 for males (one is not bad and five is terrible). Overall, female children were found to rate stressors as “more bad” than their male counterparts. This could affect how females and males react and cope with similar stressors and may help to explain some of the observed differences between the two.

Both male and female children experience a variety of symptoms in response to their stressors. The Pediatric Symptoms Checklist included a list of 35 commonly experienced stress symptoms. All of these symptoms were described as being experienced “sometimes” or “often” by at least two or more of the participants.

The most common symptoms in this sample included two emotions: sad and irritable. One cognitive symptom, easily distracted, was very common, as was the behavioral symptom, fidgety. Two physiological symptoms, aches and pains, and tires easily were also among the top six symptoms. These responses reveal that children frequently experience the full scope of symptoms when faced with a stressor. More importantly, their ability to link mind and body responses to an external event suggests that they are able to monitor their own responses and perhaps could anticipate how their body will respond to stressors in the future. This is the first step toward making a change in coping behavior, which in turn, could change the stressor itself, or their stress responses. Results in this study were comparable to other studies examining the stress symptoms in children. Ryan-Wenger, Sharrer, and Campbell (in press) found that of the cognitive and emotional symptoms cited by children, mad, worried, sad, nervous, and afraid

were the most common. The physiological responses most commonly described by children include experiencing a headache, stomachache, being sweaty, and the heart beating fast.

Although many of the stress symptoms that resulted from the stressors were unique to each child, only three stressors showed a strong relationship to certain symptoms (Table 3). It was clear that the majority of the stressors did not show predictability to specific stress symptoms.

Children can describe what happens to them after they experience stress and what symptoms they are dealing with. In doing this, children are able to reflect on how they are coping with their stress. This information can be helpful to nurses and other health care providers as they strive to develop interventions and should be employed in order to help the children cope.

Clinical Implications

By using the Feel Bad Scale and Pediatric Symptom Checklist in order to examine stress in children, healthcare providers are given leads to areas of concern relating to stress. The instruments can be used in many settings, from schools to clinics to inpatient hospital units. When used in these settings, the nurse can also examine how the child is coping and what interventions may be needed. These interventions should be aimed at helping to decrease symptoms. From the data, it is clear that school-age children are able to see the link between the mind and body. They are able to understand that their mind perceives an event as stressful, and then their body in turn reacts to this stressor.

The selection of certain symptoms, such as “feeling hopeless”, is abnormal for a school-age child and should be viewed as a red flag. Follow-up questions for the child should be done if this type of stress symptom is described. Abnormal stress symptoms can be a sign of improper coping by the child.

Future research could be done on the specifics of stressors. For example, children often cite “pressure to get good grades” as a common stressor. More specifics could be examined

relating to these stressors, such as where this pressure is coming from (parents or teachers). These specific questions pertaining to the stressor may assist in giving a clearer picture as to why children experience the specific stress symptoms that they do.

Table 1. Distribution of total symptom scores compared to gender and stressor-related variables.

| | n | Total Symptoms | Standard Deviation | t/F | p |
|--------------------------|----------|-----------------------|---------------------------|------------|----------|
| Sex | 23 | 19.8 | 9.22 | | |
| Male | 6 | 24.5 | 5.47 | 1.48 | 0.153 |
| Female | 7 | 18.2 | 9.82 | | |
| Type of Stressor | | | | | |
| Personal | 10 | 18.4 | 9.51 | 0.29 | 0.751 |
| Family | 3 | 23.0 | 9.85 | | |
| School | 10 | 20.3 | 9.48 | | |
| Frequency | | | | | |
| Happened 1 time | 2 | 11.0 | 5.70 | 1.45 | 0.161 |
| Happened > 1 time | 21 | 20.7 | 9.13 | | |
| Severity | | | | | |
| Didn't bother me | 2 | 13.5 | 13.4 | 0.53 | 0.598 |
| Upset a little | 13 | 20.8 | 8.5 | | |
| Upset a lot | 8 | 19.8 | 10.2 | | |
| Currency | | | | | |
| Does not still bother me | 7 | 16.9 | 11.9 | 1.02 | 0.318 |
| Still bothers me | 16 | 21.1 | 7.86 | | |

Table 2. The six most commonly experienced symptoms.

| Symptom | % of children that experienced the symptom |
|------------------------------|---|
| Sad, unhappy | 76 |
| Irritable, angry | 68 |
| Easily distracted | 68 |
| Aches, pains | 60 |
| Tires easily, little energy | 60 |
| Fidgety, unable to sit still | 60 |

Table 3. Specific stressors and their correlation with specific symptoms.

| Type of stressor | Symptom | Eta correlation |
|---------------------------|------------------------|------------------------|
| Homework not done | Irritable, angry | 0.519, $p = 0.05$ |
| Pressure for good grades | Want to be with parent | 0.439, $p = 0.05$ |
| Not good enough at sports | Irritable, angry | 0.511, $p = 0.04$ |
| Not good enough at sports | Feel hopeless | 0.479, $p = 0.037$ |

Table 4. Relationship between stressor variables and total symptom scores.

| | Type of Stressor | Frequency | Severity | Currency |
|-----------------------------|-------------------------|------------------|-----------------|-----------------|
| Total Symptom scores | eta = .168 | eta = .302 | eta = .224 | eta = .218 |

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