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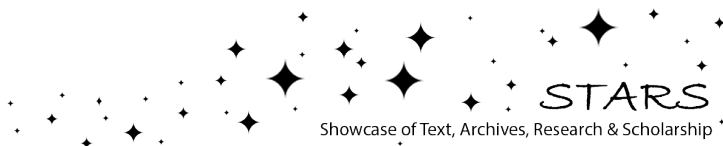
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Resiliency In Adolescent College Students

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RESILIENCY IN ADOLESCENT COLLEGE STUDENTS

by

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ABSTRACT

The construct of resilience has gained considerable attention over the last four decades since researchers observed that children and youth could cope and adapt in spite of adversity. Resilience involves a dynamic process involving an interaction between both risk and protective processes, internal and external to the individual, that can modify the effects of an adverse life event. Adolescence is considered to be a period of vulnerability for most individuals as they often partake in high risk behaviors. Further, those individuals who are in their early college years are faced with the developmental challenges of this life phase which can be complicated by a variety of stresses. Investigating resilience in college students is of great importance as these adolescents may incur additional stress as they make the transition to adulthood.

Empirical evidence indicates that resilience is dynamic, developmental in nature, and interactive with one's environment. A variety of variables have been studied to clarify the concept of resilience in adolescents, yet there continues to be inconsistent findings. Although there is an abundance of literature regarding adolescent resilience, little is known about this process in the healthy well-adjusted adolescent college student. Additionally there are inconsistencies in reported findings about whether resilience is a healthy state. There is also evidence in the literature that contradictions exist regarding the effect of social support on this process. After review of the psychometric properties of existing instruments, the Resilience Scale was determined to have the best reliability and validity use for the study of resilience in the adolescent population.

An exploratory model testing design was used to explore the relationships among a set of variables, including personal characteristics, levels of stress, high risk behaviors, and levels of

resilience in adolescents ages 18 to 20 years. Institutional Review Board approval was obtained prior to data collection. The study participants attended a community college and met the sample selection criteria. A convenience sampling plan was used. Recruitment of participants followed the college protocol for contacting professors teaching general education classes during the planned data collection time. The study measures included a demographic questionnaire, two perceived stress visual analog scales, the Health Behaviors Questionnaire, and the Resilience Scale.

Descriptive statistics were computed for all variables for the total sample (n=166) and recoding performed as needed by the instruments. Model testing was performed using correlations, hierarchical multiple regression, and path analysis to identify the strongest predictive variables. The strongest predictive model was personal characteristics and Health Behaviors Questionnaire Emotional Risk to the visual analog scale Stress in General (R^2 = .519, F = 3.13, p = .000). This model was used for path analysis and the significant variables were ethnicity (standardized beta coefficients of .165, p = .036) and Health Behaviors Questionnaire Emotional Risk (standardized beta coefficients of .567, p = .000).

These findings are important for health care providers to use as a basis for driving interventions to optimize resilience and reduce stress in adolescents. Further research should focus on ways to enhance coping and adaptation in an effort to reduce emotional risks which potentially increase stress in similar populations. Research regarding resilience and stress can further be expanded to the study of additional populations at risk, including adults and others such as nursing students, war veterans, and disaster victims.

This dissertation is dedicated to my family, friends, and colleagues who supported me through this important time of my life. I want to thank my family, Sonny, Jake, Jonas, and Jordy for their love; my best friend Judy Ruland for her encouragement; and my dissertation committee members, Drs. Jacqueline Byers (co-chair), Pamela Ark (co-chair), Jean Leuner, and Donna Malvey, for providing me with the greatest support any doctoral student could want. I would also like to thank Dr. Stephen Holmes for his much appreciated assistance. Thank you!

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CHAPTER ONE:
INTRODUCTION

Resilience involves a dynamic process involving an interaction between both risk and protective processes, internal and external to the individual, that can modify the effects of an adverse life event (Rutter, 1985). As a construct, resilience has been studied by researchers for a number of years. Researchers observed that children and youth could cope and adapt despite being exposed to risk and adversity. Adolescence is especially considered to be a period of vulnerability for most young people as they often participate in high risk behaviors (DeChesnay, 2005; Erikson, 1968). Further, these individuals who are in their early college years are often faced with the developmental challenges of this transitional period in their lives. Such a major life event can pose a variety of stresses to adolescent college students (Chang, 2001; Kanner, Feldman, Weinberger, & Ford, 1987; Williams & Lisi, 2000). Therefore resilience has enormous value for nurses, health care provides, and other individuals who deal with adolescents.

