PSYCHOMETRIC TESTING OF COOPER PARENTAL SELF-EFFICACY SCALE-CHILD HEALTH BEHAVIOR

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ABSTRACT

Although numerous self-efficacy scales grounded in Bandura's theory of self-efficacy were available, no specific scale that measured the concept of parental self-efficacy to influence child health behavior existed. The researcher developed the Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB) and previously conducted a content validation study. The aims of this study were to 1.) ensure that the 28-item CPSS-CHB was readable, 2.) to determine reliability of the scale, and 3.) to initiate the establishment of validity.

Readability was established during a feasibility study with 20 participants recruited via emails and Facebook social network messages. Using SurveyMonkey.com, participants were directed to a link that opened an Internet-based survey. Participants were asked to complete the 28-item CPSS-CHB and provide basic demographic information. Areas for participant comments followed each item. The survey closed at 20 participants, although 50 contacts were made; these 20 surveys were completed within 24 hours. All 20 participants were parents. Participants included 13 (65%) women and 17 (85%) Caucasians. Fifteen (75%) of the participants were married, and 12 (60%) had children between 3 and 5 years of age. Nine (45%) participants had incomes of over $85,000 for the previous year. Parents ranged in age from 27 to 48 years with a mean of 36 years. The mean years in school was 16. The scale was deemed readable and easy to understand.

In a full study, reliability was examined using 298 participants, while concurrent and convergent validity were examined using 291 participants, and 290 participants for discriminant validity. The participants for the reliability and validity estimation portion of the study were recruited via a similar recruitment procedure as in the readability study. The first 300 parents and caregivers of children ages 3 to 16 years who responded from

the recruited pool of approximately 800 e-mail messages, Facebook messages, Twitter postings, and additional posts to applicable parent-focused discussion board and chat room (ExpressiveParents.com) messages were included in the study. The message and survey link was used to request that those in receipt of the message and survey forward the link to contacts they knew who had children between 3 and 16 years of age. The instrument packet contained the Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB), General Self-Efficacy Scale (GSES) (Schwarzer & Jerusalem, 1995), the Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965) and demographic items. The GSES was used to examine concurrent and convergent validity. The RSES was used to examine discriminant validity. The investigator set SurveyMonkey.com for a cut off of 300 participants. The survey was available and administered through the World Wide Web at the Survey Monkey portal, an on-line survey web site, for seven days, at which time 300 completed surveys had been collected. Participants were primarily married (87.9%), Caucasian (92%) women who were parents of pre-school and school-age children. The median number of children in each home was two, while the mean age of the participants was 40 years (*SD* ±9.4) with mean of 16.76 years in school (*SD* ±3.1). Five participants acknowledged an annual income level below $15,000, while 130 participants indicated annual income levels over $85,000.

Using the alpha coefficient, the internal consistency reliability for the entire scale was found to be .96. Principal components analysis (PCA) with oblique rotation was used to determine that a three-factor structure solution was the best fit for the scale. Factors were labeled problem times, stressful times, and good times. Only one item did not load on a factor.

With regard to concurrent validity, only a weak correlation (r= .17) was found between the CPSS-CHB scale and the General Self-Efficacy Scale. Therefore, concurrent validity was not established in this study. Convergent validity was not supported in view of the weak correlation of the scale with the General Self-Efficacy Scale. However, discriminant validity was supported by the weak correlation (r= .07) found between the CPSS-CHB scale and the Rosenberg Self-Esteem Scale, even though a higher correlation of .3 or .4 was expected.

The CPSS-CHB was revised to include 27 items composed of three factors (problem times, stressful times, good times), judged internally consistent for this sample, but validity remains questionable. Construct validation of the CPSS-CHB was not demonstrated. Continued refinement of the scale and further validity testing is mandatory.

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Psychometric Testing of Cooper Parental Self-Efficacy Scale-Child Health Behavior

by

Johnnie Susan Cooper

A dissertation submitted to the
School of Graduate Studies in the Health Sciences
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I certify that I have read this dissertation and that in my opinion it is fully adequate as a dissertation for the degree of Doctor of Philosophy.

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LIST OF ABBREVIATIONS

α	Cronbach's alpha coefficient
CDC	Centers for Disease Control and Prevention
CINHAL	Cumulative Index to Nursing and Allied Health Literature
CPSS-CHB	Cooper Parental Self-Efficacy Scale—Child Health Behavior
ERIC	Education Resource Information Center
GSES	General Self-Efficacy Scale
HaPI	Health and Psychosocial Instruments
JSTOR	Journal Storage
KMO	Kaiser-Meyer-Olkin
IRB	Institutional Review Board
MEDLINE	Medical Literature Analysis and Retrieval
NCHS	National Center for Health Statistics
PCA	Principle Components Analysis
PUB MED	Public MEDLINE
r	Pearson Product Moment correlation
RSES	Rosenberg Self-Esteem Scale
SD	Standard deviation
SEPTI	Self-Efficacy for Parenting Tasks Index
SON	School of Nursing
UMMC	University of Mississippi Medical Center

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I. INTRODUCTION

A reported decline in child and adolescent health has been widely recognized (CDC, 2001, 2006; Halfon et al., 2002; National Center for Health Statistics [NCHS], 2009). This decline in child and adolescent health has caused researchers to look for areas where parents can exert influence on health behaviors in order to reverse this pattern. The role that parental influence has on a child's upbringing is undeniable. Children's behaviors, both positive and negative, are shaped by parents' behaviors and personalities, as well as, parents' words and preferences. Parents influence their children's health behaviors in both positive and negative ways (Treuth, Butte, Puyau, & Adolph, 2000; Trost et al., 2003). Often, this influence occurs although parents are not cognizant of the influence. Golan, Fainaru, and Weizman (1998) described parents' ability to influence child health behavior as depending a great deal on information accessible to the healthcare consumer (including parents) and healthcare provider; personal choices; environmental, economic and social conditions as well as access to health care. Assessment and subsequent intervention for self-efficacy of parental influence on child health behavior is one method through which maintenance and improvement of child health can be addressed.

Purpose

Though numerous self-efficacy scales existed that measure general parenting, exercise ability, academic achievement, and many areas of self-care, no scale to measure self-efficacy of parental ability to influence child health behavior previously existed. Self-efficacy of parental ability to influence child health behavior in childhood and adolescents had not been explored (Davis & Cooper, 2008). Without the ability to measure this concept, it is difficult to assess whether or not parents can assist children in making positive changes concerning health behavior. If parents are not able to help their children improve their health behavior, it is likely that child and adolescent health will continue to decline. Much research has been conducted on parental self-efficacy, maternal feeding practices, and other aspects of the overall concept (Brown & Ogden, 2004; Choi, Fuqua, & Griffin, 2001; Golan, Fainaru, & Weizman, 1998;). However, there was a lack of research exploring the potential measurement of self-efficacy of parental ability to influence child health behavior.

Since parents have great potential to influence their children's health behaviors, this potential should be able to be measured quantifiably and since no scale existed, the Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB) was developed. While preliminary psychometric testing had been conducted (Cooper & Davis, in press), further study was required to establish validity and reliability before the scale could be considered for use in clinical situations.

Conceptual Framework

Several theories and concepts provided a framework for the study. These included self-efficacy theory, the concept of parental influence, classical measurement theory, and psychometric theory. Self-efficacy theory was the most important framework for the study because the scale that was posited measures parental self-efficacy to influence child health behavior. In addition, any instrument development study should be grounded in classical measurement theory and psychometric theory.

Self-Efficacy Theory

The primary theoretical context for this study was Bandura's (1977) theory of self-efficacy. Self-efficacy emerged from Bandura's work on social cognitive theory and he defined it as one's judgment of her or his own capability to organize and execute courses of action needed to attain designated types of performance. According to Bandura, self-efficacy affects how people feel, think, and act. He asserted that four principle sources of information make up one's self-efficacy beliefs:

> enactive mastery experiences that serve as indicators of capability, vicarious experiences that alter efficacy beliefs through transmission of competencies and comparison with the attainments of others, verbal persuasion and allied types of social influences that one possesses certain capabilities, and physiological and affective states from which people partly judge their capabilities, strength, and vulnerability to dysfunction (Bandura, 1977, p. 79).

Of the four sources of efficacy information, enactive mastery experiences are the most influential and have the most immediate effect on self-efficacy. Bandura (1977) claimed that enactive mastery successes enhance self-efficacy, while failures undermine self-efficacy.

Bandura (1997) noted the influence of verbal persuasion and physiological and affective states, and stated that verbal persuasions are "most believable when they are only moderately beyond what individuals can do at the time" (p. 105). He also posited that efficacy beliefs could be altered by enhancing one's physical status, decreasing stress levels and negative emotional tendencies, and by correcting misinterpretations of bodily states.

Lenz and Shortridge-Baggett (2002) stated that one's self-efficacy influenced the likelihood of behavior change. Other factors that influenced behavior change may include knowledge, skills, beliefs, attitudes, and social support (Lenz & Shortridge-Baggett). Bandura (1997) stated that perceived self-efficacy may be linked with judgments about what skills an individual possess and what one can do with those skills. Further, self-efficacy was not a personality trait, but a temporary and easy to influence characteristic that is strictly situation- and task-related (Lenz & Shortridge-Baggett). Self-efficacy beliefs were the product of a complex process of self-persuasion that was based on cognitive processing of diverse sources of efficacy information, which was conveyed inactively, vicariously, socially, and physiologically (Bandura, 1986). Once formed, efficacy beliefs contribute significantly to the level and quality of human functioning.

Social cognitive theory was often described in relationship to a model of emergent interactive agency (Bandura, 1986). Successes and failures in previous experience were determinants that interact with an individual's environment and determine present and future behavior. A number of factors, including personal, social, and situational factors, affect cognitive interpretation of direct and socially mediated experiences (Bandura, 1997). Simply stated, people are the products of their environmental influences.

Self-efficacy theory was predictive of the likelihood that an individual would be more successful performing a task if she or he holds a positive perception of her or his ability to perform the task (Choi, Fuqua, & Griffin, 2001). Any information useful for judging personal capabilities, no matter how it was attained, became instructive only in the context of cognitive processing of efficacy information and reflective thought (Bandura, 1997). Additionally, individuals were able to assess their own competencies through reflective self-awareness (Pender, Murdaugh, & Parsons, 2002). Thus,

individuals sought to create living conditions that expressed their unique human potential, including their potential for health.

Self-efficacy theory was a broad umbrella under which specific concepts were added to develop psychometric scales. Little was known about the extent to which parental self-efficacy to influence child health behavior affected overall child health and wellbeing (Strauss & Knight, 1999). The case for parental influence is discussed next.

Parental influence. Parents and adult caregivers were noted to exert a strong influence on young children's eating habits and activities (Caprara, Regalia, Scabini, Barbaranelli, & Bandura, 2004; Golan, Fainaru, & Weizman, 1998). Parental influence on health behaviors incorporated healthy daily home functioning that included: (a) provision of nutritious diet, e.g., adequate low fat proteins, fruits, vegetables, dairy products with minimal offerings of non-nutritive foods, such as high-fat, high-sugar snacks; (b) opportunities to exercise and participate in adequate physical activity; (c) parental encouragement and role modeling for exercise and physical activity; (d) parental influence on leisure time activities of the child; (e) outside support or others' influence on the parent; and (f) parent and child ability to deal with stressors (Bandura, 2005; Cartland & Ruch-Ross, 2006; Healthy People 2010).

Parents' ability to influence children's physical activity, food choices, and health and wellbeing depended to some extent on information available to them. This ability was also dependent on personal choices, as well as environmental, economic, and social conditions (Golan, Fainaru, & Weizman, 1998; Robinson, Kiernan, Matheson, & Farish Haydel, 2001; Speakman, 2004; Trost et al., 2003; Wardle, Guthrie, Sanderson, Birch, & Plomin, 2001).

Observational learning influences children's attitudes and behaviors (Bandura, 2005). For example, children may model parents' food intake, attitudes toward food, and body dissatisfaction (Brown & Ogden, 2004), with the result that dietary habits acquired in childhood persist through adulthood and affect health later in life (Forrest & Riley, 2004; Pratt, 1973; Robinson & Thomas, 2004).

Self-efficacy and parental influence. Individuals who do not believe they can succeed are unlikely to attempt to reach their goals. When people attempt to change a behavior, they often give up easily if they do not achieve results quickly or if they face

setbacks despite knowledge about the health hazards of their behaviors (Bandura, 1997). Thus, when a parent lacks the self-efficacy to influence a child's health behaviors, efforts to improve the child's health behavior are likely to be unsuccessful (Coleman & Karraker, 2000; Cutrona & Troutman, 1986; Jackson & Scheines, 2005; Raver & Leadbetter, 1999; Teti & Gelfaud, 1991). On the other hand, parents' beliefs that they can motivate themselves and regulate their own behavior may play an important role in their effectiveness in helping their children change their own behaviors (Bandura).

