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UNIVERSITY OF SAN DIEGO
Hahn School of Nursing and Health Science
DOCTOR OF PHILOSOPHY IN NURSING

**SENSE OF HUMOR, STRESS AND COPING,
AND OUTCOMES IN CHILDREN'S LIVES**

By

Lambertha Okhuizen-Stier, RN, MPH

**A dissertation presented to the
FACULTY OF THE HAHN SCHOOL OF NURSING AND HEALTH SCIENCE
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**In partial fulfillment of the requirements for the degree of
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December 2008

Dissertation Committee

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Abstract

Children are confronted with many stressors in their environment which may bring about symptoms such as anxiety, sadness, worry, aggressiveness, hyperactivity, restlessness, or low self esteem (Sharrer & Ryan-Wenger, 2002).). To prevent the short and long term effects of stress, children may use coping strategies to manage or alter stressful life events (Lazarus & Folkman, 1984).

This study explores the relationships between stress and sense of humor among school-age children. A sample of 106 students (and parents/guardians) in the San Diego Unified School District (SDUSD) returned self-report instruments packets containing the Multidimensional Sense of Humor Scale for Children, and the Spielberger Anxiety Inventories for Children which were filled out by the children. Included in the packet were the Pediatric Symptom Checklist, the demographic data form, and the Parent/Guardian Consent and Child Assent forms, which were filled out by the parent/guardian and assent was given by the child

Analysis of the sample (N=106) indicated that 48 per cent were male and 52 per cent were female. There were 26 males 9-10 years old and 25 males 11-12 years old. There were 29 females 9-10 years old and 26 females 11-12 years old. Data for the major variables of stress and humor-coping were analyzed using SPSS version 10. Pearson's product-moment correlations were used to examine the relationships among study variables. Independent-samples t-tests were used to compare the humor in 9-10 year olds with humor in 11-12 year olds.

Signs of stress as measured by the Spielberger State Anxiety Inventory for Children (STAIC-1) and by the Pediatric Symptom Checklist (PSC) were found to be

significantly correlated (inversely) with Coping with Stress with Humor as measured by the Multidimensional Sense of Humor Scale for Children (MSHSC). The Pearson product-moment correlation for the STAIC-1 was $r = -.291$, $p = .002$, and for the PSC was $r = -.228$, $p = .019$. Subjects who used humor to cope with stress had lower anxiety at the moment and had fewer pediatric symptoms of behavioral stress. Furthermore, coping with stress with humor was positively correlated to humor creation and humor appreciation as measured by the MSHSC.

Independent-samples t-test showed significant differences in humor variables in the two age groups of females. The mean score of humor appreciation and humor creation were significantly higher for females 9-10 years old than for females 11-12 years old.

The results demonstrate a significant association between coping with stress with humor and the outcomes of lower anxiety at the moment and fewer pediatric symptoms of behavioral stress in children's lives.

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TABLE OF CONTENTS

Chapter I Problem and Background	1
Statement of the Problem	2
Significance of the Study	2
Theoretical Framework	3
Operational Definitions	4
Hypotheses	5
Chapter II Literature Review	6
Beneficial Effects of Humor	6
Humor in Adults	6
Humor in the Child	13
Children's Preferences for Humor	17
Humor and Play in Children's Lives	18
Children's Stress and Coping	19
Research on Stress and Coping in Children	20
Humor as a Strategy for Coping with Stress in Children	23
Use of Humor to Cope with Stress in Early Adolescence	24
Effects of Humor on Pediatric Cancer Patients	25
Humor by Hospitalized Children to Cope with Pain-related Distress	28
Prayer as a Coping Strategy in School-Age Children	29
Laughter of Children in the School	31
Summary of Literature Review	32
Chapter III Methodology	36
Research Design	36
Population and Sample	36
Procedure for Data Collection	37
Humor Subjects Requirements	37
Instrumentation	38
Control for Threats to Internal and External Validity	41
Chapter IV Results	42
Statistical Analysis	42
Relationships Among Variables	47
Independent-Samples t-Tests	51
Reliability Analysis	57
Chapter V Discussion	58
Interpretation of Research Findings	58
Conclusions	60
Discussion	61
Recommendations	62

References	64
Appendix A: Cover Letter	77
Appendix B: Parent-child Consent/Assent Form	78
Appendix C: Demographic Questionnaire	82
Appendix D: Pediatric Symptom Checklist	83
Appendix E: Spielberger State Anxiety Inventory for Children	85
Appendix F: Spielberger Trait Anxiety Inventory for Children	86
Appendix G: Multidimensional Sense of Humor Scale for Children	87
Appendix H: Permission to Use MSHSC, STAIC 1 & 2, and PSC	89
Appendix I: Institutional Review Board Consent	90
Appendix J: Agreement of San Diego Schools to Participate	91

LIST OF TABLES

Table 1. Demographic characteristics of study sample	44
Table 2. Descriptive statistics of study variables	45
Table 3. Pearson correlations (two-tailed) between study variables	49
Table 4. T-test comparison of humor in different age groups of boys	52
Table 5. T-test comparison of humor in different age groups of girls	53
Table 6. Pearson correlations (one-tailed) between parent humor & child humor	54
Table 7. T-test comparison of humor in different gender groups	55
Table 8. T-test comparison of humor in different gender groups	56
Table 9. Reliability analysis of scales used in study of school-age child	57

CHAPTER I

The Problem and Background

Children are confronted with many stressors in their environment which may bring about symptoms such as anxiety, sadness, worry, aggressiveness, hyperactivity, restlessness, or low self-esteem. These cognitive-emotional symptoms may bring about physiological symptoms such as headache, stomach ache, and feeling sick, shaky, tired or weak. Long term exposure to stress may lead to somatic illness and maladaptive emotional or social symptoms (Lazarus, 2000; Shelby & McCance, 2000).

To prevent the short and long term effects of stress, children may use coping strategies to manage or alter stressful life events (Lazarus & Folkman, 1984). Coping strategies include changing the meaning of the situation, distraction, distancing, and/or making oneself feel better, for example, through exercise or humor (Folkman, et al., 1991). According to Martin (1989) humor may enable the child to view a stressful event from a different perspective, for example, see it as less threatening and more of a challenge. Thus humor may lessen feelings of anxiety, fear, anger and/or frustration.

Humor is a means of dealing with tension and offers the possibility of great relaxation and pleasure. The beneficial effects of humor have been considered over the

centuries. Laurent Joubert (1579-1979) noted that the beneficial consequences of laughter can be seen in the face and eyes of the laughing person. Various statements of philosophers, psychologists and physicians over the years have expressed the view that laughter is a mechanism for releasing tension (Berlyne, 1972; Alexander, 1999; Sheldon, 1996; Zall, 1995).

This study will examine the relationship between humor as a coping strategy, the occurrence of symptoms of stress in children's lives, and outcomes manifested in anxiety and behavioral problems.

Statement of the Problem

The relationship under investigation reflects the search for identification of certain factors which are relevant to the effective functioning of the child in his/her environment.

The problem is stated:

What is the relationship between the use of humor as a coping strategy and the symptoms of stress in the child?

Significance of the Study

The purpose of this research is to investigate the relationship between the school-age child's ability to utilize humor and his/her ability to cope with stressful events. Life events such as being separated from parents and peers, feeling left out, being pressured to try something new, being bullied by peers or being ill are stressful experiences in the life of the child (Ryan, 1988; Evans & English, 2002; Lightner, et al., 2000; Fuhr, 2002).

Children must learn to cope with these daily stressful experiences.

A growing awareness exists of the usefulness of humor as a coping mechanism. It is the liberating quality of humor which enables the child to deal with conflicts and

problems. If it can be demonstrated that those children who use humor for coping will experience less symptoms of stress, then the usefulness of humor in stressful situations may be verified.

Theoretical Framework

Psychological stress is a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being (Lazarus & Folkman, 1984). The importance that the person places on this person-environment relationship determines the degree of the adverse effects of stress (Schuler, 1980). Hans Selye, described the signs and symptoms of stress as alarm, resistance and exhaustion. These three stages occur as a defense mechanism against psychological stress ((Selye. 1974). Distress is the destructive type of stress, illustrated by anger and aggression, and is said to damage health (Lazarus, 1999).

Chronic stressors do not inevitably lead to Hans Selye's exhaustion stage. The persistence of a chronic stressor can give the person the opportunity to learn to deal with its demands, or to deal with it by avoidance or distancing (Lazarus & Folkman, 1984). The damaging effects of a chronic stressor can be mediated through coping and reappraisal (Stokols, 1977; Altman & Wohlwill, 1977).

In the framework of Lazarus and Folkman (1984) the child cognitively appraises the stressors in terms of threats to personal well being and appraises what resources he or she has for coping. The appraisal process is modified by the unique characteristics of the child and/or the characteristics of the environment (Lazarus & Folkman, 1984; Folkman & Lazarus, 1988). The child and the environment are viewed in a "dynamic, mutually reciprocal, bidirectional relationship" according to this transactional model. The

transactional model forms the meta-theoretical foundation on which the cognitive theory of stress and coping rests (Lazarus & Folkman, 1984, p.293).

Coping is any attempt to mediate stressors by changing the meaning of the threat. The appraisal process depends on the unique characteristics of the child, as each child has his/her own thoughts, feelings, wishes and goals. These personal factors include the child's self-esteem, self-worth, anxiety, temperament, focus of control and gender.

Lazarus and Folkman's (1984) theory of stress, appraisal and coping has frequently been used by researchers as a framework for investigating the stress and coping of children (Bossert, 1994; Dowling, 2000; Dowling, et al., 2003; Huang, 2001; Melnyk, 1994; Ryan, 1989). This research will apply Lazarus and Folkman's framework to examine sense of humor as a moderator of stress in children.

Operational Definitions

1. *Sense of humor* (predictive variable) is the frequency with which the individual smiles, laughs or otherwise displays amusement in a variety of situations. This includes personal recognition of humor, appreciation of humor, humor production, and use of humor to cope with stress. This will be measured by the Multidimensional Sense of Humor Scale for Children (MSHSC) (Dowling & Fain, 1999).
2. *Creation of humor* (predictive variable) is the ability of the individual to express what is funny, amusing or ludicrous. This will be measured by the MSHSC.
3. *Coping humor* (moderating variable) is the use of humor to moderate the effects of stress and to achieve social goals. This will be measured by the MSHSC.

4. *Anxiety* (outcome variable) is a subjective, consciously perceived feeling of apprehension, tension, and worry that varies in intensity and fluctuates over time. This will be measured by the STAIC State-Trait Anxiety Inventory for Children (Spielberger, 1973).
5. *Behavioral problems* (outcome variable) are results of psychosocial dysfunction in children who are stressed; it includes externalizing conduct and internalizing depression, anxiety, and adjustment. This will be measured by the Pediatric Symptom Checklist (Jellinek, Murphy, Robinson, et al., 1988).

Hypotheses

The child who uses behaviors related to humor and mirth and who uses humor in coping with stress will have less anxiety and fewer behavioral problems. It is hypothesized that:

H1: The child who uses expressions of humor will have less anxiety.

H2: The child who uses expressions of humor will have fewer behavioral problems.

H3: The child who uses humor in coping with stress will have less anxiety.

H4: The child who uses humor in coping with stress will have fewer behavioral problems.

H5: The child who appreciates humor will have less anxiety.

H6: The child who appreciates humor will have fewer behavioral problems.

CHAPTER II

Literature Review

Beneficial Effects of Humor

Many writers attest to the value of humor as a moderator of stress. Freud (1928/1961) discusses the role of humor at length. He sees humor as a defense mechanism which allows people to face a difficult situation without becoming overwhelmed by unpleasant emotions. He describes a sense of humor as a way of reacting to hardship and anxiety by calling it all “child’s play, the very thing to jest about” (p. 220).

The focus on humor as a stress moderator is found in the writings of Dixon (1980). Dixon suggests that the beneficial effects of humor are produced by cognitive shifts and changes in affect. This ability to shift perspective allows the person to distance him/her/self from the immediate threat of the problem. Consequently humor and mirth are “wired in” as alternative responses that may replace anxiety and anger.

Humor in Adults

Empirical studies have examined the function of humor as a moderator of the stress-mood relationship. Safranek and Schill (1982) in a study of 82 male and 79 female

undergraduates administered Saranson's Life Events Survey (Saranson, Johnson, & Siegel, 1978), Angell's Humor Use Inventory (Angell, 1970), Beck's Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), and Spielberger's State-Trait Anxiety Scale (Spielberger, Gorsuch, & Lushene, 1970). In addition, subjects were asked to rate five different categories of jokes. No significant evidence that humor by itself moderates the effects of life stress was found. Humor appreciation is negatively correlated with life events and is significantly correlated (negatively) with depression scores for female subjects. The use of Angell's humor scale in this study by Safranek and Schill may be questioned as Babad (1974) found no relation between subject's scores on typical humor scales and peer ratings of their sense of humor.

With these limitations in mind Martin and Lefcourt (1983) conducted three studies to predict mood disturbance following stressful events in the lives of persons with different attitudes toward humor. They administered the College Student Life Events Schedule (CLES; Sandler & Lakey, 1982), the Profile of Moods Scale (POMS; McNair, Lorr, & Droppleman, 1971), the Situational Humor Response Questionnaire (SHRQ; Martin & Lefcourt, 1984), The Sense of Humor Questionnaire (SHQ; Svebak, 1974) and the Coping Humor Scale (CHS; Martin & Lefcourt, 1983) to 56 psychology undergraduate students. The SHRQ, the CHS and the Liking of Humor subscale of the SHQ were each found to have significant interaction with a measure of life stress and the prediction of Total Mood Disturbance Scores of the POMS scale. Multiple regression analysis revealed humor to be a stress moderator. Subjects with a high sense of humor showed a weaker relation between negative life events and depressed moods than did those with a lower sense of humor.