A state of the science literature review indicates that, to date, the empirical literature on adolescent resilience has focused primarily on the areas of risk and vulnerability, protection and positive health practices, resilience, and stress. There is a plethora of evidence on the effects of risk and adversity on adolescents. Likewise there has been a flurry of resilience research focusing on the characteristics, traits, or factors that may help one to thrive despite such adversity. Such research has examined a multitude of the intrapersonal and environmental factors that influence resilience. Researchers and scholars have conducted concept analyses, developed resilience models and theories, and constructed instruments to measure this construct. Empirical evidence indicates that resilience is dynamic, developmental in nature, and interactive with one's

environment. A variety of variables have been studied to clarify the concept of resilience in adolescents, yet there continues to be inconsistent findings.

Although there is an abundance of literature regarding resilience and adolescent resilience, there is little known about this process in the healthy well-adjusted adolescent college student. There are a number of empirical findings regarding resilience of adolescents with learning problems, those who are homeless, delinquent, or who are otherwise experiencing extreme vulnerabilities, but there is a paucity of empirical evidence regarding resilience in the healthy adolescent who attends college. Additionally there are some inconsistencies in reported findings about whether resilience is a healthy state. Some researchers contend that resilience may not have a positive effect on adolescents in every situation (Decker & Haase, 2005; Haase, 1997; Higgins, 1994; Valliant, 1993), or if left unchecked, may become an unhealthy state (Hunter, 2001; Hunter & Chandler, 1999). Yet, the overwhelming empirical evidence support that resilience in individuals has a positive influence on one's ability to cope and adapt to stress and adversity. There is also evidence in the literature that contradictions exist regarding the effect of social support on this process.

In order to study resilience in adolescence, a review was undertaken to evaluate the psychometric properties and appropriateness of available instruments measuring this construct. A search was completed using the EBSCO database, MEDLINE, PsychINFO, PsychARTICLES, and the Internet. After all available instruments were identified; a subsequent search was conducted using pre-determined inclusion and exclusion criteria. Six studies reporting the psychometric development of resilience instruments were selected for a full review. A data extraction table was used to compare the final six instruments: Baruth Protective Factors Inventory (Baruth & Carroll, 2002), Brief-Resilient Coping Scale (Sinclair & Wallston, 2004),

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Adolescent Resilience Scale (Oshio, Kaneko, Najemine, & Nakaya, 2003), Connor-Davidson Resilience Scale (Connor & Davidson, 2003), Resilience Scale for Adults (Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003), and Resilience Scale (Wagnild & Young, 1993). The Resilience Scale was determined to be the best instrument to use for the study of resilience in the adolescent population due to the psychometric properties of the instrument and its applications in a variety of settings and populations.

The Resilience Scale was used to study this construct in adolescent college students. An exploratory model testing design was used to determine the relationships that existed among a set of variables, including personal characteristics, levels of stress, high risk behaviors, and levels of resilience in what should have been a well-adjusted population. This research study assisted in providing a better understanding of resilience and its effects on stress in adolescent college students. Using the Resilience Scale, the Health Behaviors Questionnaire (Ingersoll & Orrl, 1989), two perceived stress visual analog scales, and a researcher-designed demographic questionnaire, data were collected on students attending one community college. The study participants included adolescent college students who were 18 to 20 years old, who attended community college at the study site, and who met the sample selection criteria. A convenience sampling plan was used. Recruitment of participants followed the college protocol for contacting professors teaching general education classes during the planned data collection time. The study measures included a demographic questionnaire (age, gender, race/ethnicity, education, grade point average [GPA], class, employment, parental income, financial support, living arrangement, housing, activities, study habits, social support, and religion), two perceived stress visual analog scales, the Health Behaviors Questionnaire, and the Resilience Scale.

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The Continuum of Resilience in Adolescence (Hunter & Chandler, 1999) was used as the conceptual model for this research. The data drove statistical analysis procedures creating a schematic for data analysis where the relationships among the model levels were determined. The personal characteristics of the study population revealed a homogeneous group of predominantly non-Hispanic, White young (mean age 18.7 years) adolescents. The majority of the sample were males from middle-class families who usually lived at home. Predominantly from the freshmen class, these students reported that they worked often and studied less. They admitted to being stressed by daily hassles, but more often from major life events. This was not an unexpected finding as these individuals were making a major life transition to college life. There was a significant difference in the high risk behaviors of the study participants by gender. Males reported more emotional risks while females reported more behavioral risks. This finding was inconsistent with empirical evidence reported in the literature. On the other hand, resilience levels for this population were in the medium range, which were often lower than the Resilience Scale scores in the literature, although those populations reported were more often adults. Age and ethnicity were significantly related to stress in these college students, which was not an unexpected finding as these individuals were young and just starting college. This finding should be considered with caution due to the narrow spread of age groups. The Hispanic students were another group more likely to be exposed to higher levels of stress. Both of these relationships are supported in the literature.