The above reasoning was supported by research showing an association between high parenting self-efficacy and parental satisfaction, parenting self-agency, parenting sense of competence-efficacy, and self-efficacy for parenting tasks (Coleman & Karraker, 2000). Additionally, these researchers found that low parenting self-efficacy correlated with negative child temperament (emotionality). Ben-Zur (2003) found positive associations between subjective wellbeing and optimism in a study of Jewish adolescents. According to Ben-Zur, adolescents who report warm relationships and open communication with parents exhibit higher levels of internal resources and wellbeing. Both internal resources and wellbeing translated into improved self-efficacy for the child. The lack of information on child health behaviors as they model the actions of their parents supported the need for a scale to measure self-efficacy of parental ability to influence child health behavior.

According to social cognitive theory, there are three processes of personal change: a person can adopt new behavior patterns, generalize new behavior patterns under various circumstances, and maintain those patterns over time. Self-efficacy affects each stage of the personal change process, from considering making a change to overcoming obstacles and maintaining achieved changes (Bandura, 1997). Antecedents of parental self-efficacy are identified as enactive mastery experiences, vicarious experiences, verbal persuasion, and an appropriate physiological and affective state (de Montigny & Lacharité, 2005). De Montigny and Lacharité noted that enactive mastery experiences are a person's strongest sources of information regarding their capabilities and limits. Along with the three other antecedents, successes contributed to building firm beliefs in one's personal efficacy while failures drain it, "especially if these experiences occurred before a strong sense of efficacy has been established" (Bandura, 1977, p. 80). Though

theoretically grounded in Self-Efficacy Theory, as with any instrument development study, Classical Measurement Theory must also be discussed.

Classical Measurement Theory

Instrument development studies are based in psychometric theory. However, before one can begin to understand psychometric theory, one must first understand the basis of classical measurement theory, also known as true score theory. In its simplest form, classical measurement theory is the assignment of numbers to items in an attempt to measure attitudes or attributes of a concept (Guilford, 1954).

The goal of any measurement is accuracy and reduction of error (Black, 1999; Burns & Grove, 2005; Crocker & Algina, 1986; Nunnally, 1978; Polit & Beck, 2008; Waltz et al., 2005). Polit and Beck stated that an instrument that is not perfectly accurate yields measurement results containing some error. Measurement error is indicative of the precision of an instrument (Litwin, 1995). To some extent, measurement error exists in all measurement procedures (Waltz et al.). Since no instrument is perfect, some error should be expected in the measurement process. When using classical measurement theory, the researcher is concerned with both random and systematic error (Crocker & Algina; Nunnally; Waltz et al.).

Classical measurement theory was the first modern measurement theory and is the most widely used (Crocker & Algina, 1986). Classical measurement theory uses variance of observed score, which equals the sum of the variance of the true score and the variance of both random and systematic error (Crocker & Algina; Waltz et al., 2005). The basic premise of classical measurement theory is that random error must be considered in any type of measurement.

Random errors are the result of factors that appear due to chance; these errors confound the measurement of a phenomenon. Random error is the central threat to the reliability of the measurement (Waltz et al., 2005). Random errors of measurement are those that may affect an individual's scores either positively or negatively due purely to chance happenings, guessing, distractions, administration errors, content sampling, scoring errors, and the individual examinee's state (Crocker & Algina, 1986).

The reliability state of a scale provides quantitative data regarding an instrument's performance in a specific population. Regardless of whether a scale is established or

new, it is important to test the scale for reliability prior to using it to collect data from which to draw inferences. To demonstrate this reliability, random and systematic errors are considered (Crocker & Algina, 1986). Reliability can be estimated by several methods, but the most common methods for estimating reliability coefficients are test/retest, and internal consistency (Allen & Yen, 1979). New scales must be tested to provide data that establishes how well the items fit together. For scales already established, internal consistency reliability and, if possible, test-retest reliability (stability over time) should be documented in the specific population where the scale is used (Litwin, 1995). Reliability (internal consistency) is the correlation between observed score and true score or a reflection of the amount of both random and systematic error present in any measurement (Allen & Yen; Streiner & Norman, 2003). Crocker and Algina described reliability as "desired consistency (or reproducibility) of test scores" (p. 105). Though all psychological measurements are unreliable to some extent, the test developer bears the responsibility to demonstrate that test scores are reliable (Crocker & Algina).

Systematic measurement errors do not result in inconsistent measurements. The characteristic has nothing to do with the construct being measured; however, the error may cause test scores to be inaccurate (Crocker & Algina, 1986). Systematic measurement errors consistently affect an individual's score due to some particular characteristic of the person or the test (Cocker & Algina; Waltz et al., 2005).

The reported validity measure reflects a scale's accurate representation of a concept (Hair, Black, Babin, & Anderson, 2010). The types of validity include face, content, criterion-related, and construct. Face validity and content validity are assessments of how well a set of items operationalize a specific concept or domain (Hair et al.). Concurrent validity is assessed when a sample of respondents completes two measures simultaneously and the measures are then examined for how closely the measures are correlated (Spector, 1992).

Construct validity is the degree to which a test or scale measures the construct or trait that it was intended to measure (Allen & Yen, 1979; Crocker & Algina, 1986; Cronbach & Meehl, 1955; DeVellis, 2003; Streiner & Norman, 2003). Several steps are generally used in assembling evidence of construct validity (Crocker & Algina; DeVellis;

Streiner & Norman). Streiner and Norman stated that the ongoing process of construct validation includes learning more about the construct, making new predictions, and then testing those predictions. These opinions supported the notion that though some conclusions can be drawn about the scale to measure self-efficacy of parental ability to influence child health behavior and the individual items, the construct and the scale are in their infancy. As with most scales, repeated use will strengthen the validity of the instrument.

Two measures of construct validity are convergent and discriminant validity. Convergent validity is exhibited when items that indicate a specific construct have a high proportion of variance in common. Discriminant validity is exhibited when a construct is distinguishable from other constructs. A construct that is unique and captures a phenomena and is not measured by other scales or instruments is said to have high discriminant validity. Pearson's Product Moment correlations can be used to assess convergent and discriminant validity (Spector, 1992).

Factor analysis is another accepted process for establishing construct validity (Polit & Beck, 2008). Factor analysis is an empirical method to determine the number of constructs or factors that are present in a set of items (DeVellis, 2003). Exploratory Factor Analysis (EFA) is used to establish the number of factors represented in the items. This method is useful in deciding the homogeneity of an item set and helps determine item correlations (Allen & Yen, 1979). Factor loading patterns help determine construct validity (Streiner & Norman, 2003).

Factor analysis to identify latent factors that accounted for variation in the original set of items (Crocker & Algina, 1986) was used in this study to establish early evidence of construct validity. The validity of a new scale must be documented. The validity of established scales must also be documented if the scale is used in a new population (Litwin, 1995). Therefore, validity is a foundational aspect of psychometric theory.

Psychometric Theory

Psychometric theory evolved from classical measurement theory (DeVellis, 2003). The three basic concepts: homogeneity, internal consistency, and stability over time must be examined during instrument development (Nunnally, 1978). These three

elements deal with the reliability of the instrument, however, do not speak to the validity of any given instrument.

Homogeneity can refer to the extent to which inter-unit correlations are similar. For a scale to be considered homogeneous, a general factor must account for the relation among the items. Though a scale is internally consistent, this is not always indicative of homogeneity (Pedhazur & Schmelkin, 1991). In addition, Pedhazur and Schmelkin stated that alpha coefficient measure should not be taken as the indicator of the homogeneity of a scale.

Although generally used to indicate reliability, alpha coefficients can reflect the homogeneity of the items. Internal or inter-item consistency refers to the size of the mean inter-unit correlation (Nunnally, 1978). The one generally identified with alpha coefficient corresponds to full-scale or what may be called effective reliability (Rosenthal, 1973). This effective reliability comes from two sources: the average inter-unit correlation or intrinsic reliability, and the number of units or the test length. Here the two definitions of consistency are mutually incompatible; therefore, alpha coefficient cannot be defined as a measure of internal consistency using Cronbach's definition (Nunnally).

Stability can denote one of two different things: either transient error, where all units may be influenced in the same direction by the psychological and physiological conditions existing at the time of testing, or purely by chance factors that might subsequently arise; or random error, which provides the basis for assessing reliability (Nunnally, 1978). Stability over time is generally measured using test-retest reliability. When using a new tool in a population or sample that it has not previously been tested with, the reliability must be established in that specific population prior to use.

CPSS-CHB Development and Testing

In developing a scale measuring self-efficacy, a specific task or concept should be chosen, e.g., self-efficacy of exercise ability, perceived social self-efficacy, or parenting self-efficacy (Bandura, 1997). For developing this scale, parental self-efficacy was one component of the concept studied. The ability of the parent to influence child health behavior was the other component. The CPSS-CHB contained items that were written using the four components of self-efficacy. These components included mastery

experiences, social modeling, social persuasion, and physical and emotional states as they related specifically to parental influence on child health behaviors (Bandura, 1997, 2004). Since no other scale existed to measure self-efficacy of parental ability to influence child health behavior, psychometric testing of the CPSS-CHB was necessary to establish the validity and reliability as defined in classical measurement theory and the homogeneity, consistency, and stability as defined in psychometric theory.

Aims of Study

The goal of this study was to examine the psychometric properties of the CPSS-CHB. The specific aims of this study were to:

1. ensure that the CPSS-CHB scale was readable and easy to understand,
2. determine the reliability of the CPSS-CHB scale,
3. initiate the establishment of validity of the CPSS-CHB scale

Assumptions

The assumptions for the study derived from classical measurement theory and psychometric theory:

1. Random variance can be noted in the amount of error associated with individual items. When large samples are considered, individual item error has a mean of zero when considering a large sample. Error may not have as much of an effect on the outcome when a large number of participants complete the items (DeVellis, 2003).
2. "One item's error term is *not* correlated with another item's error term; the only routes linking items pass through the latent variable, never through any error term" (DeVellis, 2003, p. 20).
3. Error terms are not correlated with latent variable's true score. The paths from the latent variable do not radiate outward to the error terms; the arrow between an item and its error term aims the opposite way (DeVellis, 2003).
4. When parallel tests or items are evaluated, (a) the latent variable is assumed to have the same amount of influence on all items as it has for each individual item, and (b) the same amount of error is assumed for one item as for any other item and the influence of factors besides the latent variable is assumed to be equal for all items (DeVellis, 2003).

5. Classical test theory approximates the measurement situation, but scales may contain bias. "Validation is essential in demonstrating that scales measure what was intended rather than bias" (Spector, 1992, p. 12).

Factor analysis testing assumptions include that a structure does exist before the factor analysis is performed, sufficient correlations must exist among the variables (items) to proceed, and measures of sampling adequacy values must exceed .50 for the over all test and each individual variable. Those variables with values less than .50 should be omitted from the factor analysis one at a time beginning with the smallest (Hair et al., 2010).

Significance of Study

Developmentally, childhood is a time when environmental factors exert powerful influences on children's behavior (Pender, Murdaugh, & Parsons, 2002). Children look to their parents as role models and match the parents' behaviors. Parents seek different outside sources of role modeling and, in turn, match these behaviors (Bandura, 1997). Vicarious experiences, though not considered the most influential of the four principle sources of efficacy information, are important in describing role-modeling behavior. Since health behaviors have strong links to familial patterns and behavioral relationships, the importance of examining the parental and caregiver role in creating and nurturing good child health behavior is an area in need of study (McCarthy, Burg, Smith, & Burns, 2002; Moreno et al., 2004).

This study is a contribution to both self-efficacy research and health research by conducting further psychometric development of a scale to measure parental self-efficacy to influence child health behavior. While numerous self-efficacy measurements are available to measure cognitive development and function, parenting, substance abuse, and children's aspirations and career trajectories, no scale existed prior to this study to specifically measure parental self-efficacy to influence child health behavior.

Assessment of parental self-efficacy to influence child health behavior is one way to help parents and children achieve adequate health and wellbeing. Through this study, a scale for measuring perceptions of parental capability and belief about influence on child health was provided. The development of this new scale is an attempt to provide a way for health providers and educators, including nurses, nurse practitioners, physicians,

and dietitians, to assess parental self-efficacy to influence child health behavior. Further refinement and psychometric testing of the CPSS-CHB is essential so that a measure of this key concept is available to enable health care providers and educators to assist parents in making needed changes that will improve children's health.

II. REVIEW OF LITERATURE

The overall goal of this study was to determine the psychometric properties of a newly developed Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB). In chapter one the background and significance of this study, including the need for a scale to measure parental self-efficacy to influence child health behavior, was provided. The applicable literature is presented in the following chapter. Chapter is divided into two sections. First, existing self-efficacy scales are detailed, and then the two existing task-specific parenting self-efficacy scales are detailed.