A follow-up study of the above was conducted with another sample of 62 undergraduate psychology students. The Life Experiences Survey (LES; Saranson, Johnson, & Siegel, 1978) was administered as a measure of stress and the POMS again as the mood measure. But instead of relying on more scales to assess subjects' ability to produce humor, subjects were seated at a table on which about a dozen miscellaneous objects were placed, such as an old tennis shoe, a crushed beer can and a toothbrush. Participants were then asked to create a 3-minute comedy dialogue in which any or all of the objects were included. If unable to give witty comments a description of the objects would be fine. Again humor did provide a moderating effect on stress as measured by the LES and mood disturbance as measured by the POMS. Subjects who scored higher on the 3 minute comedy routine showed less of a relationship between stress and mood disturbance.

In a final follow-up study 25 subjects from the first group watched the stressful film *Subincision* (Lazarus, 1966). They were asked to create a humorous monologue while watching this silent film. These monologues were scored for wittiness in the same way that humor productivity in the second study had been scored. Results again showed that humor buffers stress.

These studies by Martin and Lefcourt were the first to show that humor has a buffering effect on stress. All three studies were well designed. Weaknesses were the small size and the multifaceted subjects in the study. In all three studies no significant sex differences were found in the data. Data for men and women were therefore combined in the analysis.

The findings of Martin and Lefcourt (1983) have been replicated by Nezu, Nezu and Blissett (1988) who did a concurrent and prospective study of 87 college undergraduates. These students were administered the Beck Depression Inventory (BDI; Beck et al., 1961), the Spielberger State-Trait Anxiety Inventory (Spielberger et al., 1970), and the Life Experiences Survey (LES; Saranson et al., 1978) at 2-month intervals. Subjects were also administered the CHS and the SHRQ during the first testing. Researchers found that in the concurrent analyses, sense of humor does function to reduce the impact of life stress on depression. Multiple regression analysis showed a significant correlation for CHS and BDI scores and a significant correlation for SHRQ and BDI scores. Gender did not have a significant effect on either of the measures. The prospective analysis of data in essence replicated previous concurrent data. These positive results only held true for depression and not for anxiety; this may indicate that humor is more effective in coping with already experienced events than with threatening circumstances. The study was well done but is not generalizable to other populations as sample size is not large and subjects are multifaceted.

The benefits of humor in reducing anxiety were investigated in a laboratory study by Yovetich, Dale and Hudak (1990). They studied 53 undergraduates who scored either high or low on the SHRQ. Subjects were led to believe that they would receive a strong shock at the end of a 12-minute interval. During the anticipation period subjects were randomly assigned to either an audiotape of comedy, or a non-humorous tape, or no tape. Anxiety, heart rate and zygomatic facial activity were measured. Subjects with high humor scores were less anxious and reported less stress as the shock approached in comparison with subjects with low humor scores. Sense of humor had a beneficial effect

on self-reported anxiety. The results may be influenced by the artificial conditions for humor in the laboratory where humor is provided for rather than being generated by the subject.

Research into the processes by which a sense of humor may mitigate the effects of stress has been proposed by Kuiper, Martin, and Olinger (1993). One potential mechanism which they deem worthy of investigation is the cognitive appraisal involved in the stress process. In a study of 44 female university students faced with potentially stressful academic examinations, the students' appraisal of the personal importance of the exam and their appraisals of challenge and threat of the exam were assessed by a Student Rating Form. Participants were assessed over three time periods. Subjects completed the Coping Humor Scale (Martin & Lefcourt, 1983), Ways of Coping Scale (Folkman & Lazarus, 1985), Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983), and the Dysfunctional Attitude Scale (Cane, Olinger, Gotlib, & Kuiper, 1986). Results showed that individuals with high scores on the CHS appraised the exam as more of a positive challenge than did low humor individuals. In predicting their performance on the next exam (following the first), high humor subjects adjusted their expectations on the basis of performance on the previous exam, while low humor subjects did not. In other words, high humor subjects were more realistic in adjusting personal expectations in accordance with past performance. In contrast, low humor individuals failed to modify future expectations on the basis of experience. These results indicate that a sense of humor may facilitate coping and adjustment.

The association between humor and burnout was investigated by Laura Talbot and Barry Lumden (2000). In a study of the faculty of schools of nursing in the Dallas/Fort

Worth area of Texas, 192 respondents returned correctly completed questionnaires. The Coping Humor Scale (CHS; Martin & Lefcourt, 1983) and the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1986) were used. A comparison of results for high users of humor (mostly tenured faculty) versus low users of humor showed that high users of humor reported lower depersonalization and a higher sense of personal accomplishment. Humor as a coping mechanism was negatively correlated with depersonalization ($r = -.22$). The correlation between coping humor and emotional exhaustion was not statistically significant. Humor as a coping mechanism was positively correlated with personal accomplishment ($r = .28$). The results suggest that humor used as a coping mechanism reduces depersonalization and increases the sense of personal accomplishment.

A sense of humor has been correlated with the effects of stress on the endocrine system. The analyses of Martin and Dobbin (1988) revealed a significant moderating effect of humor on the immunosuppressive effects of stress. Forty psychology students (18 males and 22 females) completed the Daily Hassles Scale and provided saliva samples for determining secretory immunoglobulin A (S-IgA) levels at time periods 1-1/2 months apart. Four scales were used to assess the sense of humor of the subjects—the SHRQ, the CHS, and two subscales from the SHQ. Hassels had an immunosuppressive effect; the suppressive effect was less in subjects with high humor scores. The results of the study are correlational in nature, therefore causal relationship between the variables cannot be determined. The findings are not generalizable to other aspects of immune functioning. The findings of Martin and Dobbin (1988) are similar to those of Dillon,

Minchoff and Baker (1985) and have been replicated by Lefcourt, Davidson and Kueneman (1990).

Recently reported research suggested that humor can reduce allergic reactions in individuals with allergies. In one study, after watching a humorous movie, individuals with dermatitis showed less severe allergic reactions in response to skin pick tests involving such allergens as house dust mites and cat dander, as compared to more severe reactions that occurred after they watched a non-humorous documentary (Kimata, 2001, in Martin, 2007).

In another study, patients with allergy-related bronchial asthma showed reduced asthmatic reactions to allergens after they had watched a comedy videotape, whereas no such effect was found with a non-humorous control film (Kimata, 2004b, in Martin, 2007). The same researcher also found that watching a comedy film resulted in a reduction in certain allergy-related immunoglobulin s in the tears of patients with allergic conjunctivitis, an inflammatory eye condition (Kimata, 2004a, in Martin, 2007). No such effect was found with a non-humorous control film. These experiments suggest that, rather than enhancing immunity, humor may suppress the excessive immune responses that occur in certain allergic reactions by reducing the secretion of immunoglobulins such as IgE and IgG.

In another study (Atsumi et al., 2004, in Martin, 2007), after watching a comedy videotape, healthy participants were found to have a significant increase in *free radical scavenging capacity* (FRSC) as indicated by increased levels (relative to baseline) of certain molecules in their saliva that are involved in the elimination of free radicals from

the mouth. Free radicals are molecules that have been implicated in inflammation, aging, and the development of some types of cancer.

In another investigation, unrelated to immunity, individuals with type 2 diabetes were found to have significantly lower blood glucose levels after eating a meal on a day when they had previously attended a comedy show, as compared to a day when they had attended a non-humorous, monotonous lecture (Hayashi et al., 2003, in Martin, 2007). The authors theorized that neuroendocrine effects of mirthful emotion may have suppressed the elevation of glucose, suggesting that engaging in humor might be beneficial to people with diabetes to help control their glucose levels.

Humor in the Child

Humor may be described as a carryover into adulthood of that state of our infancy when we did not know the comic, when we were incapable of wit and did not need humor to make us happy (McGhee, 1979). In an early state, the infant smiled and giggled when being played with or when being soothed and stroked to relieve tension. When the older infant was tossed in the air and then caught by the caring adult, the child giggled, smiled, and laughed. The spontaneous smiles and laughter were indicative of the child's ability to form interpersonal attachments (Fry, 1963). Freud (1928) stated that humor means: "Look! Here is the world, which seems so dangerous! It is nothing but a game for children—it's child's play, the very thing to jest about!" (1928, p. 166).

Conceptualization by Piaget. According to Piaget (1962) fantasy and make believe behavior and play are prerequisites for humor. Make believe or symbolic play is first observed in children when the child begins to treat one object as if it were another.

According to Piaget (1962), symbolic play or fantasy play develops early in the second

year of life. Piaget observed the first example of his daughter's symbolic play as she pretended that a cloth was a pillow; she seized it, held a fold of it in her right hand, sucked the thumb of the same hand and lay down on her side, laughing hard (Piaget, 1962, p. 96).

Piaget saw this form of behavior as evidence that the child's world is beginning to be represented by images. Taken that this mental image is present at any time, the child can create other images that are incongruent with the present image. The child then tries to assimilate the incongruent images with the reality image in order to understand the object. This is called "fantasy assimilation" by McGhee (1979) who also observed fantasy play in toddlers.

Conceptualization by McGhee. According to McGhee (1979), children experience pleasure in resolving the incongruity in a comic situation. Once the capacity for make believe or symbolic play develops in the second year, children's capacity to use humor, either as sender or receiver, changes as children's cognitive capacities mature. For the older child, there is a need for some intellectual challenge in order for the humor to be appreciated (McGhee, 1979). It is with the development of operational thinking, as formulated by Piaget (1950), that 7-year-old and 8-year-old children attain the ability to detect hidden meanings, understand double meanings, and behavioral incongruities. They can make interpretive explanations of jokes and cartoons, and comprehend sequential ideas (McGhee, 1979).

Children progress through a series of stages in the development of humor comprehension (McGhee, 1979). Although the age at which the children reach a given stage varies, the stages occur in the same order. Stage 1 humor is before stage 2, and

stage 2 is before stage 3, and stage 3 is before stage 4. The stages correspond to the general trends in cognitive development (described initially by Piaget in 1950) in which the development of new cognitive capacities in play as well as in exchange with the environment are necessary for the child to mature. Thus the changes in humor development closely correspond to the trends in cognitive development.

The stages in development of humor comprehension as proposed by McGhee (1979) are: Stage 1 *Incongruous Actions Toward Objects* (approximately 12-18 months), when the child expresses pleasure in substituting one object for another (e.g., a cloth for a pillow); Stage 2 *Incongruous Labeling of Objects or Events* (approximately 18-24 months), when the child derives enjoyment from calling objects, body parts, etc., by some other name (e.g., a dog is called a cat, or a hand is called a foot); Stage 3 *Conceptual Incongruity* (beginning at approximately 36 months), when the child enjoys altering one or more defining features of an object; whereas in stage 2 the child laughs when a cat is referred to as a dog, in stage 3 the child laughs when the cat is imagined as having two heads, no ears, and makes a "moo" sound instead of a "meow"; Stage 4 *Humor in Multiple Meanings* (age 7 or older), when the child's humor begins to resemble adult humor and the child begins to understand that words have ambiguous meanings (e.g., Q: What did one math book say to the other? A: I've got problems.).

Stage 4 is achieved as a direct result of the acquisition of a series of cognitive abilities referred to by Piaget as *concrete operational thinking*. The child now is able to consider relationships between events rather than simply focusing on the end states or outcomes of events. Concrete operational skills also allow "reversibility" of thinking: going back and replaying events and discovering in the process the relationship between

the beginning, middle and end points of a joke. The young child is also less egocentric than the preschooler which makes it possible for the child to see another's point of view. Younger children seem to be more cruel in their humor. They laugh directly at another person's limp or distorted speech. The 8-year-old, however, is more likely to refrain from laughter until the deformed person is out of sight. It is impossible to place an upper limit on stage 4 development of humor. However, the characteristics of stage 4 humor remain to some extent into adulthood.

Conceptualization by Schulz & Pilon. As an extension of incongruity and its resolution, current research has also focused on linguistic factors related to the development of humor. Schulz and Pilon (1973) studied children's comprehension of linguistic ambiguity. They found that children first appreciate *Phonological Ambiguity* (approximately ages 6 to 9), which occurs when phonological sequences of speech sounds can be interpreted in more than one way. The humor occurs due to the homophony of two distinct words having the same sound but different in meaning and usually in spelling (e.g., Q: Where do sheep get their hair cut? A: At the baa-baa shop).

Next to be acquired is appreciation of *Lexical Ambiguity* (between ages 6 and 15). Humor is perceived when a given word has more than one semantic interpretation (e.g., Judge: Order, order in the court. Plaintiff: Ham and cheese on rye, please your honor.).

Next is appreciation of *Surface Structure Ambiguity* (acquired at approximately age 12). This occurs when words of a sentence can be grouped or bracketed in two different ways, each way expressing a different semantic interpretation (e.g., Q Tell me how long cows should be milked? A: The same as short ones.).

Last to be acquired is appreciation of *Deep Structure Ambiguity*. This type of ambiguity specifies two different sets of structural relation between the key words in the sentence (e.g., Q: What animal can jump as high as a tree? A: All animals—trees can't jump.).