The schematic model for data analysis became a model of relationships among study variables. The resultant relationships consistently indicated that there were significant positive relationships between stress and high risk behaviors, negative relationships between stress and

resilience, and negative relationships between high risk behaviors and resilience. There is a plethora of empirical evidence supporting there relationships.

Further analyses of the model using bidirectional hierarchical multiple regression of the three levels of the model (stress, personal characteristics, and continuum of resilience [high risk behaviors and resilience]) resulted in five statistically significant models. The most robust predictive model showed that personal characteristics and high risk behaviors (emotional risk) were predictive of stress in general. A path analysis was performed on this resultant model revealing only two predictor variables of stress in general, those of ethnicity and high risk behaviors (emotional risk). While personal characteristic variables were not significant individually, they were found to contribute collectively to the prediction of stress in general. Beta coefficients indicated that the high risk behaviors (emotional risk) was the stronger predictive variable for this model. These findings are consistent with those in the literature. None of the study variables were predictive for resilience in this population.

Despite potential limitations of the sampling plan and the research instruments, the findings are important to nursing. Knowing that ethnicity and emotional risks may be potential predictors for stress in this population, there are significant implications for nursing practice, education, and research. The adolescents in this study sample were found to have moderate levels of resilience despite their exposure to the stresses of daily hassles and major life events. Although most of the students in this homogeneous sample were young, they reported experiencing more stress, but were also less likely to participate in high risk behaviors than their older classmates. While this set of facts contradicted the finding of a positive relationship between high risk behaviors and stress, the younger students were more likely to be experiencing stress most likely because of their transition to college life. Regardless, nurses and health care

providers should be challenged to develop interventions to enhance resilience and diminish stress in adolescent college students. Research regarding resilience and stress can further be expanded to the study of additional populations at risk, including adults and others such as nursing students, war veterans, and disaster victims.

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CHAPTER TWO:
STATE OF THE SCIENCE OF ADOLESCENT RESILIENCE

Resilience is often associated with discussions about times of transition, disaster, or other periods of adversity. Whether the topic is the homeless teen living on the streets, communities of hurricane victims rebuilding, or businesses trying to keep solvent, those who are resilient seem to survive. Resiliency is often viewed as an adaptive, stress-resistant personal quality that permits one to thrive in spite of adversity. As a construct, resilience can be characterized as a dynamic process among factors that may mediate between an individual, his or her environment, and the outcome. The roots of resilience are found the psychological (coping and adaptation) and physiological (stress) bodies of work.

Historically, the study of childhood resilience began a number of years ago when psychosocial researchers began to notice that children were able to cope and survive despite adverse conditions (Masten, Best, & Garmezy, 1990). In fact, much of the early research focused on trying to understand maladaptive behavior (Garmezy, 1970). Researchers began to realize that the scientific community did not really understand how positive outcomes were achieved. They understood that such knowledge was essential to planning interventions to promote mental health in children at-risk. Masten (1994) has described the early years of resilience research as efforts to study this construct with children in a number of situations throughout the world. Researchers began to discover that children usually fared poorly as the risk factors were increased. In those cases resilience was lessened (Garmezy & Masten, 1995). It became clear that children and adolescents experience risks and vulnerability differently depending on their developmental stages. Therefore, resilience too could be different during these normative periods of life.

Longitudinal studies have provided essential empirical evidence for the understanding of developmental resilience. A well-known landmark study provided essential information regarding resilience as a result of the compounding effects of multiple risks. Children who were born in Kauai, Hawaii in 1955 were followed for over four decades. About 1/3 of these children were considered to be resilient despite their risks (Werner, 1993). These children have continued to be resilient adults. Other researchers have come to similar conclusions with their longitudinal studies of at-risk youth (Hubbard, Realmuto, Northwood, & Masten, 1995; Luthar, 1991).