Literature Search Strategy

Electronic databases for the years 1965-2010 were searched for information using the Cumulative Index to Nursing and Allied Health Literature (CINAHL), EBSCO host, Education Resource Information Center (ERIC), Google Scholar, Health and Psychosocial Instruments (HaPI), JSTOR Arts and Sciences II Collection, Medical Literature Analysis and Retrieval System Online (MEDLINE), OVID, ProQuest Medical Library, and Public MEDLINE (PubMed). Key words searched were child health behavior, child nutrition, child obesity, family influence, family nutrition, health behavior, health behavior change, instrument development, parental influence, parental self-efficacy, psychometrics, self-efficacy, and self-efficacy of parents. References of articles retrieved were searched manually to identify other articles that were not identified in electronic searches. The initial search yielded over 2,500 articles. Abstracts of the articles were reviewed to identify those relevant to this study. Approximately 200 articles were identified as applicable and were read in full. Twelve studies were self-efficacy instrument development studies, of which two were reviewed owing to their pertinence to measuring the concept of parental self-efficacy. Throughout 2009 and 2010, attempts were made to update and augment the literature relevant to the study without success as no new articles specific to the concept of the CPSS-CHB were found.

Self-Efficacy Scales

Many self-efficacy scales have been developed over the past 25 years. Two general self-efficacy scales exist (Schwarzer, & Jerusalem, 1995; Sherer et al., 1982). A self-efficacy scale related to breast feeding exist (Dennis, & Faux, 1999). Five disease management self-efficacy scales have been developed related to sleep apnea,

osteoporosis, chronic illness (Diloria, Faherty, & Manteuffel, 1992; Horan et al., 1999; and Shin, Jang, & Pender, 2001) and diabetes (Kappen, van der Bijl, & Vaccaro-Olko, 2002; Moens, Grypdonck, & van der Bijl, 2002). One scale exists for the self-efficacy of abused women (May, & Limandri, 2004). The scales cited above are described in detail below in Table 1, where they are presented in chronological order. The general self-efficacy scales were developed prior to the development of task specific self-efficacy scales. Although the self-efficacy scales mentioned previously were the most applicable to the current research, none was specific to the concept of parental self-efficacy to influence child health behavior.

Table 1. *Self-Efficacy Instruments*

Author/Year, Title, Journal	Description of Instrument	Psychometric Information
Sherer, Maddox, Mercandante, Prentice-Dunn, Jacobs & Rogers (1982). The self-efficacy scale: Construction and validation. *Psychological Reports, 51*, 663-671.	To assess general expectations of self-efficacy-not tied to specific situations or behaviors. 24-items, 7 filler items not scored 13-items are negatively worded and are reverse scored. 5-point Likert scale Scores are summed.	No test-retest data. Chronbach's alpha ranges .83 to .86 for general subscale, .71 for social subscale. Well-documented criterion related validity stated by developers. Positive correlates with several measures such as Ego Strength Scale, the Interpersonal Competency Scale, and the Rosenberg Self-esteem Scale. Predictive validity established with higher self-efficacy scores predictive of higher scores on past vocational, educational and monetary goals.
Diloria, C., Faherty, B., Manteuffel, B. (1992). The development and testing of an instrument to measure self-efficacy in individuals with epilepsy. *Journal of Neuroscience Nursing, 24,* 9-13.	To assess self-efficacy related to medication, seizure management and general management. 34-items on original version 11-point Likert scale Scores are summed Higher scores reflect higher levels of self-efficacy.	No test-retest data. Cronbach's alpha ranges .81 to .93 Positively correlates with social support (r = .48, p <.001) and self-management (r = .50, p < .001)
Dennis, C. & Faux, S. (1999). Development and psychometric testing of the Breastfeeding Self-Efficacy Scale. *Research in Nursing & Health, 22*, 399-409.	To assess self-efficacy related to breastfeeding. 40-item scale 4-point Likert scale	No test-retest data Cronbach's alpha not available Positively correlates with infant feeding patterns at 6 weeks post partum Principal components factor analysis with

Author/Year, Title, Journal	Description of Instrument	Psychometric Information
		Varimax rotation N=130 hospital breastfeeding mothers
Horan, M., Kim, K., Gendler, P., Froman, R., & Patel, M. (1999). Development and evaluation of the Osteoporosis Self-Efficacy Scale. *Research in Nursing & Health, 21*, 395-403.	To assess self-efficacy of living with osteoporosis. 21 item scale 10 cm visual analog scale	No test-retest data Cronbach's alphas in .90s. Factor analysis of responses to the self-efficacy items revealed two-factor structure (physical activity and calcium intake). Convergent and discriminant validity and hierarchical regression analyses supportive for positive physical activity and calcium intake Concurrent data on sport, leisure, and exercise activity and calcium in diet and dietary supplements were collected. N=201 women ages 35 to 95
Shin, Jang & Pender (2001). Psychometric evaluation of the exercise self-efficacy scale among Korean adults with chronic diseases. *Research in Nursing & Health, 24,* 68-76.	To assess exercise self-efficacy in Korean adults who suffer from chronic illness. 18-items 100-point scale 10-unit intervals from 0 (*cannot do*) through 50 (*moderately certain can* do) to 100 (*certain can do* [Bandura, 1997])	Test-retest reliability was r = .77. Test-retest at 2-week interval. Chronbach's alpha ranges .57 to .72 for item totals, and total scale alpha of .94. Principal components factor analysis generated a single factor accounting for 77.5% of variance. Varimax rotation yielded the loadings of all items ranging from .52 to .82. N = 249 Korean adults with chronic diseases ages 18 to 79

Author/Year, Title, Journal	Description of Instrument	Psychometric Information
Kappen, M. J., van der Bijl, J. J., & Vaccaro-Olko, M. J. (2002). Self-efficacy in children with diabetes mellitus: testing of a measurement instrument. In E. R. Lenz & L. M. Shortridge-Baggett (Eds.) *Self-Efficacy in Nursing: Research and Measurement Perspectives.*	To measure diabetes self-efficacy in children. 30-items Two scales formulated: one using faces and the other using thumbs up in various sizes from small to large	No test-retest data Cronbach's alpha for instrument was .71 Mean inter-item correlation was .11. Criterion-related validity correlated self-efficacy total score with HbA1c measure on day of study and no significant relationships were found, so criterion validity not supported. N =30 for testing of instrument (11 boys and 9 girls)
Moens, A., Grypdonck, M. H. F., & van der Bijl, J. J. (2002). The development and psychometric testing of an instrument to measure diabetes management self-efficacy in adolescents with type-1 diabetes. In E. R. Lenz & L. M. Shortridge-Baggett (Eds.) *Self-Efficacy in Nursing: Research and Measurement Perspectives.*	To measure diabetes self-management self-efficacy. 30-items 5-point Likert scale	No test-retest data. Cronbach's alpha was .86; Inter-item correlations mean was .34 (within the .15-.50 range). Principal axis factor analysis without rotation resulted in six factors. Eigenvalues were greater than one, 71% of the variances accounted for in scores, referred to the different domains of diabetes management behaviors. Two-factor solution was chosen because it appeared to have the best possibilities for interpretation. N = 130 adolescents with diabetes.
Weaver, T., Maislin, G., Dinges, D., Younger, J., Cantor, C., McCloskey, S., & Pack, A. (2003).	To measure self-efficacy as it relates to sleep apnea. 26-item scale Mean-weighted score of the	Test-retest reliability coefficients (N = 20) were estimated to be .68, p = .001, for Perceived Risk;

Author/Year, Title, Journal	Description of Instrument	Psychometric Information
Self-efficacy in sleep apnea: Instrument development and patient perceptions of obstructive sleep apnea risk, treatment benefit, and volition to use continuous positive airway pressure. *Sleep, 26*, 727-732.	non-missing item responses calculated for each of the three subscales: Perceived Risk, Outcome Expectancies, and Treatment Self-Efficacy to prevent distortion of the score from missing responses.	.77, p < .0001, for Outcome Expectancies; and .71, p = .0005, for the Treatment Self-Efficacy subscale. Cronbach's alpha of .92. Confirmatory factor analysis validated the three *a priori* sub-scales: risk perception, outcome expectancies, and treatment self-efficacy. N = 213 patients with newly diagnosed obstructive sleep apnea prior to the initiation of continuous positive airway pressure (CPAP) treatment.
May, B. A., & Limandri, B. J. (2004). Instrument development of the self-efficacy scale of abused women *Research in Nursing & Health, 27*, 208-214.	To measure self-efficacy of abused women. Originally a 27- item visual analog scale (VAS) later streamlined into 19-items.	Test-Retest for times 1 and 2 was r=.85, p<.01, indicating good stability. Cronbach's alphas were .95 and .96. Bivariate correlation between SESAW and Self-Efficacy-General/Global Sub Scale was r=.64, p<.01 at time 1 and r=.78, p<.01 at time two, providing evidence for construct validity. Correlation of the SESAW with the Self-Efficacy-General Global Sub Scale was strong but indicated that measures were not interchangeable. N = 50 abused women

Parenting Self-Efficacy Scales

Though task-specific self-efficacy scales are numerous and wide-ranging, parenting self-efficacy is a more specific concept that is related to the concept of self-efficacy of parental ability to influence child health behavior. Parental self-efficacy is different from self-efficacy of parental ability to influence child health behavior. Only two specific parenting self-efficacy scales that measure parental self-efficacy to influence children's health behavior (parenting-specific tasks) exist (Coleman & Karraker, 2000; Kendall & Bloomfeld, 2005) (see Table 2).

Coleman and Karraker (2000) developed the Self-Efficacy for Parenting Tasks Index (SEPTI). According to the researchers, the parenting self-efficacy concepts "include parents' knowledge of developmentally appropriate parenting skills and one's confidence in one's ability to perform the tasks" (p. 16). The SEPTI has been modified and used for data collection in two doctoral dissertations and one master's thesis, and Coleman and Karraker have continued to test and refine the instrument as well. Originally developed as part of Coleman's doctoral dissertation, the 2000 journal article has been cited over 100 times in other articles.

Kendall and Bloomfield (2005) developed a scale to measure parenting self-efficacy using a focus group method. Though the study's small sample size was a weakness, the reliability coefficients were high (see Table 2). Bloomfield and Kendall (2010) have continued to test and refine the scale. No evidence of use by others was found in numerous library and internet searches; however, several researchers have cited the 2005 journal article.

Table 2. *Parental Self-Efficacy Instruments.*

Author/Year, Title, Journal	Description of Instrument	Psychometric Information
Coleman, P. K. & Karraker, K. H. (2000). Parenting self-efficacy among mothers of school-age children: Conceptualization, measurement, and correlates. *Family Relations, 49*, 13-24.	To measure parenting self-efficacy with parents of elementary school age children. 36-items Likert scale Included five subscales measuring achievement, recreation, discipline, nurturance, and health.	No test-retest data Cronbach's alpha of .91 for the full scale ranging from .73 (health) to .86 (discipline).
Kendall, S. & Bloomfield, L. (2005). Developing and validating a tool to measure parenting self-efficacy. *Journal of Advanced Nursing, 51*, 174-181.	To measure overall parenting self-efficacy 82-items Likert scale	19 questionnaires were completed 4-6 weeks apart for test-retest stability over time. Cronbach's alphas for subscales ranged from .81 to .95. Spearman correlation coefficients for each scale: (N=19, $p<.01$) affection and emotion $r=.75$, play and enjoyment $r=.67$, empathy and understanding $r=.58$, routine and achieving goals $r=.74$, self-control $r=.81$, discipline and boundary setting $r=.60$, pressures and expectations $r=.76$, self-acceptance $r=.88$, knowledge and learning $r=.79$. N = 63 used to measure internal consistency reliability coefficients.

An exhaustive search of the literature revealed a lack of instruments to measure parental self-efficacy to influence child health behavior specifically. The lack of work focused specifically on the development a well-designed scale to measure this concept led to the development of the Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB) intended to measure the degree to which the parents perceive they are able to assist their children in changing health behaviors including increased physical activity levels and eating healthier foods.

III. MATERIALS AND METHODS

Research Design

In previous chapters, the research focus and review of literature regarding parents' potential to influence their children's health behaviors and the need to measure this concept was presented. Since no other scale to specifically measure the concept self-efficacy of parental ability to influence child health behavior existed, the Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB) was developed by the investigator. The original 36-item Likert-type scale contained items that were written using Bandura's (1997, 2004) four components of self-efficacy: mastery experiences, social modeling, social persuasion, and physical and emotional states as they relate specifically to parental influence on child health behaviors. Initial work on the scale consisted of content validation using a panel of seven content experts who reviewed the items and rated them using a four-point rating scale (1 = not relevant at all; 2 = unable to assess, might not be relevant; 3 = relevant but needs revision; 4 = very relevant and succinct) (Grant & Davis, 1997; Lynn, 1986; Waltz et al., 2005). These responses were used to establish the content validity of the items and to exclude items deemed insufficiently relevant (Cooper & Davis, in press).