Conception by Foot & Chapman. Research studies of 7-year-old to 9-year-old children (Foot & Chapman, 1976) found that humorous laughter and smiling depended upon the features of the companion's presence and responsiveness. When there are two companions, the amount that they look at one another influences the mirth as shown in laughter and in humorous smiling. Responsiveness is greatly affected by whether or not the members of the pair are aware that they can be observed. It was observed that when the companion is another child of approximately the same age as the subject, then that subject's humorous laughter and smiling is enhanced relative to baseline levels of solitary children. This happens even when the companion ignores the subject and reacts blankly to the humor. However, if the companion is an adult, then the child's responses are suppressed if the adult companion is not responsive and does not smile or laugh.

Children's Preferences for Humor

Franzini (2002) has remarked that the type of humor that children prefer depends, in general, on their stage of development. For example, eight- to ten-year-olds may prefer puns, complicated riddles, or stock jokes—like moron or knock-knock jokes—as well as jokes about bodily functions and sexually related body parts. In this age group, the child may have a spontaneous wit and will be able to see the comical in unusual happenings of daily life.

Correspondingly, eleven- to twelve-year-olds may create humorous comments as potentially funny situations are encountered. Their increased skills in logical thinking will be shown in their preferences. They become skilled at using humor to achieve their own social goals. The aggressive and sexual content of boys' humor tends to increase in this age group. Girls laugh more but initiate less humor. Her humor preferences reflect her concern for the importance of interpersonal relationships (Franzini, 2002).

Humor and Play in Children's Lives

Play may be seen as the work of the child. The child's play may reflect his efforts toward the mastery of developmental and situational hurdles (Oremland, 1988). Absence of play may be as serious emotionally as not eating or drinking is physically for the child (Boling, 1984; Piaget, 1947). The child's feelings and thoughts are often expressed in play, just as the adult's thoughts and feelings are expressed in words and language (Fraiberg, 1959; Wolfman, 1960).

Humor and play in children are often linked together. Humor can make play enjoyable. Both benefit the child by providing a way for the child to reveal his fears in a socially acceptable way. Humor and laughter are as natural to children as breathing (Martin, 1989). An example of children's humor is provided by an 8-year-old immobilized boy who had been hit by a car and who was asked by his nurse, "You ran in front of a car, huh?" The child replied, "No, it ran in front of me," (Edison, 1976).

Children experience pain, emotional and physical, as well as pleasures and joys. Martin (1989) points out that a healthy sense of humor may be an important coping mechanism for dealing effectively with the stresses of childhood. Martin believes that the experience of mastery through humor will help the individual well in later years.

Children's Stress and Coping

Lazarus defines coping as “constantly changing cognitive and behavioral *efforts to manage* specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (Lazarus, 1984, p, 141). Coping is defined as *efforts to manage* and includes anything that the person does or thinks, regardless of how well or badly it works (p. 142) [in stressful situations].

Stressful situations cause both subtle and dramatic cognitive, emotional and physical responses in the body that manifest as perceptible symptoms (Sharrer & Ryan-Wenger, 2002). Long term exposure to stress may lead to somatic and maladaptive emotional or social functioning (Lazarus, 2000). Coping strategies are powerful mediators of the emotional, physical and cognitive response to stressors (Lazarus, 1999). The effectiveness of coping behavior influences how stress symptoms are manifested.

In a study of school-age children's self-reported stress symptoms, Sharrer and Ryan-Wenger (2002) reported 507 stress-related symptoms in 194 children ages 7 to 12 years. Inductive sorting of the responses led to 24 different categories of cognitive-emotional and physiological symptoms. The five most common cognitive-emotional symptoms were being mad, worried, feeling sad, feeling nervous and being afraid. The five most common physiological symptoms were headache, stomach-ache, sweaty, heart beating fast or feeling funny, and feeling sick (Sharrer & Ryan-Wenger, 2002).

Lazarus (1999) identified 15 emotions that adults experience in response to potentially stressful person-environment situations. Eight of the emotions have a negative connotation, e.g., anger, anxiety, fright, envy, jealousy, guilt-shame and sadness. Seven of the emotions are viewed as positive, e.g., happiness, pride, hope, relief, love, gratitude.

and compassion. Sharrer and Ryan-Wenger (2002) reported negative emotions corresponding to those of Lazarus (1999). None of the positive emotions were mentioned by the children. The children's most common emotions in response to stress were anger ("mad" and "wants to hit"), anxiety ("worried" or "nervous"), fright ("afraid"), sadness ("cry" or "feel sad"), guilt and shame ("ashamed" or "feel bad about self").

In future research other variables that may help explain the types, frequency and severity of stress symptoms include the children's perceived level of control over their stressors, self-esteem, social support, and the effectiveness of their coping strategies (Sharrer & Ryan-Wenger, 2002).

Research on Stress and Coping in Children

The processes of stress, emotion, and coping differ during various periods of psychological development. These processes change over the course of development and are related to what children at different stages know about life and social relationships. The whole range of early development of toddlers, school-age children, preadolescents, and adolescents is seldom studied with respect to stress and coping (Lazarus, 1999).

Compas (1987, in Lazarus, 1999) has organized the research on stress of late childhood and adolescents into seven areas: attachment and separation; social support; interpersonal problem solving; coping in the context of school and achievement; Type A and B behavior; coping styles, such as repression and sensitization (or monitoring and blunting); and resilience and invulnerability to stress.

Research on attachment and separation is based on testing procedures in which the child is separated from the parent then returned so that his/her emotional and coping reaction to the parent then can be assessed (Ainsworth, 1979; in Lazarus, 1999). The

child's reaction has been found to be fairly consistent and has been used to predict interpersonal relations, emotional pattern, temperament, and coping in later life. The developmental importance of social bonds and social support has been a major focus of research in health psychology.

Cognitive problem solving in children's interpersonal relations has been studied by Spivack and Shure (1982, 1985; in Lazarus, 1999). They examined how children and adolescents recognize that they have a problem in social adaptation, how they examine it, and how problem-solving skills are acquired and used in social adaptation. The components of problem solving in social adaptation include the ability to generate alternate solutions, having a sensitivity to social problems, understanding the consequences of one's social actions and developing a means-ends way of thinking and finding ways to change in the face of such problems.

Research in the context of school achievement has revealed a useful distinction between the academic functioning of mastery-oriented and helpless children (Dweck & Licht, 1980; Dweck & Wortman, 1982; in Lazarus, 1999). Mastery-oriented children are better at coping with failure than helpless children. They presumably focus their attention on problem-solving of the tasks at hand thus facilitating their performance, while helpless children may find excuses for their failures which seem largely irrelevant to enhanced performance.

Type A behavior is no longer taken seriously as an issue in stress and health according to Lazarus (1999). Current views on Type A behavior have emphasized hostility and its management or helplessness in recent research (Jenkins, 1996; in Lazarus, 1999).

Research on the concept of repression-sensitization (Krohne, 1993, 1996; in Lazarus, 1999) and the related concept of monitoring-blunting (Miller, 1981; in Lazarus, 1999) has to do with coping styles. Few studies of coping styles have been performed with children. One example is the work of Murphy and Associates (1962; in Lazarus, 1999) who observed infantile behavioral patterns that tended toward defensive styles in later life.

Another major area of research concerns resilience or invulnerability to stress in children. Norman Garmezy (1983; in Lazarus, 1999) and Michael Rutter (1980; in Lazarus, 1999) have studied the factors predisposing children to be at risk for psychopathology and, contrary-wise, their invulnerability to stress. They have studied the personality characteristics that give resistance to/ protection against/ the deleterious effects of stress.

Lazarus (1999) has pointed out that resiliency or invulnerability depends on environmental variables as well as personal resources. Environmental variables include the demands, constraints, and opportunities that the child faces. Personal factors include goals and personal resources, such as, intelligence, money, social skills, education, supportive family and friends, physical attractiveness, health and energy, and enthusiastic hopefulness.

Lazarus (1999) has viewed these studies of young people in the various areas of research as being cold, statistical facts rather than a carefully analyzed description of what happens in real life. Little narrative description is presented to give the reader an intimate sense of the personal dramas each child and parent is struggling with. He found little that is actually transactional, or meaning-centered, in these accounts.

Humor as a Strategy for Coping with Stress in Children

There is little evidence that children, 7 to 14 years of age, explicitly identify humor as a coping strategy (Dowling, 2002). Ryan's study (1989) of children, 8 to 12 years old, who reported on the strategies they use to help them deal with stressors, did not find humor listed among the 51 coping strategies. There is some anecdotal support for the use of humor as an intervention to promote coping with stress in children. Examples of how humor can play an important role in a child's healing process were provided by Alexander (1999) in her book *Children Changed by Trauma: A Healing Guide*. In this book she attempts to guide parents and professionals through child recovery from trauma. Step-by-step, the reader journeys through the heart, mind, body, and soul of children who have healed—and the reader sees how this was done. She stated that humor is one of the most important actions in healing children, 12 to 14 years old, from a stressful event. "Pain and humor don't have to be in opposition to each other. Humor can be a companion to pain" (p.115). Alexander (1999) advised parents to laugh with their children, as they will love silly situations, especially when the parents make fools of themselves.

A framework for understanding the concept of humor and its application to child therapy was provided by Zall (1995) in his article "Ya Get It? Children, Humor, and Psychotherapy". He explored how humor may be used by children in the therapeutic situation and how the therapist can use humor as an effective therapeutic tool for latency-aged children (6 to 11 years old). The use of humor with a 7-year-old was described by Zall (1995, pp. 35-36). Kevin, the 7-year-old, was referred to psychotherapist Zall. He had been fighting with his peers and had expressed increased hostility toward his mother. Kevin was anxious at the first session but after the therapist had told him a joke, he

relaxed and they were able to talk together. At the second session, Kevin was more anxious. He had been sick between sessions and probably was not ready to talk yet. He sat with downcast eyes, his head between his knees, not responding to any spoken word. The therapist then remarked that Kevin was perhaps waiting for a joke as that had relaxed him the first time. Zall continued, "I am trying to think of a joke, but please don't smile and say anything until I can think of one." Kevin produced a small smile from between his knees. "I told you not to smile yet," the therapist continued in mock exasperation. Kevin began to laugh. The more the therapist said, the more the boy laughed until they each shared a joke. At that time the ice was broken and conversation could be focused on Kevin's needs.

Research on Use of Humor to Cope with Stress in Early Adolescence

Research on children's coping humor strategy was provided by Martin Fuhr (2002) who studied 960 Danish children aged 11-14 years. He employed a self-report questionnaire including the Coping Humor Scale (CHS; Martin & Lefcourt, 1983) and the Children Coping Humor Strategy Survey (CCHSS) which he created and improved for this research. A 3-factor solution was found for the age group investigated which included using humor to cope with uncertainty and stress; making fun of others; and getting cheered up. Significant gender and age differences were found. Where boys tended to use more aggressive and sexual related strategies in coping humor, girls preferred to get cheered up by humor; this tendency increased with age for girls but not for boys. The use of humor as a coping tool when focusing on uncertain and stressful situations showed an overall significant increase at the age of 12 for both genders.

The stressors for adolescents in this study were related to the challenge of growing into sexual maturity. The transition from childhood into adolescence is a step towards personal awareness, which includes self-observation and self-reflexivity. A major challenge for this age group is the attempt to define and place oneself among others. How to cope with not being accepted, being teased and looked over, and how to tackle situations when feeling down, awkward, and embarrassed, presented stressors for adolescents in this study. Factor I in Fuhr's analysis, using humor to cope with uncertainty and stress, was the most potent. Factor III, using humor to get cheered up when feeling sad or being in a bad mood, turned out to be the most common strategy in coping humor for both genders.

Effects of Humor on Pediatric Cancer Patients

Stressors for children with cancer are experiences that are perceived as threatening during the course of their illness. These experiences include medical procedures, treatments and treatment-related side effects. These may cause fear, anxiety, anger, sadness and depression in the child (Woodgate & McClement, 1998). Perhaps the greatest psychological stressor of childhood cancer is uncertainty (Dowling, 2000, p. 15).

Factors that help children cope with the experience of living with cancer include knowledge about their illness, its treatment and what to expect (Bombeck, 1989). Very often pediatric cancer patients respond joyfully to humorous expressions. However, before humor and playfulness can flourish in the children, they must have dealt with the realization that they have cancer and have absorbed the vast amount of information given to them (Le Vieux, 2003).

Other personal characteristics needed for humor to flourish are optimism, courage, self esteem, a feeling of control over a situation, and sense of humor (Bombeck, 1989; Dunsmore & Quiine, 1995; Karian, Jankowski, & Beal, 1998). The *suggestion* that humor helps children to cope with the anxiety, pain, and uncertainty brought about by cancer and its treatment has been revealed in Bombeck's (1989) journalistic research. Similarly, a qualitative study on children living with cancer demonstrated that sense of humor helps a child to cope with physical differences, such as loss of hair (Hockenberry-Eaton & Minick, 1994). Likewise, use of humor with children in a bone marrow transplantation unit relieved the fears and anxiety of the uncertainty of treatment outcomes (Gottlieb & Portnoy, 1988).

Jacqueline Dowling (2000) has studied a convenience sample of 43 children with cancer, 7 to 14 years of age, for effects of humor for coping with cancer stressors. She employed self-report questionnaires, including the Multidimensional Sense of Humor Scale for Children (MSHSC; Dowling & Fain, 1999), the Childhood Cancer Stressors Inventory (CCSI; Hockenberry-Eaton et al., 1997), and the Children's Adjustment to Cancer Index (CACI; Hockenberry-Eaton et al., 1997). The MSHSC assessed the sense of humor of children with its factors of humor appreciation, humor creation, and coping humor. Cancer stressors and psychosocial adjustment were measured using the CCSI and CACI. In addition, immune function was measured using salivary S-IgA levels and absolute neutrophil counts. Subsequently, the incidence and severity of infections were assessed over a one month period.