Resilience research also focused on factors or characteristics that helped individuals successfully manage adversity (Garmezy, 1991; Rutter, 1985). As researchers continued to learn more about resilience, it became evident that there was more involved in the understanding of resilience. Subsequently, attention turned toward seeking an understanding of the mechanisms that protected individuals from risk and ways in which interventions could promote such protection (Luthar 199l; Rutter, 1990). Resilience research has become crucial to better understanding resilient characteristics and the processes that enhance resilience in individuals. Such an understanding could enable nurses and other health care providers to promote such behaviors. Resilience research is vital in the adolescent population which is comprised of individuals who are vulnerable and who often participate in high risk behaviors.

Developmental Aspects of Resilience

Adolescence is considered to be a time of rapid development and change with important consequences some of which include the presence of high risk behaviors. Erikson (1968) hypothesized that the developmental stage of identity can result in such behaviors for the adolescent. According to Erikson, risk was an essential tool in the formation of identity as the

adolescent tests different identities. Fischhoff , Nightingale, and Iannotta (2001) theorized that adolescents engage in risky behavior because they may consider themselves to be invulnerable to danger. In turn, they may make poor life choices leaving them at risk for physical and/or psychological harm. In spite of their vulnerabilities, some adolescents seem to be invulnerable to stress because of their resilience. Little is known about how this age group develops or manifests risk and protective behaviors. In contrast, what is known is that protective resources and resilience do appear to interact with risks and stressors to have an impact on health promoting behaviors (Cosden, 2001; Davey, Eaker, & Walters, 2003; Haase, 1997; Hunter, 2001; Oman et al., 2004; Resnick, 2000; Rew & Horner, 2003; Rew, Taylor-Sheehafter, Thomas, & Yockey, 2001; and Rouse, 2001). Rutter (1993) maintained that the approach of protecting youth from harm through risk reduction and promotion of protective factors has generated great interest in resiliency-based research.

Resilience has also been shown to vary with one's stage of development. Behaviors can be expressed at each stage which can be interpreted as positive [e.g. promote health] or negative [e.g. impair health] (Hunter & Chandler, 1999). Rutter (1993) also noted that resilience was developmental in nature, originating from biology and early life experiences. Protective factors of individuals were found to be different during subsequent developmental stages. According to Rutter (1993), parental caring during infancy is protective, while such parental behavior could possibly hinder the healthy development of the adolescent. Greenspan (1982) also maintained that resilience is the capacity to successfully assume the work of each successive developmental stage. The linkage between resilience and development seems to result from the fact that the processes are interactive and endure over time with supportive environments. In addition Rouse (2001) further argued that different types of resilience during different developmental periods are

possible. For example, tasks the resilient infant must achieve are different from those that need to be achieved for resilient adolescents and adults.

Resilience in Adolescence

Although the constructs of coping and resilience may be interrelated, they have been used interchangeably in some of the literature. Resilience for some is synonymous with coping and adaptation (Markstrom, Marshall, & Tryon, 2000). These researchers posit that those who cope in direct, problem-solving modes enhance the possibility that life's difficulties will be resolved in successful ways. In contrast, the negative styles of coping (e.g. avoidance and wishful thinking) were negatively associated with resilience. In a similar study of high school students, Dumont and Provost (1999) classified 297 middle and high school students into three groups (e.g. well-adjusted, resilient, and vulnerable) which they created when studying depressive symptoms and daily hassles in these students. They determined that well-adjusted adolescents had higher self-esteem than the other two groups, while the resilient group scored highest on problem-solving coping strategies.

Because of their seemingly sense of invulnerability to risk and danger, many adolescents participate in risky behaviors. Adults have traditionally been concerned about risk taking behavior in this population. Trending data continue to show evidence that such concerns may be quite real. The 2005 Youth Risk Behavior Surveillance Survey (YRBSS) includes the national reporting of high school age adolescent behavior statistics related to practices of high risk behavior (e.g. use of tobacco, alcohol intake, weapons, sexual behavior, etc.) which can lead to higher morbidity and mortality outcomes. Survey findings ($n = 13, 953$) indicated that 10.2% rarely wore seatbelts; 9.9% drove while drinking alcohol; 18.5% have carried a weapon within

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the last 30 days; 9.2% have experienced dating violence during the previous year; 16.9% have seriously considered suicide during the last year; 23% currently smoke; 43.3% reported they currently drink alcohol; 25% admitted to having had sexual intercourse; and 13.1% were overweight (CDC, 2006a, 2006b).