Five domains were originally hypothesized for the scale after initial items were written and examined, prior to the content validation study. The hypothesized domains were: (a) parental self-efficacy, (b) ability to set boundaries or establish structure in the home, (c) support from outside the home, (d) parent and child stressors, and (e) parental support system. Though originally derived from the literature some items hypothesized in each domain remained after the content validation study. After content validation, the resulting 28-item scale required further psychometric study before use in clinical situations. The aims of this study were to 1.) ensure the CPSS-CHB was readable and easy to understand, 2.) determine the reliability, and 3.) initially establish validity of the scale.

In the present chapter, details are presented regarding the research methods used to address aim 1, then, details are presented about the field study methodology to address aims 2 and 3. Recruitment, instrumentation, human subject protection, data collection

procedures, data management procedures, and data analysis plan is discussed first for aim 1 and then for aims 2 and 3.

Aim 1: To Ensure that the Scale was Readable and Easily Understandable

To ensure that the scale was readable and easily understandable, a feasibility study was conducted with a sample of parents or caregivers (step-parents, foster parents, grandparents, etc.) of children ages 3 to 16 years of age. Recruitment took place after permission to conduct the study was sought and received from the Institution Review Board (IRB) of the University of Mississippi (see Appendix A). Potential participants were sent an information letter inviting participation (see Appendix B) through the investigator's personal Facebook social network contacts inbox messaging and the investigator's personal email contacts. Though most participants selected in this study were acquaintances of the researcher, few participants could be considered friends. Using SurveyMonkey.com, participants were directed to a link that opened an Internet-based survey (see Appendix C). Participants were asked to complete the 28-item CPSS-CHB and provide basic demographic information. Areas for participant comments followed each item. The survey closed at 20 participants, although 50 contacts were made; these 20 surveys were completed within 24 hours of being opened.

SurveyMonkey.com, the company that hosted the electronic survey, aggregated the data into a Microsoft Excel™ spreadsheet and returned it to the investigator via a secure download. Once received from SurveyMonkey, the collected data were stored in a password-protected file on the investigator's computer. Data were analyzed for comments related to readability, understandability, and ease of use. Participants were asked to comment on the readability, understandability, and ease of use of the CPSS-CHB. However, when comments were read, none addressed readability, understandability, or ease of use.

Aims 2 and 3: Determine the Reliability and Establish Validity of the Scale

The examination of reliability and validity were undertaken simultaneously via a larger field study. This was conducted in a similar manner to the feasibility study.

Recruitment. Recruitment took place after permission to conduct the study was obtained from the Institutional Review Board (IRB) of the University of Mississippi Medical Center (see Appendix A). Participants were parents and caregivers of children

ages 3 to 16 years. Participants were the first 300 individuals who responded from the recruited pool of approximately 800 e-mail messages, Facebook messages, Twitter postings, and additional posts to applicable parent-focused discussion board and chat room (ExpressiveParents.com) messages. The information letter (see Appendix D) described the research and provided directions for completion of the online survey. Information letters were written in easily understandable terms and described the nature of the study, time commitments, rewards, and risks of participation. Participants were informed that their participation was voluntary and would require approximately 15 minutes of their time. No rewards or compensation were offered or given. There were no known risks beyond those of normal life. No deception was used. In addition, permission to post an advertisement for the study on the ChitChat discussion board of the expressiveparents.com website was obtained from the web site administrator (see Appendix E) and included in the IRB application.

Instrumentation. The message and survey link were used to request that those in receipt of the message and survey forward link to contacts they knew who had children between 3 and 16 years of age. The instrument packet contained the Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB), General Self-Efficacy Scale (GSES) (Schwarzer & Jerusalem, 1995), the Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965) and demographic items (see Appendix C). The GSES was used to examine concurrent and convergent validity. The RSES was used to examine discriminant validity. Each instrument is described subsequently.

Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB). The version of the CPSS-CHB tested was the 28-item scale examined for readability and understandability. Participants rated their level of agreement with statements such as "I can affect my child's food and physical activity choices when he or she is out of school for the summer" (Item 28) on a 5-point Likert scale in which 1 = *strongly disagree* and 5 = *strongly agree*. All items were worded positively. Scores for the 28 items were summed to yield the final total score, which could range from 28 to 196. Higher scores indicated higher levels of self-efficacy to affect child health behavior.

General Self-Efficacy Scale (GSES). The General Self-Efficacy Scale (GSES) was used to estimate the concurrent, as well as, the convergent validity of the CPSS-CHB

(Schwarzer & Jerusalem, 1995). A high, positive correlation between the GSES and the CPSS-CHB would have given evidence of concurrent as well as convergent validity. Convergent validity is an approach to construct validation in which the measure of the closeness between two instruments can be used to measure the same concept (Polit & Beck, 2008). Therefore, if a high, positive correlation was found between the two instruments, then, both are converging on the same concept.

The GSES was designed to assess perceived self-efficacy regarding coping and adaptation abilities in daily activities as well as isolated stressful events. The original GSES scale contained 20 items in a 5-point Likert-type scale (Scholz, Doña, Sud, & Schwarzer, 2002). The scale was reduced to 10 items in 1981, and later translated into 28 languages. Participants were asked to rate the applicability to themselves of positively worded statements such as "It is easy for me to stick to my aims and accomplish my goals" (Item 3) on a 4-point Likert-type scale ranging from 1 – 4, where 1 = *Not at all true*, 2 = *Hardly true*, 3 = *Moderately true*, 4 = *Exactly true*. Scores were summed to yield the total score, which could range from 10 to 40. Higher scores indicated higher levels of self-efficacy. In addition, Schwarzer (2009) recommended calculating a score for the scale as long as no more than three items on the ten-item scale were missing.

The GSES has documented criterion-related validity. Positive coefficients were found with favorable emotions, dispositional optimism, and work satisfaction. Negative coefficients were found with depression, anxiety, stress, burnout, and health complaints. In a study of East German migrants, Schwarzer (2009) reported concurrent and prognostic validity of the GSES. Most applicable to the current study was the examination of self-esteem, which was found to have correlation value of .51 in men and .59 in women in 1989, and .20 in men and .56 in women in 1991. In samples from 23 nations, the GSES typically yielded alpha coefficients between .76 and .90; most of which ranged in the high .80s (Schwarzer). The measure has been used successfully for two decades, and is suitable for a broad range of applications.

Rosenberg Self-Esteem Scale (RSES). The Rosenberg Self-Esteem Scale (RSES) was used to examine the discriminant validity of the CPSS-CHB (Rosenberg, 1965). Discriminant validity is an approach to construct validation that involves assessing the degree to which a single method of measuring two constructs yields different results

(Polit & Beck, 2008). A weak negative correlation would indicate discriminant validity, therefore, a weak negative correlation between the RSES and the CPSS-CHB was evidence that the two scales measured different constructs and supported discriminant validity.

The RSES was a 10-item Likert-type scale with items answered on a four-point scale ranging from *strongly agree* to *strongly disagree*. Participants rated their level of agreement with statements such as "I feel that I'm a person of worth, at least on an equal plane with others" (Item 1). Responses were scored as follows: *strongly agree* = 3, *agree* = 2, *disagree* = 1, *strongly disagree* = 0. Items 2, 5, 6, 8, and 9 were reverse scored. Possible scores ranged from 0-30, with 30 the highest score possible. Scores for the 10 items were summed. Higher scores indicated higher levels of self-esteem (Hagborg, 1993; Kaplan & Pokormy, 1969; McCarthy & Hoge, 1982; Rosenberg, 1989; Shahani, Dipoye, & Phillips, 1990).

The original RSES was normed using a sample of 5,024 High School Juniors and Seniors from 10 randomly selected schools in New York State (Rosenberg, 1965). The RSES has been shown it to have moderate (Silber & Tippet, 1965) to acceptable (Hagborg, 1993; Schmitt & Allik, 2005) concurrent validity and good test-retest reliability (Shahani et al., 1990). Hatcher and Hall (2009), in a study of African America single mothers, reported an alpha coefficient of .83 for the RSES, indicative of acceptable reliability.

Demographic questions. Seven questions related to demographic information were presented. Demographic questions were used to examine parents' or caregivers' age, race, gender, socioeconomic status, and marital status, as well as, the number of children in the family, and children's ages (see Appendix C).

Missing data and survey format. The electronic format for the survey data collection allowed for restrictions for forced answers so that participants could not advance to the next page of the survey until all of the questions from each section were answered. The instruments were ordered so that the CPSS-CHB was placed first, GSES was second, the RSES was placed third, and the demographic section was placed at the end of the survey. The participants were required to complete the scales in the order in which they appeared. By utilizing specific survey settings, an individual section could be

made to appear on one page. Each page could be set to require an answer to every question before participants advanced to the next page of the survey. These settings ensured that individual instruments (e.g., CPSS-CHB, GSES, RSES, and demographic questions) were submitted in their entirety. Though participants were required to complete an entire instrument before it could be submitted, all four instruments did not require completion to close the survey. Therefore, there were differing numbers of completed instruments. For example, some completed the CPSS-CHB and GSES, and closed the survey (or closed the SurveyMonkey.com website) before the RSES, and the demographic questions were submitted. There were no missing data on individual instruments, but there were some instruments missing from the completed survey packets.

Human subjects protection. Expedited review was sought and granted under expedited category 45 CFR 46.110(b) and/or 21CFR 56.110(b)(4) by the Institutional Review Board (IRB) of the University of Mississippi (see Appendix A). The IRB also granted a waiver of documentation of consent for the study.

Data collection procedures. SurveyMonkey.com was set for a cut off of 300 participants. The survey was available and administered through the World Wide Web at the Survey Monkey portal, an on-line survey web site, for seven days, at which time 300 completed surveys had been collected. There was no need for an ID and Password. The only end-user requirement was that participants needed a standard web browser and a connection to the Internet. No special software or downloads were required. The investigator worked with SurveyMonkey.com to ensure use of the proper information and tested the survey prior to submitting the link to the participants. Participants viewed an information letter (see Appendix D) explaining the purpose of the study. The information letter contained a link to the site where participants took the survey. Consent was assumed if the participant continued by completing the survey.

Data management plan. The hosting company, SurveyMonkey.com, aggregated the data into a Microsoft Excel™ spreadsheet and returned it to the investigator via a secure download. Once received from SurveyMonkey.com, the collected data were relabeled and stored in a password-protected file on the investigator's computer. Data files were further maintained per Institutional Review Board (IRB) policy.

SurveyMonkey.com web policy was that participants' personal information be kept strictly confidential, and would not be shared with anyone without the person's prior knowledge and consent. The SurveyMonkey.com website also contained the statement that it did not use, sell, rent, trade, or otherwise disseminate or disclose data. SurveyMonkey.com was used for data collection and management and was programmed to removed any participant identification (email, IP addresses, etc.). Identities of all participants were unknown to the researcher. Upon completion of the survey, the data collected were downloaded by the researcher. Information collected using SurveyMonkey.com was also stored in secure database at SurveyMonkey's hosting facilities and made available in real time to the researcher with authorized access.

Data analyses.

Ease of readability and understandability of CPSS-CHB. Comments from 20 participants were reviewed from the feasibility study. These comments were tabulated, and examined before conducting the field study.

Reliability of the CPSS-CHB. Reliability was determined by examining inter-item correlations for the CPSS-CHB. Internal consistency estimates were also calculated. The latest available version of SPSS was used to calculate alpha coefficients for the total scale and any identified sub-scales. Inter-item coefficients were examined to identify items that fell below .40. Scores were summated or averaged by combining highly loaded variables into composites. The composite scores were checked for internal consistency using alpha coefficient where each variable should be positively correlated with the scale total. The desired alpha coefficient was > .70.

Validity of the CPSS-CHB. Principal component analysis (PCA), the most common type of factor analysis, was selected to further address Aims 2 and 3. Factor analysis was used for item reduction and to summarize the interrelationships among a set of original variables where a smaller set of uncorrelated principal components are linear combinations of the original variables (Pett, Lackley, & Sullivan, 2003). In addition, factor analysis is useful for assessing the validity of empirical measures (Carmines & Zeller, 1979 and Nunnally, 1978). Though factor analysis has most often been associated with construct validity, more recent measurement experts have embraced a more comprehensive view of construct validity (Goodwin & Goodwin, 1991; Hair et al., 2010;

M. Lynn, personal communication, May 5, 2010). The CPSS-CHB was assumed to have factor structure and inter-item correlations initially. Two other key assumptions of PCA were that there was as much variance to be analyzed as the number of observed variables, and that the entire variance in an item could be explained by the extracted factors. PCA is dependent on the total variance, so it typically requires that variables be examined based on similar units of measurement, such as measuring each item on similar Likert scales, so that each item shares a standardized scale of measurement. The CPSS-CHB was measured on a Likert scale and therefore contained metric variables.