The findings of Dowling's study (2000) do not support a moderating effect of *sense of humor* on childhood cancer stressors. Instead, the data indicate that children with

a *high sense of humor* had greater *psychosocial adjustment*, regardless of the amount of cancer stressors experienced by the children (Dowling, 2000, p. 54).

In addition, children with a *high sense of humor* have less *incidence of infection* (Dowling, 2000, p. 58). The results support a moderating effect with *coping humor* on *incidence of infection*. Dowling also noted that *coping humor* explained a small proportion (15 %) of the variance relative to the incidence of infection (p. 59).

Furthermore, Dowling (p. 61) noted that *coping humor* was the only *sense of humor factor* that moderated childhood cancer stressors and the daily hassles of living with cancer (such as weekly clinic visits and absences from school).

In an ethnographic study Jane Le Vieux (2003) interviewed 15 pediatric oncology patients ranging from 9 to 16 years of age. The study revealed that these chronically ill children used humor only after they had dealt with the realization that they had cancer and after they had absorbed the vast amounts of information given to them about their illness. Participants also stated that they could not joke or tease until they had established their own relationships with the staff and individuals in their surroundings.

In an empirical study of the psychological adjustment of seriously ill children (Allen & Zigler, 1986), 23 children with cancer, boys and girls 5 to 10 years old, were matched with 28 healthy children. Measures of cognitive development and adjustment were administered as well as the Children's Mirth Response Test. The response to this test revealed that ill 8 to 10 year old children displayed as much mirth as well children of the same age. Ill children rated a cartoon more frequently funny when they did not understand the joke. This was interpreted as a possible evidence of healthy denial among the ill children. The study concluded that, in general, life threatening illness is not

associated with psychological dysfunction. The performance of ill and healthy children was comparable and the development of self esteem was present for both ill and well children.

Use of Humor by Hospitalized Children to Cope with Pain-related Distress

Belinda Goodenough and Jennifer Ford (2005) have studied the pain-humor interface in a group of 57 hospitalized children aged 6-12 years who had undergone a medical intervention. The major reasons for hospital admission were elective surgery (28%), orthopedic correction (19%), renal surgery (16%), and blood-related procedures (16%). To minimize impact of lingering sedation and nausea, no child participated within 12 hours of general anesthesia.

The children completed measures of pain *intensity* and pain *unpleasantness* on the Colored Analogue Scale (CAS; Goodenough et al. 1999), and measures of pain coping styles and strategies on the Pain Coping Questionnaire (PCQ; Reid et al. 1998). On the other hand, the self-report Multidimensional Sense of Humor Scale for Children (MSHSC; Dowling & Fain, 1999) measured general aspects of humor in the hospitalized children, such as "humor creation" and "humor as a coping mechanism", yet it does not specifically include items on pain-related humor coping.

To address the gap on the humor-pain interface, the researchers created a new self-report measure for children called the Sydney Children's Hospital Humor Coping Scale for Children (SCH-Hum; Goodenough et al. 2001). Seven items forming a general coping humor scale (i.e. not pain specific) are adaptations of items on the Coping Humor Scale (CHS) for adults (Martin & Lefcourt, 1983). The remaining three items on the

SCH-Hum were developed to measure humor coping for any pain type (e.g. acute versus chronic).

The Pain Coping Questionnaire (PCQ) yielded three coping style scores:

- (1) *Approach* (e.g. Information Seeking, Problem Solving, Positive Self-talk),
- (2) *Distraction/Problem-Focused Avoidance* (e.g. Behavioral and Cognitive Distraction),
- and (3) *Emotion-Focused Avoidance* (e.g. Externalizing, Catastrophizing).

The primary objective of this study was to investigate the relationships between self-reported measures of humor coping (general and pain-specific), other non-humor pain coping styles, and ratings of pain intensity and pain unpleasantness by hospitalized children experiencing medically induced pain. The results supported predictions that (a) use of pain-specific humor-coping would be positively associated with an adaptive problem-focused coping style, and (b) an emotion-focused pain coping style would be inversely related to use of humor coping. Results also supported the hypothesis that humor coping would be more strongly (and inversely) related to ratings of *pain unpleasantness* rather than sensory *pain intensity*.

Prayer as a Coping Strategy in School-Age Children

Middle childhood is a critical development period when a few preventable health-risk behaviors are initiated (Brenner & Collins, 1998). Furthermore, it is during this development period that many positive health behaviors can be nurtured (Williams, Holmbeck, & Greenley, 2002). *Religiosity* has been identified by researchers as a *protective resource* that promotes healthy youth behavior (Frank & Kendall, 2001; Regnerus, Smith, & Fritsch, 2003). For example, religiosity has been found to predict

lower levels of drinking, drug abuse, and delinquency (Regerus & Elder, 2003) among youth populations.

Protective resources modify the youth's responses to adverse outcomes and include resources such as competence, positive coping strategies, *sense of humor*, and feelings of connectedness with significant adults (Rew & Horner, 2003). Humor as a mechanism for reconstruing events such that they are perceived as less threatening (Dowling & Fain, 1999) may enable children to cope with stressors (Wooten, 1996). Humor has been characterized as an element of spirituality (Carson, 1989); children who frequently pray may be better able to cognitively reframe stressful situations in a positive manner and consequently have a light-hearted regard of their stressors.

In a study of the relationship between prayer, health behaviors, and protective resources in school-age children, *prayer* was found to be positively related to the protective resources of *social connectedness* and *sense of humor*. In addition, children who prayed frequently reported significantly higher levels of positive health behaviors than children who never prayed (Rew, Wong, & Sternglanz, 2004). Participants in the study were 271 fourth-, fifth-, and sixth-grade children in three central Texas school districts. Only children who never prayed or children who prayed "most of the time" and found that it "helps a lot" were included in the sample. A battery of valid and reliable scales was used to measure children's protective resources (including coping strategies, sense of humor, and social connectedness), as well as child health behaviors and perceived stress. An Audio Computer-Assisted Self-Interviewing (A-CASI) methodology was employed for data collection. Research participants read survey items on a computer screen and indicated their responses using a mouse or keypad.

Analyses of results of these tests showed that use of prayer was in fact significantly correlated with sense of humor as measured by the Multidimensional Sense of Humor for Children (MSHSC; $r = .26$, $p < .001$), as well as with social connectedness as measured by the Social Connectedness Scale (SCS; $r = .29$, $p < .001$). Secondly, children who prayed often and found it effective in coping with stress reported significantly higher levels of health behaviors than children who never prayed as measured by the Lifestyle Questionnaire (LQ). The latter was shown by conducting a MANOVA in which the independent variable was the level of prayer and the dependent variables were scores on the LQ and the Feel Bad Scale (FBS), $F(1,269) = 9.10$, $p = .003$.

Although cause and effect cannot be inferred from this study, prayer and sense of humor may provide protection against unhealthy or health-risk behaviors. It may be that children who report frequent use of prayer have their self-worth rooted in the idea that they are “loved by God” and are therefore “more likely to value their health and those behaviors that contribute to health” (Rew et al., 2004; Forsarelli, 2003).

Laughter of Children in the School

Helen Johnson (2005), director of research at Roehampton University in the UK describes the conditions of the schools in the UK and in the USA, which are very similar. She states that teaching has to be done according to performance standards, following sets of rules and regulations and that evaluations of these methods are performance oriented. They look at the “hard” objective outcomes. She challenges this culture as it creates a hierarchical dependency. Children and teachers are not creatively challenged but

are forced into modes of competition and performance. She wants to add another measure of evaluating performance, that is, to evaluate the amount of laughter in the school.

Laughter and humor are part of the development of an individual child. It provides autonomy, self-esteem, self-confidence, and emotional resilience upon which successful learning is predicated, and it builds relationships in the classroom between the children and between the children and teachers. It also supports the personal and professional development of the teacher (Johnson, 2005).

But not all laughter is the same. Some laughter is spiteful, ridiculing and divisive. Its tone and purpose must be tested out because it can be healthy or harmful. Laughter must be carefully listened to. Is the laughter a response to something humorous, something comic? If it is healthy it has emotional benefits such as socialization and the formation of resilience, which comes about through connection to others (Johnson, 2005)..

Helen Johnson proposes that each school should have a laughter rating. Together with other indicators that reflect school climate, parents could choose a school where their child would be happy in his or her learning environment.

Summary of Literature Review

One means of dealing with tension which offers great relaxation and pleasure is humor. The beneficial effects of humor for adults have been demonstrated by Martin and Lefcourt and by others as a means of moderating or buffering stress. A number of scales for measuring humor and coping in adults are available. Children have reported numerous self-coping strategies in studies by Sharrer & Ryan-Wenger, but humor was not explicitly identified as a coping strategy by the children. Recently an instrument for

measuring sense of humor for coping with stress in children has become available, the Multidimensional Sense of Humor Scale for Children (MSHSC; Dowling & Fain, 1999). The MSHSC assesses the sense of humor of children with its factors of humor appreciation, humor creation, and coping humor.

Lazarus in his overview of research on stress of late childhood and adolescence mentions several areas of research. Spivack and Shure (in Lazarus, 1999) examined how children and adolescents recognize that they have a problem in social adaptation, how they examine it, and how problem-solving skills are acquired and used in social adaptation. One of the components of problem solving in social adaptation is the ability to generate alternate solutions and developing a way of thinking that finds ways to change in the face of problems.

Lazarus pointed out that resilience or invulnerability depends on the demands, constraints and opportunities in the environment of the child as well as on personal factors. Personal factors affecting the child include personal resources such as intelligence, social skills, education, supportive family and friends, and enthusiastic hopefulness. A personal resource that could help a child cope with stress is sense of humor (Dowling & Fain, 1999).

There is some anecdotal support for the use of humor as an intervention to promote coping with stress in children. The suggestion that humor helps children to cope with anxiety, pain and uncertainty brought about by cancer and its treatment can be found in Bombeck's (1989) journalistic research. Similarly, a qualitative study on children living with cancer demonstrated that sense of humor helps a child to cope with physical differences brought about by cancer (Hockenberry-Eaton & Minick, 1994).

Dowling's research study (2000) of children with cancer employed self report questionnaires including the Multidimensional Sense of Humor Scale for Children (MSHSC), the Childhood Cancer Stressors Inventory, and the Children's Adjustment to Cancer Index. The MSHSC assessed the humor of children with its factors of humor appreciation, humor creation, and coping humor. The findings of the study indicated that children with a high sense of humor had greater psychosocial adjustment regardless of the amount of cancer stressors experienced by the children. Dowling also noted that humor coping was the only sense of humor factor that moderated childhood cancer stressors and the daily hassles of living with cancer (such as weekly clinic visits and absences from school).

Results of a study of the use of humor by hospitalized children to cope with pain-related distress (Goodenough & Ford, 2005) supported the researchers' prediction that use of pain-specific humor coping would be positively associated with an adaptive problem-focused coping style. Results also supported the hypothesis that humor coping would be more strongly (and inversely) related to ratings of pain *unpleasantness* rather than sensory pain *intensity*. The researchers had created a new self-report measure for children to measure general coping humor (not pain specific) and to measure pain-specific humor coping for any pain type (SCH-Hum: Goodenough et al, 2001).

In a study of the relationship between prayer, health behaviors, and protective resources in school-age children, prayer was found to be positively related to the protective resources of *social connectedness* and *sense of humor* (Rew et al. 2004). In addition, children who prayed frequently reported significantly higher levels of positive health behaviors than children who never prayed. Prayer was in fact significantly

correlated with sense of humor (as measured by the MSHSC; $r = .26$), as well as with social connectedness (as measured by the SCS: $r = .29$).

The analyses of Martin and Dobbin and of others concerning the beneficial effect of humor on immune-system functioning suggest that humor may serve to protect us from a range of potential infectious illnesses. The findings with regard to mood disturbance attest to the fact that induced humor can elevate mood states in a positive direction.

Presently there is little research on the use of humor to cope with stress in the lives of school-age children. Although a considerable amount of research has examined the role of humor in coping in adults, research on children's use of humor in emotional coping is very limited. The linkage between humor, coping with stress, mood disturbance, pain, and immune-system functioning may prove to be areas of future research in children.

CHAPTER III

Methodology

Research Design

The purpose of this study was to explore the relationship between sense of humor, coping with stress, and outcomes in children's lives. It is a descriptive correlational design to examine the moderating effect of sense of humor on childhood stress with the variables of humor, stress, coping, and outcomes of anxiety and behavioral problems. The study will use the associational approach to examine the association or correlation between the variables. The specific purpose will be to find associations; but causality can not be inferred (Burns & Groves, 1997). This chapter includes a description of methods and procedures used in the study. Description of the population and sample selection, instruments, data collection, and data analysis procedures are discussed,

Population and Sample

The population consists of school-age children ages 9 to 12 years old from public schools in San Diego County. Size of the sample is 106. The sampling procedure was of a volunteer and convenience type.

Procedure for Data Collection

A packet of research questionnaires was mailed to the home of each child selected randomly from a list of families in the San Diego Unified School District. Permission to conduct the study came from Dr. Peter Bell director of research and reporting in the San Diego City Schools. (See Appendix J) Along with the questionnaires the parents were provided with a brief description of the purpose of the study. The parents were informed that (1) participation is voluntary, and strictly confidential, and (2) the results will be available at USD or through contact with the researcher.