Additional findings from the 2002 National Survey of Family Growth (NSFG) conducted by the National Center for Health Statistics (NCHS) under the auspices of the CDC revealed some alarming facts regarding the sexual health behaviors of teens (CDC, 2005). These data show that the majority of American teenagers 15 to 19 years (55.2% of males and 54.3% of females) have participated in oral sex with a significantly higher number of those who have also admitted to having had intercourse (CDC, 2005). Teens who were interviewed during data collection reported that they engaged only in oral sex in order to prevent exposure to the additional risks associated with sexual intercourse. These teens pose a particular public health concern associated with risks for sexually transmitted diseases.

Healthy People 2010 (USDHHS, 2005) progress reports identified adolescents as one of the population groups that is exposed to greatest risk. Use of the YRBS and other data sources have resulted in the inclusion of eight of the ten leading health indicators identified by Healthy People 2010. These indicators include areas that pose risks to adolescents (USDHHS) including 21 critical adolescent objectives (e.g. unintentional injury, violence, substance abuse, etc.).

Conceptual and Measurement Factors

Interest in the study of resilience has led to the conduct of concept analyses and the development of models, frameworks, and instruments to measure resilience.

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Concept Analyses

Scholars have tried to determine the characteristics of resilience by completing conceptual analyses. Polk's (1997) synthesis of the concept suggested that resilience was a middle range theory. The emergence of four patterns (dispositional, relational, situational, and philosophical) led Polk to develop a nursing model of resilience. Olsson, et al. (2003) performed a concept analysis of adolescent resilience focusing on the core elements of the concept. They determined that resilience is currently viewed differently within a variety of risk settings. More recently, Ahern (2006) conducted an evolutionary concept analysis on adolescent resilience in search of a definition of the concept. She determined the concept to be a composite of attributes that include the characteristics of the adolescent, sources of social support, and available resources. Such support and/or resources could be obtained from the family, church, school or other community agencies in the form of counseling, referrals, etc.

Theoretical Models and Frameworks of Resilience

Empirical evidence has led to the development of models and instruments that operationalize the concept. Frameworks and models have were developed for studying resilience. Haase and colleagues (Haase, 2004; Haase, Heiney, Ruccione, & Stutzer, 1999) have developed and tested the Adolescent Resilience Model (ARM) through triangulation research methods with adolescents with cancer. The ARM proposes a comprehensive integrative representation of the process and outcomes of resilience and quality of life in the study population. This model includes individual protective factors (courageous coping, hope and spiritual perspective), family protective factors (family atmosphere and family support and resources), and social protective factors (health resources and social integration). Outcome factors depicted by the model include

"resilience (self-esteem, self-transcendence, and confidence/mastery) and quality of life (sense of well-being)," (Haase et al., p. 128). According to the researchers, the goal of the model is to develop interventions based on the experiences and perceptions of adolescents and their families (Haase; Haase et al.). This model is more appropriately suited for the study of resilience in ill children.

Hunter and Chandler (1999) describe the Continuum of Resilience in Adolescents. The authors suggest that resilience in adolescents is adaptive and must therefore exist along a continuum of risk and healthy adaptation. Additionally resilience can be visualized as a variable that mediates the outcome of stress. The model incorporates resilience along a continuum, as it is a premise of the authors that this construct can be positive or negative.

The Youth Resilience Framework was developed to address individual and sociocultural risk factors and protective resources that could improve or hinder the positive and negative health outcomes in adolescence (Rew & Horner, 2003). The sociocultural context in this model incorporates the individual with associated risk and protective factors, the family, community, as well as resilience. Resilience is represented by the interface between risk factors (vulnerability) and protective resources (protection) which are present throughout one's life. This framework can also be used to develop interventions to improve health outcomes by enhancing resilience and diminishing risky behaviors (Rew & Horner, p. 386).

Scholars in other disciplines of social work, psychology, and education have developed conceptual models and frameworks to study resilience in youth, most notably Blum, McNeely, and Nonnemaker (2002).Using the conceptual domains of resilience as identified by Jessor (1992), Blum, McNeely, & Nonnemaker (2002) elaborated to develop their Ecological Framework of Resilience as it Relates to Childhood and Adolescence. This complex model

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includes risk and protective factors in multiple levels of the environment, school, family, peers, and the individual as they determine health-risk behaviors and youth health outcomes. Resilience is implied as a buffer between risk and protection, in fact resilience is depicted as intertwined with protection. According to these researchers, the link among vulnerability [risk], resilience [incorporating protection] and development rests in these all being interactive processes that endure over time and in a variety of settings (Blum, McNeely, & Nonnemaker).