Prior to conducting Principle Components Analysis (PCA), the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was determined to be >.70, and the sample size was greater than 100 participants. Multi-collinearity was determined using Bartlett's test of sphericity. Bartlett's test of sphericity yielded a significant value when calculated. When the above requirements were met, PCA was used to determine the factor structure and item reduction. At least three to five items (variables) per factor were predicted; this was yet another requirement for PCA to be used. Using PCA, the minimum number of factors that explained the most variance was determined (Hair et al., 2010). Item deletion was considered for any items that cross-loaded on more than one factor at values of > ± .40. Items with low communalities (< .50) or those that lacked high loadings on any factor were also reviewed and considered for deletion. The model was respecified using a different number of factors or a different rotation technique if these conditions were not met. The number of factors was identified using Eigenvalues. These Eigenvalues had to be > 1.0 and the required total variance extracted > 60%. A scree test and *a priori* three factor structure of the scale was used to help confirm the number of factors. Oblique rotation was used since the factors were expected to correlate with each other. Minimal variable correlations values of > ± .40 were required for items to load on a factor. A simple factor structure was expected, with single high loadings on only one factor for each item. Several items were expected to load highly on each factor (Hair et al., 2010; J. T. Johnson, personal communication, March 31, 2010).

Initiating establishment of validity for the CPSS-CHB was addressed by examining construct and concurrent validity. Construct validity was examined by addressing concurrent and convergent validity.

To determine concurrent as well as convergent validity, Pearson product moment correlation coefficients were calculated between total score CPSS-CHB and the total score GSES. Pearson product moment correlation coefficients were also calculated among the subscale scores of the CPSS-CHB and the total score GSES. Discriminant validity was addressed by calculating Pearson correlation coefficients among the total scores of the CPSS-CHB and the RSES.

The demographic data were analyzed using descriptive statistics. Frequencies, percentages, means, modes, standard deviations were predominantly used to describe the sample.

IV. RESULTS

The results of the feasibility study and the field study are presented in this chapter. The feasibility study is presented first, followed by the field study.

Feasibility Study Results to Address Aim 1

In the feasibility study related to readability and understandability of the CPSS-CHB, all 20 participants were parents. Thirteen (65%) were women, 17 (85%) were Caucasian, 15 (75%) were married, and 12 (60%) had children between 3 and 5 years of age. Nine (45%) participants had incomes of over $85,000 for the previous year. Parents ranged in age from 27 to 48 years with a mean of 36 years. While the range for years of education was from 12 to 19 years, the mean years in school was 16. Demographic characteristics of feasibility study participants are detailed in Appendix F. Although some comments were submitted (see Appendix G), none related to the readability or clarity of individual items on the CPSS-CHB. No suggestions for additional items or demographic questions were submitted. Therefore, for Aim 1, to ensure that the scale was readable and easy to understand, no revisions were required or needed.

Field Study Results to Address Aims 2 and 3

Demographic Characteristics

Participants were primarily married (87.9%), Caucasian (92%) women who were parents of pre-school and school-age children. The median number of children in each home was two, while the mean age of the participants was 40 years (*SD* ±9.4) with mean of 16.76 years in school (*SD* ±3.1). See Appendices H & I for descriptive statistics of the demographic data. Five participants acknowledged an annual income level below $15,000, while 130 participants indicated annual income levels over $85,000 (see Appendix J).

Determining Reliability: Internal Consistency Estimate for CPSS-CHB

The sample size for the calculation for the internal consistency estimates was 298. The alpha coefficient for the total CPSS-CHB was .96. For this study, the mean scores for each individual item for the CPSS-CHB ranged from 1.29 to 5, while the mean summed scores for the scale ranged 36 to 140. The mean total sum was 114.6 (*SD*=16.5). Item-total correlations ranged from .51 -.86 (see Appendix K).

Means and standard deviations in this study closely mirrored those values previously reported for the GSES (Luszczynska, Gutiérrez-Doña, & Schwarzer, 2005). Schmitt and Allik (2005) reported means and standard deviations for the RSES that were lower than those noted in the study with the CPSS-CHB (see Table 3).

Table 3.

Comparison of CPSS-CHB, GSES, and RSES reported and actual means for this study

Scale Name	Reported Means (SD)		Current Study Means (SD)
CPSS-CHB	n/a		114.58 (26.46)
GSES	Men	Women	
	31.52 (4.48)	30.64 (4.45)	31.58 (.71)
RSES	30.85 (4.82)		24.46 (2.12)

Establishing Validity for the CPSS-CHB

Factor structure of the CPSS-CHB. A total of 298 participants were included in the Principle Components Analysis (PCA) of the CPSS-CHB. Three-hundred participants accessed the survey packet; 298 completed the CPSS-CHB. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .95, suggesting that clear factors were identifiable. Since the KMO exceeded .80, ease in identifying factors was expected (Pett et al., 2003). Bartlett's test of sphericity result was large (6271.62). Bartlett's test of sphericity supported the hypothesis that a relationship among the variables existed (Pett et al., 2003).

The initial PCA estimate of the communality was one, and the extracted communalities represented the amount of variance in the items that were explained by the factors (Pett et al., 2003). The elbow of the scree plot occurred at three factors. This was the starting point in examining the number of factors. A thorough examination of all factors between 2 and 4 was completed using oblique rotation.

A three-factor solution that accounted for 63.19% of total variance of the CPSS-CHB was produced using oblique rotation (see Tables 4 and 5). The three-factor solution

(oblique rotation) was the best solution. The majority of the loadings on the factors were high (>.40) and there were fewer double loadings. The decision was made to select the three-factor solution since the other factor solutions possessed more double loadings and the items on the other factors lacked a clear factor assignment. The three factors were identified as *Problem Times, Stress Times,* and, *Good Times*. These labels were determined following a review of items in each factor loading.

Factor 1 (Problem Times). Factor 1 (Problem Times) contained 10 items and consisted of items related to problematic situations that parents encounter day-to-day during child rearing. The items that loaded onto this factor were items describing parents' perceived ability during problem times to influence child food and physical activities as well as overall health behaviors. The alpha coefficient was .93, the Pearson's correlations among the CPSS-CHB factors were high (.70 - .76), and the corrected item-total correlations ranged from .56 to .73. No items were deleted from Factor 1 because the alpha remained consistently high (> .92) even if individual items were deleted. Inter-item correlations ranged from .34 to .79, though only item four correlations consistently fell below .45, most of which were desirable since these values should have been at least .40 (Pett, et al., 2003). Even though all items with the exception of item four yielded acceptable correlations (.52 - .79), none of the items were deleted at that time.

Factor 2 (Stress Times). Factor 2 (Stress Times) contained 11 items and had an alpha coefficient of .94. No items were deleted from this factor because the alpha coefficient remained consistently high (> .93) even if individual items were deleted. The corrected item-total correlations ranged from .62 to .83. The inter-item correlations ranged from .38 to .75. Only the inter-item correlation between item seven and item 27 fell below .45.

Factor 3 (Good Times). Factor 3 (Good Times) contained 6 items had an alpha coefficient of .86. No items were deleted from this factor because the alpha coefficient remained higher than .82 even if individual items were deleted. The corrected item-total correlations ranged from .57 to .73. The inter-item total correlations ranged from .36 to .60 with most above .48.

The pattern matrix produced double loadings for item 14 on Factor 1 (problem times) and Factor 3 (good times). The higher loading (.52) was noted on Factor 1, yet the item fit more reasonably on Factor 3 (.44). Item 14 read, *"I can affect my child's health when things are good at work."*

Item five, *"I can affect my child's health behavior when he or she is upset or depressed,"* did not load on any factor. Despite a second factor analysis attempt forcing four factors, item five did not load on any factor.

An ancillary finding following PCA was that the subscale means for each factor were 4.03 for *problem times,* 4.00 for *stressful times,* and 4.35 for *good times.* The repeated measures F test result for these values was 78.32 (p <.001) with the *good times* mean significantly higher than the other two means.

Table 4.

Items, Means, Standard Deviations, Factors/Factor Loadings, and Communalities for CPSS-CHB (N=298)

	Items	M (*SD*)	1	2	3	Comm.[a]
2.	I can affect my child's food choices when I have personal problems.	4.03 (.88)	**.75**			.61
3.	I can affect my child's health choices when I feel out of control with my own weight.	3.99 (.95)	**.82**			.64
4.	I can affect my child's food choices while he or she watches TV.	4.05 (.87)	**.60**			.35[†]
9.	I can affect my child's food and physical activity choices when I have money concerns.	4.10 (.86)	**.52**			.64
10.	I can affect my child's food and physical activity choices when I feel worried.	4.02 (.86)	**.83**			.80
13.	I can affect my child's physical activity when family matters upset me.	4.00 (.88)	**.70**			.73
17.	I can affect my child's physical activity when I feel angry.	3.94 (.89)	**.74**			.70
23.	I can affect my child's health choices when I have job type stress.	3.98 (.86)	**.78**			.78
25.	I can affect my child's physical activity when I feel bored.	4.12 (.75)	**.51**			.59
26.	I can affect my child's food choices when I am very hungry.	4.03 (.90)	**.56**			.63
7.	I can affect my child's food choices during a vacation.	4.18 (.79)		**-.55**		.51
15.	I can affect my child's food choices during holidays and parties when high fat foods are served.	3.80 (1.0)		**-.87**		.74
16.	I can affect my child's food choices when he or she and I are tempted by tasty but bad foods in the grocery store	4.08 (.84)		**-.72**		.63
18.	I can affect my child's food choices when we eat out.	4.18 (.78)		**-.72**		.66
19.	I can affect my child's health behavior at family reunions.	3.86 (.90)		**-.86**		.75
20.	I can affect my child's food choices when we visit a city and want to try the local food.	4.04 (.83)		**-.85**		.69
21.	I can affect my child's physical activity when the weather is too rainy, snowy, or hot.	4.03 (.84)		**-.60**		.55

	Items	M (*SD*)	1	2	3	Comm.[a]
22.	I can affect my child's food choices and physical activity when my child's friends are staying over.	4.02 (.78)		**-.64**		.61
24.	I can affect my child's food choices during holiday times.	3.98 (.88)		**-.88**		.75
27.	I can affect my child's food choices during church or community sponsored events (pot luck dinners, fish fries, community/county fair, the church bizarre).	3.78 (.94)		**-.71**		.60
28.	I can affect my child's food and physical activity choices when he or she is out of school for the summer.	4.10 (.84)		**-.48**		.59
1.	I can affect my child's physical activity when I feel rested.	4.44 (.67)			**.55**	.49
6.	I can affect my child's health choices when I feel support from my spouse.	4.35 (.75)			**.69**	.60
8.	I can influence my child's food and physical activity choices when I feel happy.	4.34 (.71)			**.67**	.68
11.	I can affect my child's food choices and physical activity when I feel support from my friends.	4.28 (.75)			**.73**	.67
12.	I can affect my child's food choices when I prepare meals for my child and family.	4.61 (.58)			**.76**	.60
14.	I can affect my child's health when things are good at work.	4.12 (.79)			**.44**	.67
5.*	I can affect my child's health behavior when he or she is upset or depressed.	4.11 (.80)				.46

Note. For each item, responses ranged from 1 to 5.
Factor Labels: 1 = Problem Times. 2 = Stressful Times. 3 = Good Times.
[a.] Communalities.
† Communality for item 4 was low.
* Item 5 did not load on any factor.

Table 5.

Explained Variance, Extracted of the Principal Component Analysis for CPSS-CHB (N=298)

Component	Eigenvalues	% of Variance Explained	Cumulative % Variance Explained	Rotation Sums of Squared Loadings
1	14.15	50.52	50.52	11.38
2	2.11	7.53	58.05	11.42
3	1.44	5.14	63.19	7.09

Concurrent validity of CPSS-CHB. The sample size on which the concurrent validity estimates for the CPSS-CHB subscales was calculated was 291. The alpha coefficient for the 10-item GSES scale was .85 with a mean of 32.34 (*SD*±12.6) (possible scores 10-40). The Pearson Product Moment correlation between the total CPSS-CHB and the GSES scale was .17 (see Table 6). The Pearson Product Moment correlations among the CPSS-CHB subscales and the GSES were .13 for problem times, .17 for stressful times, and .17 for good times (see Table 6).

Convergent and discriminant validity of CPSS-CHB. The sample size, coefficient alpha, and the Pearson Product Moment correlation regarding convergent validity are the same for concurrent validity as presented above. Convergent validity is a way of evaluating construct validity. The CPSS-CHB measured task specific parenting self-efficacy, and the GSES measured general self-efficacy. If the CPSS-CHB and GSES were measuring the same concepts, the anticipated correlations would be stronger and yield stronger convergent validity. Though a correlation was expected, support for convergent validity was not found among the CPSS-CHB total scale, subscales and the GSES (see Tables 6 and 7).