The test materials were given in the following order:

1. The parent/guardian consent, and child assent forms (Appendix B)
2. The demographic questionnaire (Appendix C)
3. The Pediatric Symptom Checklist (for parents to complete) (Appendix D)
4. The Spielberger State-Trait Anxiety Inventory for Children (Appendix E & F)
5. Multidimensional Sense of Humor Scale for Children (Appendix G)

When subjects had completed the forms and questionnaires and had returned them in stamped self-addressed mailing envelopes, the subjects were thanked for their participation with a gift sent by personal mail.

Human Subjects Requirements

Institutional Review Board (IRB) approvals were obtained before the data collection process began (See Appendix I). Written parent/guardian consent and child assent were obtained prior to subjects' entry into the study (See Appendix B). Subjects' confidentiality was maintained by coding data with subject identification numbers and by reporting group results only. The subjects were exposed to minor potential risks like

anxiety; however, they were given phone numbers to call when they would like to discuss their feelings.

Instrumentation

Pediatric Symptom Checklist

The Pediatric Symptom Checklist (Jellinek, Murphy, Robinson, et al., 1988) screens school-age children for psychosocial dysfunction. It identifies behavioral problems that are common symptoms of children who are stressed. The scale consists of 35 short statements of problem behaviors and includes externalizing conduct and internalizing depression, anxiety, adjustment, etc. It is to be filled out by the parents. Ratings of never, sometimes or often are assigned a value of 0, 1, or 2. Total scores ≥ 28 indicate when referrals are needed. The accuracy of all but one study showed high sensitivity (80% to 95%) but somewhat scattered specificity (68% to 100%). It takes about 7 minutes to complete the test.

Spielberger State-Trait Anxiety Inventory for Children

The State-Trait Anxiety Inventory for Children (STAIC; Spielberger, et al., 1973) was initially developed as a research tool for the study of anxiety in elementary school children. It is comprised of separate, self-report scales for measuring two distinct anxiety concepts: state anxiety (S-Anxiety) and trait anxiety (T-Anxiety). While especially constructed to measure anxiety in 9- to 12-year old children, the STAIC may also be used with younger children with average or above reading ability. The STAIC S-Anxiety scale consists of 20 statements that ask children how they feel at a particular moment in time. The STAIC T-Anxiety scale also consists of 20 item statements but subjects respond to these items by indicating how they generally feel.

The S-Anxiety scale is designed to measure transitory states, that is, subjective, consciously perceived feelings of apprehension, tension, and worry that vary in intensity and fluctuate over time. The T-Anxiety scale measures relatively stable individual differences in anxiety proneness, that is, differences between children in the tendency to experience anxiety states. High T-Anxiety children are more prone to respond to situations perceived as threatening with elevations in S-Anxiety intensity..

The STAIC was designed to be self-administering. Fourth, fifth, and sixth-grade children generally require only 8 to 12 minutes to complete either the S-Anxiety or the T-Anxiety scale, and less than 20 minutes to complete both. The S-Anxiety subscale was given first, followed by the T-Anxiety scale; this order is recommended when both scales are given together. Children should also be cautioned to make sure that the number on the answer sheet corresponds with the number on the Test Form.

Children respond to the STAIC by selecting one of the three alternative choices for each item which describes them best. In essence, each STAIC item is a 3-point rating scale for which values of 1, 2, or 3 are assigned to each of the three alternative choices. Thus, scores on both the STAIC S-Anxiety and T-Anxiety subscales can range from a minimum of 20 to a maximum score of 60.

Test-retest reliability coefficients for the T-Anxiety scale were .65 for males and .71 for females; for the S-Anxiety scale they were .31 for males and .47 for females. The alpha reliability of the S-Anxiety by Kuder-Richardson formula 20 as modified by Cronbach (1950) scale was .82 for males and .87 for females. For the T-Anxiety scale, the alpha coefficients were .78 for males and .81 for females. Evidence of the concurrent validity of the T-Anxiety scale is shown by its correlation with the two

most broadly used measures of trait anxiety in children—the Children’s Manifest Anxiety Scale (CMAS; Castaneda, et al., 1956) and the General Anxiety Scale for Children (GASC; Sarason, et al., 1960). In a sample of 75 children, the STAIC T-Anxiety scale correlated .75 with the CMAS and .63 with GASC (Platzek, 1970).

Construct validity of the S-Anxiety scale is available for a sample of more than 900 students in the 4th, 5th, and 6th grades. The point-biserial correlations for scores on each item with two experimental conditions were .29 to .47 for males and .35 to .55 for females.

Multidimensional Sense of Humor Scale for Children

The Multidimensional Sense of Humor Scale for Children (MSHSC) was developed to evaluate school-age children’s sense of humor (Dowling & Fain, 1999). Participants rate each item on a 5-point Likert-type scale from *never* to *always*. Ratings are assigned a value of 0 (*never*) to 4 (*always*). Examples include the following: “I make up jokes or funny stories,” “Jokes and funny stories help me get through tough times,” and “I use jokes and funny stories to make my friends laugh.” The subscale of *humor appreciation* is the total score for items 2, 5, 8, 11, 13, and 15. The subscale of *humor creation* is the total score for items 1, 4, 6, 7, 12, and 16. The subscale of *coping humor* is the total score for items 3, 9, 14, 17, and 18. The total score for all items (except item 9 which is omitted) is the *multiple sense of humor* score.

A panel of six pediatric nurse experts determined content validity. A pilot study of 115 healthy 6- to 12-year-old children revealed a Cronbach’s alpha coefficient of .88. The total score on the MSHSC was positively correlated with the children’s reported degree of sense of humor ($r = .42, p < .001$). The children’s scale measures four dimensions of

personal sense of humor: humor creation, appreciation of humor, attitudes toward humor and humorous persons, and use of humor as a coping mechanism. The Cronbach's alpha coefficients for the Humor Creation, Coping Humor, and Humor Appreciation subscales were .89, .81, and .90, respectively.

Control for Threats to Internal and External Validity

To control for threats to internal validity of history and maturation, all subjects answered questionnaires at home and testing took place in less than 30 minutes, as was indicated in the instructions to the questionnaires. To control the threat of selection error to internal validity, invitation to participate was the same for all subjects. In addition, demographic data were collected before presenting the questionnaires on humor in an effort to control for selection. Sensitization or testing problems were controlled by not describing the phenomenon of humor in the cover letter. Test materials were given in the same order in every test.

In addition, conditions of the research environment that could affect the generalizability are novelty (Novelty effects) and eliciting a certain type of behavior (Hawthorne effect). It will be assumed that humor and coping are not so novel as to produce these effects. The threat to external validity through experimenter effects and measurement effects was controlled by the unbiased off-site observations of the investigator and by a relatively short period for collecting data.

CHAPTER IV

Results

The purpose of this study was to explore the relationship between sense of humor as a coping strategy and the signs of stress in school-age children 9 to 12 years old. Instrument packets containing a Multidimensional Sense of Humor Scale for Children (MSHSC), a Pediatric Symptoms Checklist (PSC), the Spielberger State-Trait Anxiety Inventory for Children (STAIC-1 and STAIC-2), and a demographic data sheet were mailed to the parent/guardian of the school-age children. A total of 106 packets were returned completed, approximately 25 per cent of the sample contacted. This chapter presents the data gathered for the study. It includes a descriptive analysis of the sample, tests for skewness and kurtosis in distributions of major variables, Pearson product-moment correlations, and t-tests to answer questions regarding humor and stress in school-age children.

Statistical Analysis

Scoring was conducted upon return of completed questionnaires. The Statistical Package for the Social Sciences (SPSS) version 10 was used in analyzing this data. The scores for the Pediatric Symptom Checklist (PSC), the State-Trait Anxiety Inventory for Children (STAIC), the Multidimensional Sense of Humor Scale for Children (MSHSC),

and demographic information regarding the children were entered into the computer for data analysis. A description of the sample with regard to age, gender, and ethnicity is presented in Table 1.

Of interest are the major variables Sense of Humor, Pediatric Symptoms, and the Anxiety Inventories (Anxiety at this very moment, and How you usually feel). Included are the subsets of Sense of Humor: Humor Appreciation, Humor Creation, and Coping Humor. The descriptive statistics for these variables in the different age groups are presented in Table 2.

Table 1. *Demographic characteristics of study sample*

Variable		Frequency	Percent
Age	9 years old	26	24.5%
	10 years old	29	27.4%
	11 years old	17	16.0%
	12 years old	34	32.0%
Gender	Female	55	51.9%
	Male	51	48.1%
Ethnicity	White	65	61.3%
	Latino/Hispanic	16	15.1%
	African-American	12	11.3%
	Asian	7	6.6%
	American Indian	3	2.8%
	Eurasian	2	1.9%
	Pacific Islander	1	0.9%

Table 2. *Descriptive Statistics of Study Variables.*

<u>Mean Scores Untransformed for Boys 9-10 yrs old (N=26)</u>				
Variable	M	SD	Minimum	Maximum
Pediatric Symptoms	18.38	8.83	5	39
Anxiety at the Moment	28.38	5.85	22	46
Anxiety Usually	35.23	6.80	25	50
Humor Appreciation	19.15	3.64	11	24
Humor Creation	16.73	3.72	11	24
Coping with Stress with Humor	11.35	4.90	2	20
Multidimensional Humor	47.23	10.64	26	66
<u>Mean Scores Untransformed for Boys 11-12 yrs old (N=25)</u>				
Variable	M	SD	Minimum	Maximum
Pediatric Symptoms	14.76	7.27	1	30
Anxiety at the Moment	30.48	5.31	23	42
Anxiety Usually	34.32	6.88	21	47
Humor Appreciation	18.60	3.20	12	24
Humor Creation	15.92	4.45	8	24
Coping with Stress with Humor	11.68	3.80	3	19
Multidimensional Humor	46.28	8.96	23	60

(table continues)

Table 2. *Descriptive Statistics of Study Variables (continued).*

<u>Mean Scores Untransformed for Girls 9-10 yrs old (N=29)</u>				
Variable	M	SD	Minimum	Maximum
Pediatric Symptoms	13.76	10.59	1	45
Anxiety at the Moment	26.34	4.66	20	40
Anxiety Usually	34.17	7.84	20	55
Humor Appreciation	20.72	3.01	13	24
Humor Creation	17.93	3.39	12	24
Coping with Stress with Humor	12.48	3.44	6	20
Multidimensional Humor	51.00	7.38	34	64

<u>Mean Scores Untransformed for Girls 11-12 yrs old (N=26)</u>				
Variable	M	SD	Minimum	Maximum
Pediatric Symptoms	15.27	8.85	3	33
Anxiety at the Moment	28.23	5.62	20	41
Anxiety Usually	33.92	8.01	21	46
Humor Appreciation	18.69	4.40	4	24
Humor Creation	15.69	4.54	4	24
Coping with Stress with Humor	12.77	4.00	4	18
Multidimensional Humor	47.15	10.69	12	66

The major variables were examined for normality using descriptive statistics and histograms. Skewness and kurtosis in the distribution of the variables are significant when greater than twice the standard error. Variables found to be negatively skewed to the right were transformed to make them positively skewed. All positively skewed data were changed using square root transformations or logarithm transformations to bring about nearly normal distributions of data.

Data found to be approximately normally distributed were analyzed using parametric statistics. Pearson product-moment correlations were used to examine the relationships among study variables. Independent-samples t-tests were used to compare the humor in 9-10 year olds with humor in 11-12 year olds.

Relationships Among Variables

Relationships among the variables tested are displayed in a correlation matrix (see Table 3). Signs of stress as measured by the Spielberger State Anxiety Inventory for Children (STAIC-1) and by the Pediatric Symptom Checklist (PSC) were found to be significantly correlated (inversely) with Coping with Stress with Humor as measured by the Multidimensional Sense of Humor Scale for Children (MSHSC). The Pearson product-moment correlation for the STAIC-1 was $r = -.291$, $p = .002$, and for the PSC the Pearson product-moment correlation was $r = -.228$, $p = .019$. Subjects who used humor to cope with stress had lower anxiety at the moment and had fewer pediatric symptoms of behavioral stress. Humor appreciation scores were also negatively correlated to anxiety at the moment scores ($r = -.222$, $p = .022$). Subjects with greater appreciation of humor had lower anxiety at the moment. Furthermore, coping with stress with humor was positively correlated to humor creation and humor appreciation as

measured by the MSHSC. The Pearson product-moment correlation was $r = .368$, $p < .001$ for humor creation, and was $r = .588$, $p < .001$ for humor appreciation.. Although not statistically significant, low positive correlation was observed for parent/guardian humor in the home and the child's sense of humor scores ($r = .142$, $p = .073$); (see Table 6). A significance of $p = .05$ or less probability of error was chosen for use in these correlation analyses.

Table 3. *Pearson correlations (two-tailed) between study variables.*

Variable	Pediatric Symptoms	Anxiety at the Moment	Anxiety Usually
Multidimensional Sense of Humor	-.070 .476 106	-.205* .035 106	.005 .962 106
Coping with Stress with Humor	-.228* .019 106	-.291** .002 106	-.112 .253 106
Humor Appreciation	.026 .793 106	-.222* .022 106	-.013 .892 106
Humor Creation	.012 .907 106	-.056 .566 106	-.018 .855 106
Anxiety at the Moment	.217* .025 106	1	.451** .000 106

Note.