Instruments Measuring Resilience

Although initially developed and tested with adults, the Resilience Scale (RS) (Wagnild & Young, 1993) has been used in a variety of adult populations (Aroian & Norris, 2000; Christopher, 2000; Heilemann, Lee, & Kury, 2003; Humphreys, 2003) as well as with adolescents (Black & Ford-Gilboe, 2004; Hunter & Chandler, 1999; Neill & Dias, 2001; Rew, Taylor-Sheefer, Thomas, & Yockey, 2001). Additional psychometrically-tested instruments developed by nurses include the Adolescent Resilience Scale (Oshio, Kaneko, Nagamine, & Nakaya, 2003) and the Brief Resilient Coping Scale (Sinclair & Wallston, 2004). Additional instruments measuring resilience have been developed but have not been as widely used as the Resilience Scale.

Resilience Research

Resilience has primarily been studied in relation to stressful times of transition (Luthar, Cicchetti, & Becker, 2000; Olsson, et al., 2003; Tusaie & Dyer, 2004). Adolescents are no strangers to such transitions. There is an extensive volume of theoretical and empirical literature on resiliency. As the roots of the concept of resilience are found in the psychological aspects of coping and the physiological aspects of stress, the majority of this research has been conducted

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in the areas of education and social sciences. Resilience nursing research can also be found in the literature.

Resilience Research in Other Disciplines

The empirical research related to the topic of interest has focused on the areas of risk and vulnerability, protection and positive health practices, resilience, and stress. The major studies will be briefly highlighted.

Risk and Protection

Researchers have attempted to determine the risks related to the attitudes and behaviors of adolescents. High risk behaviors demonstrated by this population have included sexual risk-taking behaviors, sedentary lifestyles, obesity, smoking, drug abuse, etc. Researchers have also studied the effects of youth maladjustment on personal attributes (Gerard & Buehler, 2004). The influences of risk and protection on such individuals have been reviewed. Pollard, Hawkins, and Arthur (1999) studied such influences on high school students. The researchers wanted to determine if both risk and protection were necessary to understand the diverse behavioral outcomes of adolescents (e.g. substance use, smoking, crime, and violence). Their results indicated that the promotion of protective influences were necessary to reduce such risks. Blum and Ireland (2004) concluded similarly in their study of Caribbean youth. Such empirical evidence has led to further studies on positive health practices and resilience.

Rouse, Ingersoll, & Orr (1998) studied the relationship between adolescent high risk behavior and resilience. They concluded that the resilient youth were less likely to participate in new risk behaviors, however they were not free from the troublesome behaviors and emotions of their non-resilient peers.

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Resilience

Resilience has chiefly been studied in adolescents during times of great risk or among groups that are partaking in risky behaviors. Educational researchers attempted to find ways to minimize risks and foster resilience, which is not atypical from the approach used in other fields of study. The psychosocial literature has predominantly focused on significant adverse life events and resilience. These events predominantly involve youth who are depressed, suicidal, or are dysfunctional in a variety of ways. Researchers have studied the effects of coping (Davey, Eaker, & Walters, 2003; Kenny, Gallagher, Alvarez-Salvat, & Silsby, 2002), social support (Carbonell, Reinherz, & Giaconia, 1998; Dumont & Provost, 1999; Hess, Papas, & Black, 2002; Kenny, Gallagher, Alvarez-Salvat, & Silsby; Nettles, Mucerah, & Jones, 2000; Rouse, 2001; Tiet, et al., 1998), environmental risks (O'Donnell, Schwab-Stone, & Muyeed, 2002), and culture (Arrington, & Wilson, 2000). Although contradictory findings are evident (e.g. influence of social support), the majority of the researchers have concluded that protective factors and resilience need to be enhanced in order to minimize stress and risk behaviors.

Resilience Research in Nursing

Empirical literature in nursing focuses on characteristics and the process of the concept, relationships between resilience and other study variables, and the development of theories, models and measurement instruments. Nurses have conducted quantitative and qualitative studies with adolescents predominantly in high risk situations.

Rew and colleagues have studied adolescent resilience, especially homeless youths (Rew, 2005; Rew, 2001; Rew & Horner, 2003; Rew, Taylor-Sheehafer, Thomas, & Yockey, 2001). In a study on the sexual health practices of homeless adolescents, Rew (2001) found that these youths

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were vulnerable to a number of physical, social, and emotional risks related to cultural and sexual health practices. The research by Rew and colleagues has led to the development of a framework for interventions for this vulnerable population.