The sample size related to discriminant validity was 290. The alpha coefficient for the 10-item Rosenberg Self-Esteem Scale (RSES) was .86 with a mean score of 23.87 (*SD*±4.4) (possible scores 0-30). The Pearson Product Moment correlation between the CPSS-CHB total scale and the RSES was .07 (see Table 6). The Pearson Product

Moment correlations among the CPSS-CHB subscales and the RSES were .04 for Factor 1 (Problem Times), .08 for Factor 2 (Stressful Times), and .08 for Factor 3 (Good Times), providing some support for discriminant validity (see Table 7).

Table 6.

Pearson Product Moment Correlations among CPSS-CHB Factors (N=298), GSES (N=291) and RSES (N=290)

Scales	Factor 1	Factor 2	Factor 3	GSES	RSES
Factor 1. CPSS-CHB: Problem Times	--	.76	.70	.13	.04
Factor 2. CPSS-CHB: Stressful Times		--	.60	.17	.08
Factor 3. CPSS-CHB: Good Times)			--	.17	.08
GSES				--	.44

Table 7.

Pearson Product Moment Correlations between CPSS-CHB Total (N=298), GSES (N=291) and RSES (N=290)

Scales	GSES	RSES
CPSS-CHB	.17	.07
GSES	--	.44

VI. DISCUSSION

In this chapter, the results of the study are discussed. In addition, recommendations for future work on construct validity and additional psychometric testing are presented. No study is without limitations, therefore these are also identified.

Discussion of Aim 1 Findings: Readability and Understandability of the Scale

The CPSS-CHB was deemed readable and understandable based on the study feasibility results. Considering the age, education, and socioeconomic status of the participants, this was not surprising. No suggestions for additional items or demographic questions were submitted. Since no recommendations for changes to the scale were made by feasibility study participants, the same CPSS-CHB form was used in the field study.

Discussion of Aim 2 Findings: Estimating Reliability

The total scale alpha was high. Factor 1 alpha coefficient was high (.93), Factor 2 alpha was also considered high (.94), and Factor 3 alpha was considered good (.86). Individual item alphas were considered good (.83 - .94). Item-total correlations for items on each factor were also acceptable (.51 -.86*)*. These results may be due to the homogeneity of respondents on whom the scale was tested. Though a broad, homogeneous sample was targeted, the overwhelming majority of the respondents were Caucasian, married mothers of children age 3 to 12 years (most of these between the ages of 3 and 9 years) with total annual household incomes over $55,000. Most likely, though, the high alpha coefficients for the factors and individual items are related to redundancy within the items. Therefore, it is likely that more items need to be eliminated possibly by eliminating items with high across the board inter-item correlations within factors (Pett et al., 2003; M. Lynn, personal communication, May 5, 2010).

The total variance accounted for was acceptable. Factor 1 accounted for most of the variance, and Factors 2 and 3 contributed, to a small degree, in terms of variance accounted for. Although the inter-item correlations ranged from .51-.86, this is an argument against redundancy within the individual items. A trend was noted for the item means of the factors where parents answered items regarding good times in a more self-efficacious manner than regarding stressful or problem times.

Discussion of Aim 3 Findings: Determining Concurrent and Construct Validities

Using principal components factor analysis (PCA) with oblique rotation, the CPSS-CHB was determined to have three factors, which together accounted for 63.19%

of the total variance (variance after oblique rotation). The analysis of the CPSS-CHB was straightforward since there were few double loadings, and overall high factor loadings. Factor 1 (Problem Times) items of the CPSS-CHB related to problematic day-to-day child rearing situations that parents encounter. The items on this factor related to each other and to the concept of parental self-efficacy with child health behaviors evidenced by the acceptable item-total correlations, and communality among the items. The alpha coefficient for the factor was high, implying that the items clustered together (Pett et al., 2003).

Factor 2 (Stressful Times) had a high coefficient alpha. Item-total correlations among the 11 items loading on the factor and communalities were moderate. Other psychometric studies of parental self-efficacy instruments had similar factor structures that included parents' perception of their own discipline, health, self-control, and pressures and expectations exist, but most contained more items and subscales (Coleman & Karraker, 2000; Kendall & Bloomfield, 2005). The correlations and alpha coefficient estimates noted in the psychometric testing of the CPSS-CHB indicated that these items related to each other just as those did in Factor 1. This may be due to the similarities between how respondents perceive items related to problems versus items related to stress. The factor is important since Factor 1 items were focused on the parents' problems, while Factor 2 items were focused on situations that may be stressful to both the parent and the child (food choices during vacations or in the grocery, eating out, and health behavior choices at special events).

Factor 3 (Good Times) had a good coefficient alpha. The item-total correlations of the six items loaded on the factor were moderate. Communalities were acceptable. Items loading on this factor included situations when parents felt contented, rested, and supported by spouse, family members, and friends. Item 14 (*"I can affect my child's health when things are good at work")* loaded on factors one and three, Problem Times and Good Times respectively. This item loaded slightly higher on factor 1; however, it fit better contextually on factor 3. Bandura (1977) and de Montigny and Lacharité (2005) noted that successes contribute to building strong belief in one's personal efficacy. Therefore, parents who have strong support systems are likely to exhibit more effective modeling of health behaviors for children than parents who lack a support system.

Related to concurrent validity, high correlations among the CPSS-CHB, its factors and the GSE were expected. Only weak correlations among the CPSS-CHB factors and the GSE scales were found. A more task specific self-efficacy scale might have yielded higher correlations among the CPSS-CHB and its factors. The concern is whether or not the GSE is sufficient for testing the CPSS-CHB for concurrent validity. No high correlation was noted among the CPSS-CHB factors and self-efficacy as measured by the GSES. A more task specific parenting self-efficacy scale might have yielded higher correlations among factors of the CPSS-CHB than was noted with the GSE. It should also be noted that the CPSS-CHB was designed to measure the self-efficacy of effecting someone else's behavior (that of a child) while the GSES relates only to the respondents' self efficacy to effect their own behavior. Related to convergent validity, weak correlations were again noted. Convergent validity was not established. The construct that the CPSS-CHB measured is not known.

Regarding discriminant validity, self-esteem is a construct that theoretically should not be related to self-efficacy and, therefore, when observed, one should be able to discriminate between the two. This should be observed by small correlations between the two scales when administered concurrently (Trochim, 2006). Self-esteem was a construct that reflects one's stable sense of worth or worthiness (Rosenberg, 1965). In contrast, self-efficacy is a belief in one's own capabilities to carry out the courses of actions required to manage prospective situations or to reach a certain goal (Bandura, 1977). Low correlations among the CPSS-CHB factors and the RSES were expected. The expected relationships were validated by the study results; therefore, discriminant validity was supported. The correlation was extremely low. Normally, low correlations in the range of .3-.4 would have been expected.

Limitations of the Study

As in every study, there were limitations. Samples used for the feasibility study to examine Aim 1 and the field study to examine Aims 2 and 3 were recruited using e-mail, Twitter and Facebook social network contacts, and parenting-focused discussion board postings. Using web-based social networks immediately narrowed the sample to include only computer users who had Internet access. While some potential respondents may not have computer or Internet access at home or work, most people are able to

access computers and Internet by using publicly provided computers and Internet access (public libraries, Wi-Fi hotspots, etc.) (Horrigan, 2010; Lenhart, 2009). This produced a homogeneous sample in some respects, which may have increased reliability scores.

Several threats were generated from data collection procedures that limited the sampling. This social network technique was driven by contacts who forwarded and re-posted the link to the scale. Though this sped up the data collection process, there is a high probability that this may also have contributed to bias of the homogeneous sample that may be present in the sample. Since these social networks work in such a way that people with similar interests tend to "follow" one another, if middle to upper income white, mothers of school age children reposted an item several times, it is likely that mostly followers of similar socioeconomic backgrounds responded. This further increased the likelihood of obtaining a homogeneous sample.

When large numbers of completed questionnaires and rapid data collection were the priority, this method was useful. However, the ability to control who was able to access the scale once the researcher requested that others forward it to other potential participants who met inclusion criteria was lost using this technique. This made controlling which participants accessed the packet of scales as well as calculating a true response rate impossible.

Although more than 800 e-mails and messages were sent out for the study, a geographic question was not included in the descriptive data collected (not on the scale per se). In addition, no question was included to identify the method by which the respondent received the message that contained the link to the scale. An adapted set of demographic questions should be used to track location and specific social network used by the respondent. By including questions regarding general geographic location and asking the participant to identify from which social network, website, or discussion board he or she accessed the survey, information would be accessed regarding how many states or countries were represented in the study as well as which social networks, websites, or discussion boards provided the best response.

There was also the risk of response bias that may have originated from the respondents' intention to mask the true measurement of parental self-efficacy to influence child health behavior by responding to the items in a socially desirable fashion. Reactive

administration arrangements have the potential to threaten external validity of the sample. Participants' prior knowledge about the phenomena under study (e.g., improving nutrition and increasing physical activity in schools, and perhaps even self-efficacy) might have caused participants to answer questions in whatever manner they perceived the researcher expected them to respond. Knoke and Yang (2008) noted longstanding discrepancies that have documented the gap between self-reported and actual behaviors (verbal and behavioral data) further identified as informant bias. Similarly, the Hawthorne effect that might have influenced participants to respond differently than they otherwise would (or to answer questions as though they behaved with more parental self-efficacy than they really did), because they were aware of their participation in the study should be considered as a possible threat to validity (Polit & Beck, 2008). Despite these possibilities as threats to validity, those who chose to participated may have done so because of their desire to improve child health behaviors or some other characteristic that separated them from the intended target population.

The survey used for both studies was written only in English; therefore, the sample was limited to English-speaking respondents. This immediately excluded many persons who were unable to read in English.

Regarding actual scale construction and analysis, the researcher had used only two items to focus on actions of the child on the scale. For item 4 (*"I can affect my child's food choices while he or she watches TV"),* communality was low (.35); while item 5 (*"I can affect my child's health behavior when he or she is upset or depressed")* did not load on any factor. Therefore, questions that relate directly to the child's feelings or actions might have produced a four-factor solution instead of a three-factor solution.

Significance to Nursing

Though numerous instruments exist to measure different aspects of self-efficacy including cognitive development and function, parenting, substance abuse, and domestic abuse, no instrument existed to specifically measure the concept of parental self-efficacy to influence child health behavior prior to the development of the CPSS-CHB. The CPSS-CHB was developed and tested using Bandura's Self-Efficacy theory and Classical Measurement theory. While the CPSS-CHB needs further testing and refinement before being used as a health behavior type assessment scale, the theoretical grounding of the

scale is a significant contribution as well as the scale itself as a measurement device has the potential to contribute to nursing research, parent assessment and evaluation of therapeutic interventions to influence parental self-efficacy to influence child health behaviors.

By using the CPSS-CHB as an assessment scale interventions to improve child health behaviors and the way parents can influence these behaviors may be formulated in the future after the scale has been further refined and tested. By using this scale to measure parents' and caregivers' ability to measure self-efficacy of ability to influence child health behavior, these measures may be used to plan specific education and interventions related improving child health behaviors. Using the measure in these ways may provide motivation and guidance to parents. The CPSS-CHB with further work to further confirm its reliability and validity could be a useful measurement scale to assess parental self-efficacy to influence child health behaviors in various clinical settings and by health care providers such as physicians, nurse practitioners, nutritionists and exercise physiologists.

Future Research

The purpose for developing the CPSS-CHB was to generate a readable and understandable measure of parents' and caregivers' self-efficacy of their ability to influence a child's health behavior that was reliable and valid. Though internal consistency was established with this sample, this type reliability must be established with each different sample as is common with all instruments. Examining alpha coefficients and factor structure for other samples would be beneficial for further item reduction and could serve to refine the structure of the scale (Pett et al., 2003). Split-half reliability testing would be useful, especially if a sample ratio of 10 participants per item were not available. The time constraints of this study and need for compliance with IRB guidelines prohibited conducting a test-retest study. Therefore, the stability of the scale over time, though desirable, was not assessed.

Goodwin and Goodwin (1991) acknowledged that validity remains most important as a fundamental concept in psychometrics though conceptions of it have changed some over the years. The scope of this study included specific assessment of concurrent validity and components of construct validity. Though neither concurrent nor

convergent validity with the GSES was established, discriminant validity with the RSES was supported with the weak correlation between the RSES and the CPSS-CHB. Future psychometric testing should include concurrent and convergent validity testing with a task-specific parental self-efficacy scale in which the concept would be more closely aligned with self-efficacy of parental ability to influence child health behavior. Discriminate validity should be further investigated. A much larger sample is needed in future work to examine relationships and determine differences among race, relation to child, geographic location, type of social media used, socioeconomic background and scores on the instrument.