Pearson Correlation
2-tailed Significance
Number of Cases

** Correlation is significant at the 0.01 level
(2-tailed)

* Correlation is significant at 0.05 level (2-tailed)

(table continues)

Table 3. *Pearson correlations (two-tailed) between study variables (continued).*

Variable	Humor Appreciation	Humor Creation
Coping with Stress with Humor	.588* 000 106	.368** 000 106

Note.

Pearson Correlation
2-tailed Significance
Number of Cases

** Correlation is significant at the 0.01 level
(2-tailed)

Independent-Samples t-Tests

Independent-samples t-tests showed no significant difference in humor variables of 9-10 year old males compared with humor variables of 11-12 year old males (see Table 4).. However, females showed significant differences in humor variables in the two age groups. The mean score of humor appreciation was 20.72 for females 9-10 years old and was 18.69 for females 11-12 years old. An independent-samples t-test performed on these data showed that there were statistically significant differences between means, $t(53) = -2.017$, $p < .05$. Likewise, the mean score of humor creation was 17.93 for females 9-10 years old and was 15.69 for females 11-12 years old. An independent-samples t-test performed on these data showed statistically significant differences between means, $t(53) = -2.053$, $p < .05$); (see Table 5).

An independent-samples t-test showed no significant difference in humor variables of males and females for the entire sample ($N=106$). Likewise, males and females in the same age group showed no significant difference in humor variables. However, selected groups within the sample showed significant differences in humor variables. Multiple sense of humor was significantly higher in 9-10 year old females, $t(53) = -1.968$, $p = .05$, and humor appreciation was significantly higher in 9-10 year old females, $t(53) = -2.314$, $p < .05$, when compared to males 11-12 years old.(see Table 7). In another comparison, humor creation was significantly higher in 9 year old females, $t(27) = -2.044$, $p = .05$, when compared to males 9 years old (see Table 8).

Independent-samples t-tests showed no significant differences in humor variables of different ethnic groups compared to whites, although mean scores were higher for whites.

Table 4. *T-test comparison of humor in different age groups of boys.***Comparing Humor in 9-10 yr old Boys with Humor in 11-12 yr old Boys****Group Statistics**

	Respond Age	N	Mean	Std. Deviation	Std. Error Mean
MultipleSense of Humor Score	>= 3	25	46.28	8.96	1.79
	< 3	26	47.23	10.64	2.09
HumorAppreciationScore	>= 3	25	18.60	3.20	.64
	< 3	26	19.15	3.64	.71
HumorCreationScore	>= 3	25	15.92	4.45	.89
	< 3	26	16.73	3.72	.73
Coping with Stress with Humor	>= 3	25	11.68	3.80	.76
	< 3	26	11.35	4.90	.96

Independent Samples Test

		t-test for Equality of Means			
		t	df	Sig. (2-tailed)	Mean Difference
MultipleSense of Humor Score	Equal variances assumed	-.344	49	.732	-.95
	Equal variances not assumed	-.346	48.177	.731	-.95
HumorAppreciationScore	Equal variances assumed	-.576	49	.567	-.55
	Equal variances not assumed	-.577	48.622	.566	-.55
HumorCreationScore	Equal variances assumed	-.707	49	.483	-.81
	Equal variances not assumed	-.705	46.769	.485	-.81
Coping with Stress with Humor	Equal variances assumed	.271	49	.787	.33
	Equal variances not assumed	.272	46.958	.787	.33

Note. Respond age >= 3 is 11-12 yr old
Respond age < 3 is 9-10 yr old

Table 5. *T-test comparison of humor in different age groups of girls.***Comparing Humor in 9-10 yr old Girls with Humor in 11-12 yr old Girls****Group Statistics**

	Respond Age	N	Mean	Std. Deviation	Std. Error Mean
MultipleSense of Humor Score	>= 3	26	47.15	10.69	2.10
	< 3	29	51.00	7.38	1.37
HumorAppreciationScore	>= 3	26	18.69	4.40	.86
	< 3	29	20.72	3.01	.56
HumorCreationScore	>= 3	26	15.69	4.54	.89
	< 3	29	17.93	3.39	.63
Coping with Stress with Humor	>= 3	26	12.77	4.00	.79
	< 3	29	12.48	3.44	.64

Independent Samples Test

		t-test for Equality of Means			
		t	df	Sig. (2-tailed)	Mean Difference
MultipleSense of Humor Score	Equal variances assumed	-1.566	53	.123	-3.85
	Equal variances not assumed	-1.535	43.788	.132	-3.85
HumorAppreciationScore	Equal variances assumed	-2.017	53	.049	-2.03
	Equal variances not assumed	-1.977	43.556	.054	-2.03
HumorCreationScore	Equal variances assumed	-2.085	53	.042	-2.24
	Equal variances not assumed	-2.053	45.979	.046	-2.24
Coping with Stress with Humor	Equal variances assumed	.285	53	.776	.29
	Equal variances not assumed	.283	49.632	.778	.29

Note. Respond age >= 3 is 11-12 yr old
Respond age < 3 is 9-10 yr old

Table 6. *Pearson correlations (one-tailed) between parent humor & child humor.*

Correlations

		Parent/GuardianHumor	MultipleSense of Humor Score
Parent/GuardianHumor	Pearson Correlation	1.000	.142
	Sig. (1-tailed)		.073
	N	106	106
MultipleSense of Humor Score	Pearson Correlation	.142	1.000
	Sig. (1-tailed)	.073	
	N	106	106

Table 7. *T-test comparison of humor in different gender groups.***Comparing Humor in 9-10 yr old Girls with Humor in 11-12 yr old Boys****Group Statistics**

	Respond Gender	N	Mean	Std. Deviation	Std. Error Mean
MultipleSense of Humor Score	male	26	46.65	8.98	1.76
	female	29	51.00	7.38	1.37
HumorAppreciationScore	male	26	18.77	3.25	.64
	female	29	20.72	3.01	.56
HumorCreationScore	male	26	16.04	4.40	.86
	female	29	17.93	3.39	.63
Coping with Stress with Humor	male	26	11.77	3.76	.74
	female	29	12.48	3.44	.64

Independent Samples Test

		t-test for Equality of Means			
		t	df	Sig. (2-tailed)	Mean Difference
MultipleSense of Humor Score	Equal variances assumed	-1.968	53	.054	-4.35
	Equal variances not assumed	-1.947	48.546	.057	-4.35
HumorAppreciationScore	Equal variances assumed	-2.314	53	.025	-1.95
	Equal variances not assumed	-2.304	51.185	.025	-1.95
HumorCreationScore	Equal variances assumed	-1.796	53	.078	-1.89
	Equal variances not assumed	-1.771	46.821	.083	-1.89
Coping with Stress with Humor	Equal variances assumed	-.735	53	.465	-.71
	Equal variances not assumed	-.732	50.991	.468	-.71

Table 8. *T-test comparison of humor in different gender groups.***Comparing Humor in 9 yr old Girls with Humor in 12 yr old Boys****Group Statistics**

	Respond Gender	N	Mean	Std. Deviation	Std. Error Mean
MultipleSense of Humor Score	male	16	43.31	8.72	2.18
	female	13	49.15	8.25	2.29
HumorAppreciationScore	male	16	17.56	2.97	.74
	female	13	19.92	3.57	.99
HumorCreationScore	male	16	14.38	4.21	1.05
	female	13	17.23	3.06	.85
Coping with Stress with Humor	male	16	11.25	4.22	1.05
	female	13	12.00	3.63	1.01

Independent Samples Test

		t-test for Equality of Means			
		t	df	Sig. (2-tailed)	Mean Difference
MultipleSense of Humor Score	Equal variances assumed	-1.837	27	.077	-5.84
	Equal variances not assumed	-1.847	26.320	.076	-5.84
HumorAppreciationScore	Equal variances assumed	-1.946	27	.062	-2.36
	Equal variances not assumed	-1.908	23.357	.069	-2.36
HumorCreationScore	Equal variances assumed	-2.044	27	.051	-2.86
	Equal variances not assumed	-2.113	26.725	.044	-2.86
Coping with Stress with Humor	Equal variances assumed	-.506	27	.617	-.75
	Equal variances not assumed	-.514	26.888	.611	-.75

Reliability Analysis

A reliability analysis of the data for each measurement scale used in this study of 106 school-age children 9-12 years old showed acceptable reliability coefficients with Cronbach's alpha greater than .70 (see Table 9).

Table 9. *Reliability Analysis for scales used for school-age children (N=106).*

Scale	No. of Items	Coefficient Alpha
Multidimensional Humor	17	.8924
Humor Appreciation	6	.8225
Humor Creation	6	.8500
Coping with Stress with Humor	5	.8130
Pediatric Symptoms	35	.8913
Anxiety at the Moment	20	.8494
Anxiety Usually	20	.8612

CHAPTER V

Discussion

The purpose of this study was to investigate the relationship between sense of humor and outcomes related to behavioral stress and anxiety in the lives of school-age children. This chapter presents a summary of the results of the study. Conclusions are drawn, discussion is provided, and recommendations are offered.

Interpretations of Research Findings

Descriptive Analysis of the Sample

Descriptive analysis of the sample (N=106) indicated that 48 per cent were male and 52 per cent were female. There were 26 males 9-10 years old and 25 males 11-12 years old. There were 29 females 9-10 years old and 26 females 11-12 years old. The raw data for the scores of the major variables showed some skewness and kurtosis. Skewness and kurtosis are significant when greater than twice the standard error of each. All skewed data were changed using square root transformations or logarithm transformations to bring about nearly normal distributions of data.

Data found to be approximately normally distributed were analyzed using parametric statistics. Pearson correlations were used to examine the relationships among

study variables. Independent-samples t-tests were used to compare the humor in 9-10 year olds with humor in 11-12 year olds.

Pearson Product-moment Correlations

Signs of stress such as those revealed by the Pediatric Symptoms Checklist and by the Spielberger Anxiety Inventory were found to be significantly correlated with the Sense of Humor Coping at the $p = .05$ level for the sample ($N=106$). Subjects with higher sense of humor coping had lower anxiety at the moment. Subjects with greater appreciation of humor also had lower anxiety at the moment. Subjects who used humor to cope with stress had fewer pediatric symptoms of behavioral stress and lower anxiety at the moment. Most correlations were low (from $r = -.222$ to $r = -.291$). However, humor creation and humor appreciation were positively correlated to coping with stress with humor ($r = .378$, $p = .01$, for humor creation) and ($r = .580$, $p = .01$, for humor appreciation). Although not statistically significant, a low positive correlation was observed for parent/guardian humor in the home and the child's sense of humor scores ($r = .142$, $p = .073$); (see Table 6).

Independent-samples t-tests

Independent-samples t-tests showed no significant difference in humor variables of 9-10 year old males compared with humor variables of 11-12 year old males. However, females showed significant differences in humor variables in the two age groups. . The mean score of humor appreciation was 20.72 for females 9-10 years old and was 18.69 for females 11-12 years old. . Likewise, the mean score of humor creation was 17.93 for females 9-10 years old and was 15.69 for females 11-12 years old.

Independent-samples t-test performed on these data showed that there were statistically significant differences between means at the $p < .05$ level.

Conclusions

As a result of the analyses that were performed, the following conclusions are offered. Inferences about children's stress and sense of humor are made in reference to the 106 school-age children of this study. Any generalizations beyond this sample are speculative.

Signs of stress such as those revealed by the Pediatric Symptoms Checklist and by the Spielberger Anxiety Inventory were found to be significantly correlated with the Sense of Humor Coping for the sample ($N=106$). That is, subjects with higher sense of humor coping had lower anxiety at the moment. Subjects with greater appreciation of humor had lower anxiety at the moment. Subjects who used humor to cope with stress had fewer pediatric symptoms of behavioral stress and lower anxiety at the moment. Furthermore, humor creation and humor appreciation were found to be positively correlated to coping with stress with humor.

Therefore, the hypotheses H3, H4, and H5, were supported by the results of the Pearson's product-moment correlations.

No significant difference was found in humor variables of 9-10 year old males compared to humor variables of 11-12 year old males. However, females showed significant differences in humor variables in the two age groups. The mean score of humor appreciation was significantly higher for females 9-10 years old than for females 11-12 years old. Likewise, the mean score of humor creation was significantly higher for females 9-10 years old than for females 11-12 years old.

Discussion

The correlations between signs of stress and sense of humor were rather weak. This may be due to the small sample size. A larger sample size may have increased the strength of the correlation analyses. Although correlations of the major variables were rather weak, they were statistically significant. However, humor creation and humor appreciation were positively correlated to coping with stress with humor at notably higher strength. This relation of humor creation to coping with stress agrees with ideas of Martin and Lefcourt (1983) who believed that sense of humor would be a means of moderating or buffering stress only when it was accompanied by humor creation.

The expectation that a stage of higher cognitive development would be accompanied by greater humor appreciation and creativity as proposed by McGhee(1979), and by others (Piaget, 1950; . Schulz and Pilon (1973), was not met in this study. Contrary to expectations, no significant difference was found in humor variables of 9-10 year old males compared to humor variables of 11-12 year old males. However, females showed significant differences in humor variables in the two age groups. The mean score of humor appreciation was significantly higher for females 9-10 years old than for females 11-12 years old, as measured by independent-samples t-tests. Likewise, the mean score of humor creation was significantly higher for females 9-10 years old than for females 11-12 years old, as measured by independent-samples t-tests. This anomalous difference in the younger females may be due to their simple innocent attitude toward humor, while the older females may have a sophisticated non-accepting attitude.