Rew, Taylor-Sheefar, Thomas and Yockey (2001) studied resilience in homeless youth. Using a convenience sampling plan, 59 homeless youth ages 15-22 years were surveyed. The researchers determined that "approximately half of the sample (47%) reported a history of sexual abuse while more than a third (36%) self-identify as gay, lesbian, or bisexual orientation; the majority (51%) of the study population had been thrown out of their homes, and one-third left because their parents disapproved of their drug or alcohol use or because parents sexually abused them" (Rew, Taylor-Sheehafer, Thomas, & Yockey, p. 38). Lack of resilience was significantly related to loneliness, hopelessness, life-threatening behaviors, and connectedness, but not to sexual orientation or gender with about half of the variance in resilience explained by hopelessness and connectedness. The researchers found that "those who perceived themselves as resilient were less lonely and less hopeless and engaged in less life-threatening behaviors than those who were not self identified as resilient" (Rew, Taylor-Sheehafer, Thomas, & Yockey, p. 38). The researchers recommended that interventions should be designed to promote health and well-being in this vulnerable population (e.g. minimizing risks and maximizing the protective factors of resilience) (p. 39).

Aronowitz and Morrison-Beedy (2004) investigated the relationships among a set of variables, including connectedness to mother, time perspective, and resilience to risk-taking behaviors. The secondary analysis of data from the National Longitudinal Survey of Youth (n = 443) of poor African American girls 11-15 years old established that there was no direct relationship between maternal connectedness and resilience. The researcher determined that

future time perspective was the key mediator between connectedness and resilience (Aronowitz et al).

Using a focus group of 40 adolescents, Hunter (2001) found that irrespective of age, gender, cultural, and socioeconomic status, adolescents believe they are resilient. While those adolescents who identified the existence of social support in the form of a caring, loving, and mentoring adult showed a connected form of resilience, those who did not have such social support in their lives showed survival and self-protective forms of resilience (Hunter, p. 178).

Decker and Haase (2005) investigated the relationships of uncertainty, family, social support, and resiliency to coping in adolescents with cancer (AWC) with the use of the Adolescent Resilience Model. Data from two previously conducted ARM studies at multiple cancer centers, was used by the researchers who performed a factor analysis to determine the "best fit" model for coping. This testing resulted in two factors they labeled as "active (problem-solving behaviors) and avoidant (changing behavior in order to avoid thoughts or behavior related to situation based on adolescent coping literature" (Decker & Haase, p. 127). They concluded that AWC from both groups (survivors and recently diagnosed) with high uncertainty had a significant positive correlation with avoidant coping indicating that AWC (regardless of time since diagnosis) with higher uncertainty about their illness are able to us more avoidance coping strategies (p, 127). Avoidant coping was also significantly negatively correlated with resilience in newly diagnosed adolescents with cancer. This latter finding is consistent with the previous work of Haase (1997) who determined that if left unchecked, defensive coping could possibly have an adverse effect on the physical health of adolescents.

Grounded theory qualitative research has been used to explore the process by which adolescents develop resilience. Using a homeless youth sample population, Rew (2003)

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developed a theory of "Taking Care of Oneself." Theorizing that survival on the streets is a major demonstration of this population's ability to be resilient; Rew determined that this population did identify themselves as possessing resilience (p. 239). Similarly, Aronowitz's (2005) theory of "Envisioning the Future" allowed the researcher to posit that at-risk youth become resilient despite environmental stressors. They were able to do this by setting higher expectations of themselves and feeling self-confident.

A secondary analysis of qualitative data was analyzed by Rew and Horner (2003) to identify the strengths that protect homeless youth in a high risk environment. Focus group interviews and a grounded study from three previous studies were used to aid in the development of the Youth Resilience Framework. The authors reported that the "purpose of this framework was to address individual and sociocultural risk factors and protective resources that could improve or hinder the positive and negative health outcomes in adolescence" (p. 90). In this model, resilience is represented by the interaction between risk factors (vulnerability) and protective resources (protection) (Rew & Horner). This framework can be used to develop interventions to improve health outcomes enhance resiliency in efforts to decrease high risk behaviors.

Developing an organizing framework to conceptualize resilience in youth, Mandleco and Peery (2000) have stressed importance of the inclusion of internal factors (biological; psychological) and external factors (within the family; outside the family) affecting resilience in pediatric populations. The authors recommend the use of their basic framework in a variety of settings and populations.