Conclusions

The Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB) was a 27-item scale (excluding one item that failed to load on any factor) that was deemed readable and easy to understand. The CPSS-CHB contained three factors that loaded differently within the PCA but accounted for a significant amount of variance. Therefore, the scale is not unimodal; there are some varying elements within the scale. The factors: *Problem Times*, *Stress Times*, and *Good Times* had high internal consistency for this specific sample of participants.

However, it was important to realize that no matter how reliable a scale, without validity, the scale lacked usefulness. Concurrent validity and convergent validity were not found, as the construct of general self-efficacy did not correlate or converge with the construct in the CPSS-CHB when measured against the GSES. This may have been due to the use of a general self-efficacy measure, whereas if a parental self-efficacy measure had been used concurrent and convergent validity might have been found.

Discriminant validity testing was able to discriminate the constructs in the CPSS-CHB from self-esteem when tested against the RSES. Construct validity was not found. Whether this was due to the pool of participants, if it was instrument based, or related to the data collection method was not immediately obvious. The significance of rapid sampling that occurred using electronic social networking merited mention as both a potential threat as well as an asset to the study. The reliability scale as a measure of the degree of parental self-efficacy to influence child health behavior was supported by the

results obtained; however, the scale warrants further investigation based on the study results as the validity of the scale remained in question.

VI. APPENDIX

Appendix A: UMMC Institutional Review Board Approval

UNIVERSITY OF MISSISSIPPI MEDICAL CENTER
2500 North State Street
Jackson, Mississippi 39216-4505

Institutional Review Board
Telephone (601) 984-2815
Facsimile (601) 984-2961

DHHS FWA #00003630
IORG #0000043
IRB 1 Registration #00000061
IRB 2 Registration #00005033

Approval Notice
Initial Review

February 24, 2010

Johnnie Sue Cooper
School of Nursing
1430 Cedar Creek Lane
Starkville, MS 39759

RE: IRB File # 2010-0027
Psychometric Testing of Cooper Self-Efficacy of Parental Ability to Influence Child Health Behavior

Dear Ms. Cooper:

Your Initial Review was reviewed and approved by the Expedited review process on February 24, 2010. You may begin this research.

Please note the following information about your approved research protocol:

• Protocol Approval period:	February 24, 2010 - February 23, 2011
• Consent Document:	Waiver of documentation of consent
• Recruitment/Retention Material:	Information E-mail Letter for Feasibility Study Reminder Letter for Feasibility Study Participants Informational E-mail Letter for Field Study Reminder Letter for Field Study Questionnaire
• Approved Enrollment #:	280
• Participant Population:	Parent/Teacher/Caregiver
• Performance Sites:	UMMC
• Expedited Category(ies):	45 CFR 46.110(b) and/or 21 CFR 56.110(b) (4) - Collection of data through noninvasive procedures (not involving general anesthesia or sedation) routinely employed in clinical practice, excluding procedures involving X-rays or microwaves. Where medical devices are employed, they must be cleared/approved for marketing. (Studies intended to evaluate the safety and effectiveness of the medical device

are not generally eligible for expedited review, including studies of cleared medical devices for new indications.) Examples: (a) physical sensors that are applied either to the surface of the body or at a distance and do not involve input of significant amounts of energy into the subject or an invasion of the subject's privacy; (b) weighing or testing sensory acuity; (c) magnetic resonance imaging; (d) electrocardiography, electroencephalography, thermography, detection of naturally occurring radioactivity, electroretinography, ultrasound, diagnostic infrared imaging, doppler blood flow, and echocardiography; (e) moderate exercise, muscular strength testing, body composition assessment, and flexibility testing where appropriate given the age, weight, and health of the individual.

Initial Review Review History:

Receipt Date	Submission Type	Review Process	Review Date	Review Action
02/06/2010	Initial Review	Expedited	02/24/2010	Approved

Please remember to:

→ Use **the IRB file number** (2010-0027) on all documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the enclosure, UMMC Investigator Responsibilities, Protection of Human Research Participants.

The IRB has the prerogative and authority to ask additional questions, request further information, require additional revisions, and monitor the conduct of your research and the consent process.

Please note, as a condition for publication of study results, the International Committee of Medical Journal Editors (ICMJE) requires all clinical research studies that began enrolling participants on or after July 1, 2005, to be entered in a public registry **before enrollment begins**. Additionally, Public Law 110-85, Title VIII, enacted September 27, 2007, requires registration of clinical trials and submission of results data through ClinicalTrials.gov. For additional information please go to http://irb.umc.edu/GuidanceInfo/ClinTrialRegistry.htm

Penalties for responsible parties who fail to register applicable clinical studies are significant and may include civil monetary penalties and, for federally-funded studies, withholding or recovery of grant funds.

We wish you the best as you conduct your research. If you have questions or need additional information, please contact the Human Research Office at (601) 984-2815.

Sincerely,

Gailen D. Marshall, Jr., M.D., Ph.D.
Chairman, Institutional Review Board 2

GDM/kc

Enclosure(s): (1) Investigator Responsibilities, Protection of Human Research Participants
(2) Recruitment Material – Information E-mail Letter for Feasibility Study
Reminder Letter for Feasibility Study Participants
Information E-mail Letter for Field Study
Reminder Letter for Field Study
Questionnaire

cc: Sharon B. Wyatt, Ph.D., CANP, FAAN, School of Nursing
Barbara Boss, School of Nursing
Vice Chancellor for Health Affairs
Office of Integrity and Compliance

Appendix B: Information Email Letter for Feasibility Study

February 6, 2010

Dear Parent or Care Giver,

You are being invited to participate in this research study to evaluate a survey to determine how confident parents are in creating a healthy home for children. You have been selected because you are a parent or caregiver of a child between 3 and 16 years of age. You have been selected from my personal email, Facebook, and Twitter contacts.

If you agree to participate, you will be asked to complete a short survey twice about two weeks apart. The first survey will take approximately 15 minutes to complete and has no information that can personally identify you. The second survey will be like the first one except two additional 10 items scales are included and there are no areas for comments.

Participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. The results of the research study may be published, but your name will not be used.

I am a graduate student under the direction of Dr. Barbara Boss in the School of Nursing at the University of Mississippi Medical Center. If you have any questions concerning the research study, please contact me at 662-312-1021 or jscooper@son.umsmed.edu or Dr. Boss at 601-984-6216 or bboss@son.umsmed.edu.

Return of the survey will be considered your consent to participate.

Please click on the following link to access the study: Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB) Feasibility Study

Thank you.

Sincerely,

Johnnie Sue Cooper, MSN, RN, FNP

Appendix C: CPSS-CHB Survey Packet

Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB)

Information Letter for Field Study

February 6, 2010

Dear Parent or Care Giver,

This letter is about participation in a research study to evaluate a questionnaire to determine how confident parents are in creating a healthy home for children. You have been selected because you are a parent or caregiver or know a parent or caregiver of a child between 3 and 16 years of age. You have been selected from my personal email, Facebook and Twitter contacts. You may also be a member of the Chit Chat forum of ExpressiveParents.com where the link is also placed.

Please forward this information and the survey link to anyone you may know who is a parent of a child ages 3 to 16 years.
If you agree to participate, you will be asked to complete a short
questionnaire. The questionnaire will take approximately 15 minutes to complete and has no information that can personally identify you.

Participation in this study is voluntary. If you choose not to
participate or to withdraw from the study at any time, there will be no penalty. The results of the research study may be published, but your name will not be used.

I am a graduate student under the direction of Dr. Barbara Boss in the School of Nursing at the University of Mississippi Medical Center. If you have any questions concerning the research study, please contact me at 662-312-1021 or jscooper@son.umsmed.edu or Dr. Boss at 601-984-6216 or bboss@son.umsmed.edu.

Completing the questionnaire will be considered your consent to participate.

Thank you,
Johnnie Sue Cooper, MSN, RN, FNP

Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB)

This survey is about parents and caregivers (step-parents, grandparents, foster parents, etc.) of children between the ages of 3 and 16 years. If you have more than one child in this age range, please answer the questions about your youngest child in this age range.

Parents are the first teachers of their children and can have a strong influence on the how their child thinks, behaves, and learns about making healthy choices. The following statements are about having an influence on or how you affect your child's behavior. Please read each statement carefully and indicate your level of agreement on a scale 1 "Strongly disagree to 5 "Strongly agree".

I appreciate you taking the time to complete the survey. I understand how valuable your time is.

Appendix C: CPSS-CHB Survey Packet (continued)

Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB)

1. Please choose the number that best describe your agreement with each item.

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1. I can affect my child's physical activity when I feel rested.	◯	◯	◯	◯	◯
2. I can affect my child's food choices when I have personal problems.	◯	◯	◯	◯	◯
3. I can affect my child's health choices when I feel out of control with my own weight.	◯	◯	◯	◯	◯
4. I can affect my child's food choices while he or she watches TV.	◯	◯	◯	◯	◯
5. I can affect my child's health behavior when he or she is upset or depressed.	◯	◯	◯	◯	◯
6. I can affect my child's health choices when I feel support from my spouse.	◯	◯	◯	◯	◯
7. I can affect my child's food choices during a vacation.	◯	◯	◯	◯	◯
8. I can influence my child's food and physical activity choices when I feel happy.	◯	◯	◯	◯	◯
9. I can affect my child's food and physical activity choices when I have money concerns.	◯	◯	◯	◯	◯
10. I can affect my child's food and physical activity choices when I feel worried.	◯	◯	◯	◯	◯
11. I can affect my child's food choices and physical activity when I feel support from family and friends.	◯	◯	◯	◯	◯
12. I can affect my child's food choices when I prepare meals for my child and family.	◯	◯	◯	◯	◯
13. I can affect my child's physical activity when family matters upset me.	◯	◯	◯	◯	◯
14. I can affect my child's health choices when things are good at work.	◯	◯	◯	◯	◯
15. I can affect my child's food choices during holidays and parties when high fat foods are served.	◯	◯	◯	◯	◯
16. I can affect my child's food choices when he or she and I are tempted by tasty but bad foods in the grocery store.	◯	◯	◯	◯	◯
17. I can affect my child's physical activity when I feel angry.	◯	◯	◯	◯	◯
18. I can affect my child's food choices when we eat out.	◯	◯	◯	◯	◯
19. I can affect my child's health behavior at family reunions.	◯	◯	◯	◯	◯
20. I can affect my child's food choices when we visit a city and want to try the local food.	◯	◯	◯	◯	◯
21. I can affect my child's physical activity when the weather is too rainy, snowy, or hot.	◯	◯	◯	◯	◯
22. I can affect my child's food choices and physical activity when my child's friends are staying over.	◯	◯	◯	◯	◯
23. I can affect my child's health choices when I have job type stress.	◯	◯	◯	◯	◯
24. I can affect my child's food choices during holiday times.	◯	◯	◯	◯	◯
25. I can affect my child's physical activity when I feel bored.	◯	◯	◯	◯	◯
26. I can affect my child's food choices when I am very hungry.	◯	◯	◯	◯	◯
27. I can affect my child's food choices during church or community sponsored events (pot luck dinners, fish fries, community/county fair, the church bazarre).	◯	◯	◯	◯	◯
28. I can affect my child's food and physical activity choices when he or she is out of school for the summer.	◯	◯	◯	◯	◯

Appendix C: CPSS-CHB Survey Packet (continued)

General Self-Efficacy Scale

English Version by Ralf Schwarzer & Matthias Jerusalem, 1993

1. Please choose the number that best describes how much you agree with each item.

	not at all true	hardly true	moderately true	exactly true
1. I can always manage to solve difficult problems if I try hard enough.	◯	◯	◯	◯
2. If someone opposes me, I can find the means and ways to get what I want.	◯	◯	◯	◯
3. It is easy for me to stick to my aims and accomplish my goals.	◯	◯	◯	◯
4. I am confident that I could deal efficiently with unexpected events.	◯	◯	◯	◯
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.	◯	◯	◯	◯
6. I can solve most problems if I invest the necessary effort.	◯	◯	◯	◯
7. I can remain calm when facing difficulties because I can rely on my coping abilities.	◯	◯	◯	◯
8. When I am confronted with a problem, I can usually find several solutions.	◯	◯	◯	◯
9. If I am in trouble, I can usually think of a solution.	◯	◯	◯	◯
10. I can usually handle whatever comes my way.	◯	◯	◯	◯

Rosenberg Self-Esteem Scale

1. Please choose the number that best describes how much you agree with each item.

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. I feel that I'm a person of worth at least on an equal plane with others.	◯	◯	◯	◯
2. I feel that I have a number of good qualities.	◯	◯	◯	◯
3. All in all, I am inclined to feel that I am a failure.**	◯	◯	◯	◯
4. I am able to do things as well as most other people.	◯	◯	◯	◯
5. I feel I do not have much to be proud of.**	◯	◯	◯	◯
6. I take a positive attitude toward myself.	◯	◯	◯	◯
7. On the whole, I am satisfied with myself.	◯	◯	◯	◯
8. I wish I could have more respect for myself **	◯	◯	◯	◯
9. I certainly feel useless at times. **	◯	◯	◯	◯
10. At times I think I am no good at all. **	◯	◯	◯	◯

Appendix C: CPSS-CHB Survey Packet (continued)

Demographic questions

Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB)

1. Which best describes your relation to the children you care for?

- ◯ Parent
- ◯ Step-parent
- ◯ Foster parent
- ◯ Grandparent
- ◯ Legal guardian

2. What is your gender?

- ◯ Man
- ◯ Woman

3. What is your race?

- ◯ African American
- ◯ Caucasian
- ◯ Hispanic
- ◯ Native American
- ◯ Asian or Pacific Islander
- ◯ Other

4. What is your marital status?

- ◯ Single (never married)
- ◯ Married
- ◯ Divorced
- ◯ Widowed
- ◯ Common law

5. What is the TOTAL number of years of school you have completed (include grade school and high school as well as college or vo-tech)?