Recommendations

Strong points in this study include use of reliable self-report scales previously tested with children and a multidimensional measure for sense of humor with factors for appreciation, creation, and coping. More research with a larger sample size and reevaluation of the sense of humor scale is suggested to resolve the anomalies of the present study. For example, the expectation that 11-12 year old children would have greater humor appreciation and creativity than 9-10 year old children was not met in this study.

The correlation that was observed for parent/guardian humor in the home and the child's sense of humor scores suggest that sense of humor can be learned from parent modeling. The question for further sense of humor research is whether sense of humor is a fixed personal factor or can sense of humor be learned, developed or modified with educational programs.

The use of humor should be encouraged as one of the many stress management techniques. Humor programs should be incorporated into the school and health-care settings to promote humor skills among teachers, nurses, coworkers, managers, and administrators. The use of humor for providing support for staff should be encouraged.

Environmental stressors experienced by children may bring about symptoms of anxiety and behavioral problems. These symptoms may lead to physiological symptoms such as headache, stomach ache, feeling sick, shaky, tired or weak. Long term exposure to stress may lead to somatic illness and maladaptive emotional or social symptoms. Humor is a means of dealing with tension. A growing awareness exists for the usefulness of humor as a coping mechanism. Humor has a liberating quality.

Besides the curative role of the nurse, she also has a preventive task. It is in this area that her expertise should be developed in knowing how humor can affect children's stress level, how children use humor, and how it can be taught and manifested by her example. The nurse will be able to organize an effective approach in which children learn humor as a coping mechanism, use it in stressful situations, and increase their level of well-being, playfulness, and social intelligence

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COVER LETTER

Dear parent or guardian,

My name is Lambertha Stier, a nurse working for a doctoral degree at the University of San Diego. I am conducting research to explore the relationship of humor to stress in a group of school age children ages 9-12 years. This research has approval of the San Diego Unified School District in which your child is enrolled. Also, the research has approval of the School of Nursing at the University of San Diego.

You and your child may participate in this research, if you wish, by filling out the enclosed questionnaires. The parent/guardian will fill out a demographic data form, a consent form, and a pediatric symptoms check list. The child will fill out an assent form and three questionnaires (two How-I-Feel questionnaires, and a Sense of Humor questionnaire). The parent would spend 15 minutes and the child about 30 minutes to answer the questionnaires.

I would like to compensate you for your time. **If you and your child will fill out completely the forms and questionnaires, and return them in the enclosed envelope, I will send you a check for ten dollars.** Please make sure that all questions are filled out on both sides of each page. Please print on the back of this sheet your address where the check is to be mailed. You will receive the check in two to four weeks.

The results of the study will be available for your examination through contact with me or my adviser Dr. Jane Georges, professor in the School Of Nursing at the University of San Diego (619-260-4548). The results will be reported in a general way so that no one will know that you and your child have participated in this study.

Thank you very much,

Sincerely,

Lambertha Stier
(619) 561-2148

PARENT/GUARDIAN CONSENT***To participate in the research study:******SCHOOL-AGED CHILDREN'S COPING WITH STRESS THROUGH HUMOR***

Dear Parent or Guardian,

You and your child are being asked to be a part of a survey that looks at how school age kids use humor to cope with stress. This research study is being conducted by Lambertha Stier, a registered nurse, as part of her doctoral dissertation at the University of San Diego, School of Nursing. This study is approved by the Unified School District of San Diego. You and your child do not have to participate if you don't want to. Nothing about your child's schooling, grades, or anything else will change if you decide not to do this. Lambertha is a nurse who would like to find out how nurses can use humor to help kids be healthier and happier.

What you are being asked to do:

Fill out a brief questionnaire that asks 5 questions about things like your child's age, gender, and ethnicity. This will take you about 5 minutes. Then, fill out a questionnaire with 35 questions about your child's behavior. This will take you about 10 minutes.

What your child is being asked to do:

Fill out 3 questionnaires that take 10 minutes each. The whole thing will take your child about a half hour. He or she can stop and rest while doing this, can do some now and some later. These questionnaires will ask your child about things related to funny stuff and his/her feelings about humor.

After you and your child have completed these forms, please put them in the enclosed pre-stamped envelope. Please do not put your name or your child's name on any of the questionnaires.

Your and your child's participation in this study are:

Voluntary. You and your child do not have to take the survey. Nothing about your child's grades, his/her schooling, or access to health care will change if you choose not to do this. You and your child can decide at any time to quit.

Confidential. No names will be recorded or attached to the survey forms or data. All consent/assent forms will be stored separately from data. Only code numbers will be used on data forms. All data will be kept in a locked file cabinet and only Lambertha Stier will have access. She will keep all the completed forms at least five years before destroying them. The results will be reported on a group basis, and neither your child's identity nor his/her school will ever be identified in reporting the results.

Potential Risks. If you or your child becomes tired while filling out the forms, please take a break and rest. Sometimes when parents/guardians are asked things about their kids' behavior, they feel emotions like anxiety. Also, sometimes kids feel anxious when asked about their feelings. . If you or your child would like to discuss these feelings, you can call the San Diego Mental Health Hotline at 1- 800-479-3339 or the San Diego Youth Crisis Hotline at 1-800-448-4663.

Further Information. If you would like to know more about this survey—before or after you take it—you can call Lambertha Stier at 619-561-2148 or e-mail her at bepstier@yahoo.com. You can also call her professor, Dr. Jane Georges, at 619-260-4548 or e-mail her at jgeorges@sandiego.edu.

If you would like to participate in this survey, please:

- Sign and date this form (next page). Place it in the pre-stamped envelope.
- Ask your child to read and sign the form called "Assent." Place it in the pre-stamped envelope.
- Fill out the 2 forms labeled for "Parent/Guardian." Assist your child in filling out the 3 forms labeled for "Child."
- Put all the forms in the pre-stamped envelope and drop it in any mailbox.

Thanks for your time and consideration. Please continue on this page

PARENT/GUARDIAN CONSENT—cont'd

I have read and understand this form, and consent to the research it describes to me.

Signature of Parent/Guardian Participant

Date

Printed name of Parent/Guardian Participant

Please continue on other side of this sheet

Assent for School Kids (for the child to fill out)

(Printing your name below means : You are saying it's OK)

Hello,

I am Lambertha Stier, a nurse who wants to find out more about how kids use funny stuff like jokes. I want to find out what you think about this. I am doing this as a school project. This project is a thing called research. That means that you will be in a research project. You don't have to do this. You can tell your parent/guardian right now or anytime, "I don't want to do this." Nobody will be mad at you. Nothing at school will change for you. Your teacher will not know and your grades will not change.

I am asking you to fill out 3 lists of questions. Each list takes about 10 minutes. Filling out all 3 lists will take you about 35 minutes. That's like a half hour TV show. That's how long the whole thing takes. You will fill in an X in some squares with a pencil to answer the questions, just like some of the filling-in you do at school. You may ask

your parent /guardian to help you if you want. It's not a test. Remember, you can stop doing it anytime and you won't get in trouble.

Your answers will be confidential. That means it's a secret. Your name won't go on the question papers. Your parent/guardian will mail these papers back to me. Only I will see what you answered. Sometimes kids have feelings like being upset when they're asked about stuff. If you would like to talk to someone about your feelings, please tell you parent/guardian.

Sometimes kids and their parent/guardian have questions to ask about projects like this. You can call me at 619-561-2148 or e-mail me at bepstier@yahoo.com. You can also call my teacher, Dr. Jane Georges, at 619-260-4548 or e-mail her at jgeorges@sandiego.edu. We will be happy to talk with you.

Putting my name here means :

I am saying it's OK for me to do this. (Please print your name below)

Appendix C

DEMOGRAPHIC DATA FORM

(To be filled in by Parent/Guardian)

Please do NOT put your name or child's name on this form.

Date: _____

Circle or fill in the correct response:

1. Age of child in years: 8 9 10 11 12 13

2. Gender of child: Male Female

3. Ethnicity of child:

Latino/Hispanic

Asian

African-American

White

Pacific Islander

American Indian

Other (specify if you wish) _____

4. How often do you use humor in your home? (please circle one)

Never Seldom Sometimes Often Very Often

5. How often does your child use humor at home? (please circle one)

Never Seldom Sometimes Often Very Often

PEDIATRIC SYMPTOM CHECKLIST (PSC) (for the parent/guardian to complete)

Mark the box that best fits your child

Complains of aches and pains	☐ Never	☐ Sometimes	☐ Often
Spends more time alone	☐ Never	☐ Sometimes	☐ Often
Tires easily, little energy	☐ Never	☐ Sometimes	☐ Often
Fidgety, unable to sit still	☐ Never	☐ Sometimes	☐ Often
Has trouble with a teacher	☐ Never	☐ Sometimes	☐ Often
Less interested in school	☐ Never	☐ Sometimes	☐ Often
Acts as if driven by a motor	☐ Never	☐ Sometimes	☐ Often
Daydreams too much	☐ Never	☐ Sometimes	☐ Often
Distracted easily	☐ Never	☐ Sometimes	☐ Often
Is afraid of new situations	☐ Never	☐ Sometimes	☐ Often
Feels sad, unhappy	☐ Never	☐ Sometimes	☐ Often
Is irritable, angry	☐ Never	☐ Sometimes	☐ Often
Feels hopeless	☐ Never	☐ Sometimes	☐ Often
Has trouble concentrating	☐ Never	☐ Sometimes	☐ Often
Less interest in friends	☐ Never	☐ Sometimes	☐ Often
Fights with other children	☐ Never	☐ Sometimes	☐ Often
Absent from school	☐ Never	☐ Sometimes	☐ Often
School grades dropping	☐ Never	☐ Sometimes	☐ Often

Please continue on other side of the Pediatric Symptom Checklist

PEDIATRIC SYMPTOM CHECKLIST—cont'd (for the parent/guardian to complete)

Mark the box that best fits your child

Is down on himself or herself	☐ Never	☐ Sometimes	☐ Often
Visits doctor with doctor finding nothing wrong	☐ Never	☐ Sometimes	☐ Often
Has trouble with sleeping	☐ Never	☐ Sometimes	☐ Often
Worries a lot	☐ Never	☐ Sometimes	☐ Often
Wants to be with you more than before	☐ Never	☐ Sometimes	☐ Often
Feels he or she is bad	☐ Never	☐ Sometimes	☐ Often
Takes unnecessary risks	☐ Never	☐ Sometimes	☐ Often
Gets hurt frequently	☐ Never	☐ Sometimes	☐ Often
Seems to be having less fun	☐ Never	☐ Sometimes	☐ Often
Acts younger than children his or her age	☐ Never	☐ Sometimes	☐ Often
Does not listen to rules	☐ Never	☐ Sometimes	☐ Often
Does not show feelings	☐ Never	☐ Sometimes	☐ Often
Does not understand other people's feelings	☐ Never	☐ Sometimes	☐ Often
Teases others	☐ Never	☐ Sometimes	☐ Often
Blames others for his or her troubles	☐ Never	☐ Sometimes	☐ Often
Takes things that do not belong to him/her	☐ Never	☐ Sometimes	☐ Often
Refuses to share	☐ Never	☐ Sometimes	☐ Often

Have you filled out the other side of this sheet?

HOW-I-FEEL NOW QUESTIONNAIRE (STAIC-1) (for the child to complete)

DIRECTIONS: A number of statements which boys and girls use to describe themselves are given below. Read each statement carefully and decide how you feel right now. Then put an X on the box in front of the word or phrase which best describes how you feel. There are no right or wrong answers. Don't spend too much time on any one statement. Remember, find the word or phrase which best describes how you feel right now, at this very moment.

1. I feel.....☐ very calm ☐ calm ☐ not calm
2. I feel.....☐ very upset ☐ upset ☐ not upset
3. I feel.....☐ very pleasant ☐ pleasant ☐ not pleasant
4. I feel.....☐ very nervous ☐ nervous ☐ not nervous
5. I feel.....☐ very jittery ☐ jittery ☐ not jittery
6. I feel.....☐ very rested ☐ rested ☐ not rested
7. I feel.....☐ very scared ☐ scared ☐ not scared
8. I feel.....☐ very relaxed ☐ relaxed ☐ not relaxed
9. I feel.....☐ very worried ☐ worried ☐ not worried
10. I feel.....☐ very satisfied ☐ satisfied ☐ not satisfied
11. I feel.....☐ very frightened ☐ frightened ☐ not frightened
12. I feel.....☐ very happy ☐ happy ☐ not happy
13. I feel.....☐ very sure ☐ sure ☐ not sure
14. I feel.....☐ very good ☐ good ☐ not good
15. I feel.....☐ very troubled ☐ troubled ☐ not troubled
16. I feel.....☐ very bothered ☐ bothered ☐ not bothered
17. I feel.....☐ very nice ☐ nice ☐ not nice
18. I feel.....☐ very terrified ☐ terrified ☐ not terrified
19. I feel.....☐ very mixed-up ☐ mixed-up ☐ not mixed-up
20. I feel.....☐ very cheerful ☐ cheerful ☐ not cheerful

HOW-I-FEEL QUESTIONNAIRE (STAIC-2) (for the child to complete)

DIRECTIONS: A number of statements which boys and girls use to describe themselves are given below. Read each statement carefully and decide if it is hardly-ever, or sometimes, or often true for you. Then for each statement, put an X on the box in front of the word that seems to describe you best. There are no right or wrong answers. Don't spend too much time on any one statement. Remember, choose the word which seems to describe how you usually feel.