Number of years in school ☐

Appendix C: CPSS-CHB Survey Packet (continued)

Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB)

6. How many children in each of these age categories live in your household today?

0-36 months	
3-5 years	
6-9 years	
10-12 years	
13-15 years	
16 years or over	

7. What is your age

Years

8. Counting all sources of income including wages, interest, welfare payments, gifts, etc., what was your TOTAL FAMILY INCOME in 2008?

- ◯ LESS THAN $15,000
- ◯ $15,000 to $29,999
- ◯ $25,000 to $34,999
- ◯ $35,000 to $44,999
- ◯ $45,000 to $54,999
- ◯ $55,000 to $64,999
- ◯ $65,000 to $74,999
- ◯ $75,000 to $84,999
- ◯ Over $85,000

Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB)

Thank you for completing this survey. Your time and input is very valuable to me.

Appendix D: Information Email Letter for Field Study

February 6, 2010

Dear Parent or Care Giver,

This letter is about participation in a research study to evaluate a survey to determine how confident parents are in creating a healthy home for children. You have been selected because you are a parent or caregiver or know a parent or caregiver of a child between 3 and 16 years of age. You have been selected from my personal email, Facebook and Twitter contacts. You may also be a member of the Chit Chat forum of ExpressiveParents.com where the link is also placed.
Please forward this information and the survey link to anyone you may know who is a parent of a child ages 3 to 16 years.
If you agree to participate, you will be asked to complete a short survey. The survey will take approximately 15 minutes to complete and has no information that can personally identify you.
Participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. The results of the research study may be published, but your name will not be used.
I am a graduate student under the direction of Dr. Barbara Boss in the School of Nursing at the University of Mississippi Medical Center. If you have any questions concerning the research study, please contact me at 662-312-1021 or jscooper@son.umsmed.edu or Dr. Boss at 601-984-6216 or bboss@son.umsmed.edu.
Return of the survey will be considered your consent to participate.
Thank you. Please click on the following link to start the survey: Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB)
Sincerely,

Johnnie Sue Cooper, MSN, RN, FNP

Appendix E: Permission Letter from Expressiveparents.com

Gmail by Google

Johnnie Sue Cooper <johnniesue.cooper@gmail.com>

Re: Expressive Parents.com Parenting Forums Contact Us Form - Request to post survey for dissertation reserarch

Rachael (my3shadows) <admin@expressiveparents.com> **Sun, Dec 27, 2009 at 23:27**
To: "Johnnie Sue Cooper @ Expressive Parents.com Parenting Forums" <johnniesue.cooper@gmail.com>

Hello,

First of all, thank you for asking permission.

Yes, you may go ahead and post the link for the survey. Just make sure that you put in your opening line of your post that you do have permission from Rachael (me) to do so. Also, please put the post in the Chit Chat forum as that is the most active place of conversation.

If you have any questions, please don't hesitate to ask.

Thanks,

Rachael (my3shadows)
Administrator
ExpressiveParents.com

On Dec 27, 2009, at 11:01 PM, Johnnie Sue Cooper @ Expressive Parents.com Parenting Forums wrote:

>
> The following message was sent to you via the Expressive Parents.com Parenting Forums Contact Us form by Johnnie Sue Cooper (mailto:johnniesue.cooper@gmail.com).
>
> ---
>
> I am a PhD Nursing student at the University of Mississippi Medical Center in Jackson, MS. I am trying to complete the last round of data collection for my dissertation project: Psychometric Testing of the Cooper Self-Efficacy of Parental Ability to Influence Child Health Behavior Scale. I am using survey monkey to collect my data for a 28 item scale plus several demographic questions at the end of the scale.
>
> I found your website using google and noticed that the target audience of your website includes many of the same parents that my study is targeting. I read the website disclaimers and wanted to contact site administrators to request permission to post a brief explanatory letter and the link to the survey site. I am using a snowball sampling technique starting with approximately 500 of my personal email contacts as well as my personal website and facebook page. This project is not for profit, only to complete my dissertation project. The scale testing participation would be strictly voluntary and I need 250-500 total respondents from combined sources.
>
> I certainly understand if it is not permissible to use this website in this way; however, since your disclaimer addressed mostly for profit and membership solicitations, I thought it would be worth exploring the possibility of posting the link to your most appropriate chat rooms/discussion boards.
>
> Thank you for considering my request.
> Regards,

Appendix F: Demographics Characteristics of Feasibility Study Participants (N=20)

		Frequency	M (*SD*)	Median
Gender				
	Men	7		
	Women	13		
Race				
	African American	2		
	Caucasian	17		
	Other	1		
Marital Status				
	Single	1		
	Married	15		
	Divorced	4		
Age			36 (4.7)	36
Years in school			16 (1.7)	16
Number of Children at home				2
Income Level				
	Less than $15,000	1		
	$25,000-$34.999	2		
	$35,000-$44,999	1		
	$45,000-$54,999	1		
	$55,000-$64,999	2		
	$65,000-$74,999	2		
	$75,000-$84,999	2		
	Greater than $85,000	9		

Appendix G: Feasibility Study Comments

Feasibility Study Comments
As a parent of young children, I feel like I can affect or influence my child's activity/food choice/health choice in any given situation, whether it be in a good or bad way. How that child responds to that influence is a totally different story.
My personal opinion is that a parent has a big influence on the child's early years. If good eating habits and physical habits are instilled in he or she they will know what's healthy and what's not.
Notice all are strongly agree...as a parent I honestly feel that my thoughts, behaviours, stressors, and/or mood definitely plays a huge role in how I choose to teach my children....
I strongly agree with everything but as a parent I know my own challenges get the best of me and I am not always successful in my choices as being a good role model for my child. I do try on a daily bases and know with the Lord's help I will get better at each choice I make to better influence my children in a positive way. Also though, other outside sources also influence children and as a parent of children ages 3 to 19, I feel that I have witnessed enough to determine that it takes a village to raise a child. Everybody can influence your child but mostly and importantly it's the parent that has the first impact.
Are you just doing this to group answers? Or does it make a difference as to what their nationality is as compared to food preparations? As a Hungarian Gypsy/Italian, I prepare my food less blandly than others that I know. I choose healthy foods, but I give them more flavor with a delicate mix of spices and marinades. Just a thought as to whether certain types of people - aside from just color of skin - consider decisions differently when cooking/serving food?
Again, here I had an issue with the statements, but again I am aware that being healthy is an effort and one must look past the event, day, etc. and see what is best for themselves and their loved ones, therefore I make an effort NOT to allow these issues to cloud my judgment for a healthy lifestyle. My answers were really one-minded. I do affect my child's health and well-being. All the other issues mentioned do NOT affect that and I cannot allow my choices to be affected by outside influences. (Other than how actively we play when I'm not as tired, but you know Hide and Seek is a mandatory game sick or not!)

Appendix H: Demographic Characteristics of Field Study Participants (N=298)

		Frequency
Gender		
	Men	42
	Women	247
	No Response	11
Race		
	African American	13
	Caucasian	266
	Hispanic	5
	Native American	1
	Asian/Pacific Islander	3
	Other	1
	No Response	11
Marital Status		
	Single	6
	Married	254
	Divorced	22
	Widowed	6
	Common Law	1
	No Response	11
Relation to Child		
	Parent	257
	Step Parent	5
	Grandparent	24
	Guardian	3
	No Response	11

Appendix I: Age, Education Level and Child Demographics Statistics

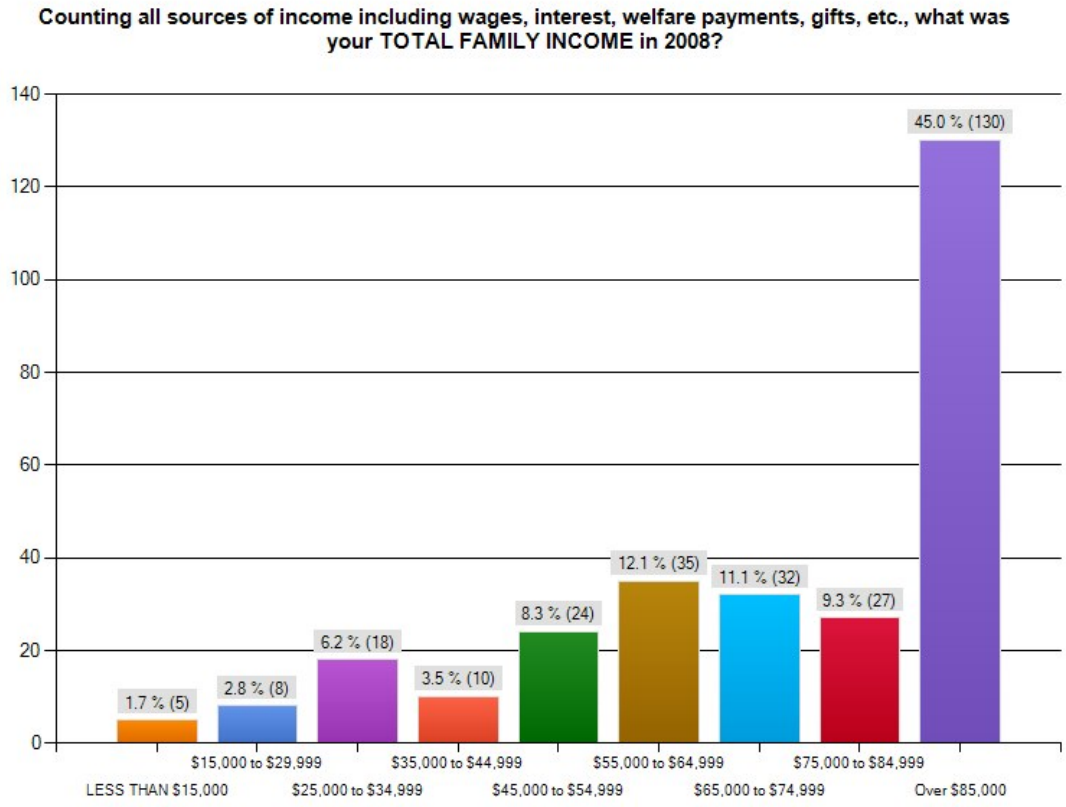
Age, Education, and Number of Children at Home of Field Study Participants (N=289)

	M (*SD*)	Median
Age of Respondent	40 (9.4)	38
Years in school	16.8 (3.1)	17
Number of Children at home		2

Frequency of Children per Age Category (N=289)

Age Category	# Children	Frequency
0 to 36 months (n=62)		
	1	59
	2	3
3 to 5 years (n=111)		
	1	102
	2	9
6 to 9 years (n=121)		
	1	103
	2	17
	8	1
10 to 12 years (n=85)		
	1	70
	2	15
13 to 15 years (n=62)		
	1	53
	2	6
	3	3
16 years or older (n=46)		
	1	35
	2	11

Appendix J: Field Study Participant Income Histogram



Percentage and frequency of each level of income among the participants in the field study of the psychometric properties of the CPSS-CHB (N = 289).

Appendix K: Alpha Coefficients, Means, Standard Deviations for CPSS-CHB Factors (N=298), GSES (N=291), RSES (N=290)

Alpha Coefficients, Means, Standard Deviations for CPSS-CHB Factors (N=298), GSES (N=291), and RSES (N=290)

Scales	Factors	Coefficient α	Number of Items	Scale Mean (*SD*)	Item Mean
CPSS-CHB		.96	28*	114.6 (16.5)	
	Problem Times	.93	10	40.3 (6.9)	4.03
	Stressful Times	.94	11	44.1 (7.4)	4.00
	Good Times	.86	6	26.1 (3.3)	4.35
GSES		.85	10	32.3 (3.6)	
RSES		.86	10	23.9 (4.4)	

Note. CPSS-CHB item responses range from 1 to 5. GSES and RSES item responses range from 1 to 4.
*Includes item 5 that did not load upon factor analysis.

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