1. I worry about making mistakes.....☐ hardly-ever ☐ sometimes ☐ often
2. I feel like crying.....☐ hardly-ever ☐ sometimes ☐ often
3. I feel unhappy.....☐ hardly-ever ☐ sometimes ☐ often
4. I have trouble making up my mind.....☐ hardly-ever ☐ sometimes ☐ often
5. It is difficult for me to face my problems.....☐ hardly-ever ☐ sometimes ☐ often
6. I worry too much.....☐ hardly-ever ☐ sometimes ☐ often
7. I get upset at home..... ☐ hardly-ever ☐ sometimes ☐ often
8. I am shy..... ☐ hardly-ever ☐ sometimes ☐ often
9. I feel troubled.....☐ hardly-ever ☐ sometimes ☐ often
10. Unimportant thoughts run through my mind
and bother me.....☐ hardly-ever ☐ sometimes ☐ often
11. I worry about school.....☐ hardly-ever ☐ sometimes ☐ often
12. I have trouble deciding what to do.....☐ hardly-ever ☐ sometimes ☐ often
13. I notice my heart beats fast.....☐ hardly-ever ☐ sometimes ☐ often
14. I am secretly afraid.....☐ hardly-ever ☐ sometimes ☐ often
15. I worry about my parents.....☐ hardly-ever ☐ sometimes ☐ often
16. My hands get sweaty.....☐ hardly-ever ☐ sometimes ☐ often
17. I worry about things that may happen.....☐ hardly-ever ☐ sometimes ☐ often
18. It is hard for me to fall asleep at night.....☐ hardly-ever ☐ sometimes ☐ often
19. I get a funny feeling in my stomach.....☐ hardly-ever ☐ sometimes ☐ often
20. I worry about what others think of me.....☐ hardly-ever ☐ sometimes ☐ often

SENSE OF HUMOR SCALE FOR CHILDREN (MSHSC) (for the child to complete)

Below are statements that describe feelings of school age children. Put an X on the box in front of the word or phrase which best describes how you rate your feeling about each statement.

1. I make up jokes or funny stories
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
2. I like a good joke
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
3. Jokes and funny stories help me get through tough times
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
4. I can make other people laugh
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
5. I like people who tell jokes
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
6. People tell me that I say funny things
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
7. I use jokes and funny stories to make my friends laugh
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
8. I like being around people who tell jokes and funny stories
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
9. I can make problems better by saying something funny
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
10. It bothers me when people tell jokes
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
11. I like to hear a funny story
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
12. I can make people laugh with the things I say
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always

Please continue on other side of this sheet

SENSE OF HUMOR SCALE FOR CHILDREN (MSHSC)---cont'd
(for the child to complete)

13. I like it when people share a joke or funny story with me
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
14. Jokes and funny stories are a good way to face tough times
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
15. I like people who make me laugh
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
16. My jokes and funny stories make others laugh
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
17. Jokes and funny stories help to relax me
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
18. Using jokes and funny stories to go through tough times is a good way to go through life
☐ never ☐ almost never ☐ sometimes ☐ almost always ☐ always
19. On a scale of 1 to 5, how would you describe your sense of humor?
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
 Low sense of humor Average High sense of humor

Appendix H: Permission to Use MSHSC, STAIC 1 & 2, and PSC

Jacqueline Dowling request to use the Multidimensional Sense of Humor for Children (MSHSC) was granted by e-mail message.

Hello Lambertha,

How exciting that you are in a PhD program. I wish you continued success in your nursing studies and research. Yes, you may use the instrument. Please share your findings with me as it helps validate the tool and I am very interested in your research!

Dr. Dowling

—Original Message—

From: lambertha stier [<mailto:okhuizen@yahoo.com>]

Sent: Mon 9/5/2005 4:46 PM

To: Dowling, Jacqueline

Subject: request use of MSHSC

Dear Dr Dowling,

I seek your permission to use the MSHSC in my research.

I am studying toward a PhD degree in Nursing and Health Sciences at the University of San Diego.

I would like to use the scale in my dissertation which will examine how sense of humor relates to stress and coping in school children's lives. I may need to make 100-200 copies and I will pay for the expenses for the copyright.

Thank you for the consideration of my request.

Sincerely,

Permission to use Spielberger State-Trait Anxiety Inventory for Children STAIC 1 & 2 was granted on payment of the 260 dollar fee to Mind Garden, 855 Oak Grove, Ste 215, Menlo Park, CA 94025.

The Pediatric Symptom Checklist (PSC) was available as a free handout on the Pediatric Development and Behavior Homepage, <http://www.dbped.org/handouts>.

Permission to use the PSC was given by the authors Michael Jellineck, M.D., and Michael Murphy, Ed.D., provided that they be cited in the research document.

SAN DIEGO UNIFIED SCHOOL DISTRICT

OFFICE OF THE DEPUTY SUPERINTENDENT
Standards, Assessment, and Accountability Division**Memorandum of Agreement**

By and Between

Lambertha Okhuizen Stier, a doctoral student at the University of San Diego
and the San Diego Unified School District

April 21, 2007

This agreement is entered into by the San Diego Unified School District (SDUSD) and Lambertha Okhuizen Stier, located at 11534 Green Lane, Lakeside, CA 92040, and the University of San Diego School of Nursing for the purpose of researching School-Aged Children's Coping with Stress Through Humor and sharing information between the parties in a manner consistent with the Family Educational Rights and Privacy Act of 1974 (FERPA) and SDUSD Administrative Procedure Nos. 6525, 6527, and 4930.

BACKGROUND

Lambertha Okhuizen Stier is a doctoral student at the USD School of Nursing. Her curriculum focus is nursing and health science with emphasis on research and teaching. This research project is for her doctoral dissertation. She has previously done a study of stress in 100 hundred nurses & how they used humor to cope with stress. She published her Master's Thesis entitled An Exploration of the Relationship Between Burnout and Sense of Humor in the Practice of Nursing. She did another study for a Master's Thesis entitled The Effects of Listening to Tape-Recorded Comedians on Drivers' Affect.

PURPOSE OF THE STUDY

See attached Research Proposal

SCOPE OF WORK

See attached Research Proposal. Start and end dates are approximately May 2007 and January 2008. Research activities will not impact school sites. Personnel at the SDUSD office will generate computer mailing labels that the researcher will use to mail the research questionnaires to parents/guardians of 400 children selected randomly from a list of children ages 9-12 in the SDUSD. The research findings will be printed in her Doctoral Dissertation in January 2008 and presented to SDUSD.

I. PARTIES

The SDUSD REPRESENTATIVE is Peter Bell, Director of the Research and Reporting Department, Standards, Assessment, and Accountability Division, SDUSD, who is authorized by the SDUSD to maintain and release student records subject to FERPA and SDUSD policies and procedures.

The APPLICANT is Lambertha Okhuizen Stier, who is affiliated with the University of San Diego School of Nursing as a doctoral student.

The APPLICANT'S single authorized REPRESENTATIVE to request data under this agreement is Harold H. Stier

The APPLICANT may also be represented by other persons associated with the APPLICANT to assist in any phase of the research effort. If applicable, REPRESENTATIVES of the APPLICANT include Dr. Susan Instone, Dr. Gerald Butler, Paul Clopton, Dr. Jane Georges

The SDUSD SPONSOR is Shirley Culver, who is affiliated with the Mental Health Resource Center

The SDUSD SPONSOR will monitor the research ensuring that research is being conducted as proposed and meets the obligations of this agreement. If necessary, the SDUSD SPONSOR may provide logistical assistance to the APPLICANT.

The SDUSD REPRESENTATIVE may also be represented by other district staff. If applicable, the SDUSD REPRESENTATIVE'S DESIGNEES include N/A.

II. COMPLIANCE WITH FERPA

- ___ A. The APPLICANT will comply with the provisions of FERPA in all respects. For purposes of this agreement, the APPLICANT will use data collected and shared under this agreement for no purpose other than research authorized under §99.31 (6)(iii) of Title 34, Code of Federal Regulations. Nothing in this agreement may be construed to allow either party to maintain, use, disclose, or share student information in a manner not allowed by federal law or regulation. In particular, the APPLICANT will not disclose any data contained under this agreement in a manner that could identify any individual student or the student's parent(s)/guardian(s), per 34 CFR §99.31 (6)(ii)(A), except as authorized by FERPA.
- ___ B. The APPLICANT will abide by information redisclosure limitations per 34 CFR §99.33 (a)(1); §99.33 (a)(2). Data that contain personal information from students' education records are protected by the FERPA (20 U.S.C. §1232g) and may not be re-released without consent of the parents or eligible students.
- ___ C. The APPLICANT will destroy all data obtained under this agreement when they are no longer needed for the purpose for which they were obtained in compliance with 34 CFR §99.31(6)(ii)(B); §99.35 (b)(2), or returned to the SDUSD REPRESENTATIVE.

III. COST OF RESEARCH

- ___ A. The SDUSD REPRESENTATIVE agrees to provide data obtained under this agreement at district cost.
- ___ B. The APPLICANT agrees to pay all other costs associated with the implementation of research activities.

IV. RESEARCH METHODOLOGY

See attached Research Proposal

- ___ A. The APPLICANT will adhere to a "small numbers" policy of suppressing findings for any group of students numbering fewer than ten, and to require all employees, contractors, and agents of any kind to also abide by such policy. Where "small numbers" reporting becomes necessary, the APPLICANT will request formal consent from the SDUSD REPRESENTATIVE unless prior approval from SDUSD has been obtained.

V. DATA REQUEST AND USE

- ☐ A. The APPLICANT agrees that the single authorized REPRESENTATIVE to request data under this agreement will transmit all data requests and maintain a log or other record of all data requested and received pursuant to this agreement, including confirmation of the completion of any projects and the return or destruction of data as required by this agreement.
- ☐ B. The ability to access or maintain data under this agreement shall not under any circumstances transfer from the APPLICANT to any other institution or entity. The APPLICANT may not disclose SDUSD data to parties not identified in Part I without the written consent of the SDUSD REPRESENTATIVE.
- ☐ C. No other entity is authorized to continue using SDUSD data obtained under this agreement upon cessation of studies conducted under the direct supervision of the APPLICANT.
- ☐ D. The APPLICANT will require all employees, contractors, and agents of any kind to comply with all applicable provisions of FERPA and other federal laws with respect to the data shared under this agreement. The APPLICANT agrees to require and maintain an appropriate confidentiality agreement from each employee, contractor, or agent with access to data pursuant to this agreement.
- ☐ E. The APPLICANT will maintain an original data set of SDUSD data obtained pursuant to this agreement separate from all other data files.
- ☐ F. Nothing in this agreement authorizes the APPLICANT to maintain data beyond the time period reasonably needed to complete the purpose of the request. Unless authorized in writing by the SDUSD REPRESENTATIVE, all data relating to an individual student must be returned or destroyed when no longer needed for the purposes for which the study was conducted.
- ☐ G. The APPLICANT agrees that the SDUSD REPRESENTATIVE may, upon request, review the records required to be kept under this agreement.
- ☐ H. The APPLICANT agrees that the SDUSD REPRESENTATIVE may decline to comply with a request if, in her/his discretion, s/he determines that providing the requested data would not be in the best interest of current or former students in the SDUSD.
- ☐ I. The APPLICANT agrees that all requests will include a statement of purpose, if not included in the original proposal, for which data are requested and an estimation of the time needed to complete the project for which the data are requested. The parties may agree to accept data requests by electronic mail, telephone, or facsimile.

VI. RESEARCH INSTRUMENTS

- ☐ A. The APPLICANT agrees to submit to the SDUSD REPRESENTATIVE for review and approval, **at least two weeks prior** to administration, all surveys, interviews, assessments, or focus group activities that impact SDUSD staff or students.

VII. RESEARCH PRODUCTS

The APPLICANT intends to present research findings in ✓ written and/or oral format. *(If initialed, continue.)*

- ☐ A. The APPLICANT will present a first draft of either preliminary or endmost research findings generated under this agreement and related methodology to the SDUSD REPRESENTATIVE **at least six weeks prior** to any written or oral presentation thereof. The draft must identify the intended audience and cite specific forums (e.g., journals, conferences, dissertation) in which the findings will be presented.

- _____ B. The SDUSD REPRESENTATIVE agrees to take no longer than **two weeks** from receipt to review the **first draft** of either preliminary or endmost findings, cite inaccuracies, and/or offer revisions that comport with rigorous research methodology.
- _____ C. The APPLICANT agrees to submit the **final research product** to the district prior to any written or oral presentation of endmost findings.

VIII. TERM OF AGREEMENT

- A. The APPLICANT agrees to terminate all research activities (including presentation of the final report) on or before January 2008.

IX. AMENDMENT TO, OR CANCELLATION OF, MEMORANDUM OF AGREEMENT

This agreement expresses the entire agreement of the parties. Any modification or amendment to the agreement must be executed in writing and signed by both the SDUSD REPRESENTATIVE and the APPLICANT.

- _____ A. Both the APPLICANT and the SDUSD REPRESENTATIVE agree that the Memorandum of Agreement takes effect upon signature by the authorized representative of each party and shall remain in effect until the termination date identified above, or until canceled or amended by either party upon thirty days written notice.
- _____ B. The APPLICANT agrees that the SDUSD REPRESENTATIVE may cancel the Memorandum of Agreement immediately upon violation of any element agreed to herein.

Entered into this _____ day of _____, 20____

APPLICANT

SDUSD REPRESENTATIVE

SDUSD SPONSOR