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Conclusions

Regardless of the plethora of empirical literature on the study of adolescent resilience, there are gaps and inconsistent findings regarding this subject. The most obvious disparity is evident in the understanding of resilience in the "healthy, well-adjusted" adolescent. Empirical studies have primarily focused on the physically and mentally ill, maladjusted, abused, and educationally dysfunctional youth and those who are at increased psychological vulnerability, while little is known about the individual who possesses none of these problems. In addition, there is a paucity of documented studies measuring high risk behaviors, stress, and resilience in the typical (e.g. healthy, well-adjusted) undergraduate college student.

There are also contradictory findings in the literature concerning resilience among adolescents. In most cases, resilience in this population is positive, although some researchers have questioned whether resilience is truly a "healthy" state (Hunter, 2001; Hunter & Chandler, 1999). Similarly, while studying resilience in adolescents with cancer Haase (1997) found that these individuals developed defensive coping to deal with the adversities of their diagnosis. According to Haase, if such practices were left unchecked, defensive coping had the possibility of negatively affecting the physical health of these adolescents. Additional researchers have questioned the positive influence of resilience on stress in children or young adolescents (Higgins, 1994; Valliant, 1993). Resilience has typically been described as positive, therefore there is little known about states of maladaptive resilience.

Another contradiction in the empirical literature involves the relationship of social support to resilience. Despite study findings in the literature that indicated the protective factor of social support in resilient youth, there are contradictory findings reported by researchers. Consistent with earlier research findings Carbonell, Reinherz, and Giaconia (1998) determined

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that there was a strong relationship between resilience among youth at risk for emotional problems but who also had the presence of family and social support. Tiet et al. (1998) in their study with samples of youth seeking mental health services also concluded that resilient youth received more guidance and support from their family members. Likewise, with a sample of African American adolescent mothers, Hess, Papas, and Black (2002) determined that supportive relationships with these adolescent mothers appeared to be resiliency factors that facilitated a satisfying relationship with their own children. Hunter (2001) came to similar conclusions with her sample of adolescents as did Kenny, Gallagher, Alvarez-Salvat, and Silsby (2002) and Printz, Shermis, and Webb (1999).

In contrast, other researchers have that social support was not predictive of resiliency (Aronowitz & Morrison-Beedy, 2004; Dumont & Provost, 1999; Markstrom, Marshall & Tryon, 2000; O'Donnell, Schwab-Stone, & Muyeed, 2002; Rouse, 2001). In separate studies all of these researchers reported either a contrast to previous studies and/or were surprised that social support was not predictive of resilience in their participants. The sources of social support for these adolescents included family, friends, and the school environment.

<div align="center">Nursing Implications</div>

Nursing care of adolescents routinely occurs in schools, outpatient clinics, well-child check-ups, emergent, acute, and chronic care settings. Although the focus of nurses often includes health promotion and health protection, early detection and prompt treatment, and care of adolescents with chronic conditions, the primary focus is on education. Regardless of the setting or the role, all nursing care is guided by evidence-based practice. Research is the key to current standards of practice. Registered Nurses must be cognizant of developmental tasks, levels

of stress and effective coping strategies, health risk behaviors, and levels of resilience when caring for adolescents. This knowledge is essential to the provision of holistic nursing care.

Ultimately the nurse has the opportunity to enhance resiliency and minimize high risk behaviors through assessment, education, and referral, if needed. Advanced Practice Nurses provide health screening, education, diagnosis and treatment, and referrals for follow-up care of adolescents. Identifying high risk behaviors is essential to achieving positive health outcomes. Thus, screening for such behaviors and resiliency in the adolescent is critical. For adolescents with low levels of resilience, the nurse would provide appropriate follow-up care and referral as indicated. Such interventions may include one-to-one counseling or peer-support group interventions.

Perhaps because of their developmental stage, adolescents do not always act in a way that serves their best interest or they underestimate the risks of their own behaviors. Resilience research is crucial, because an understanding of resilient characteristics and the processes that enhance resilience in individuals can enable nurses to promote such behaviors.

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CHAPTER THREE:
A REVIEW OF INSTRUMENTS MEASURING RESILIENCE

Background

Throughout time adults have always expressed apprehensions regarding the behaviors of adolescents. Youth have been involved with activities (e.g. sexual behavior, drug experimentation, etc.) that put them at risk. According to Erikson (1968) when looking at the adolescent, the developmental stage of identity versus role confusion often results in risky behaviors. Risk is an essential tool in the formation of identity as the adolescent "tries on" different identities (Erikson, 1968). It is well known that adolescents participate in a variety of risk behaviors that compromise their health and well-being (Rew & Horner, 2003). This is supported by the results of the latest National Youth Risk Behavior Survey (YRBSS) (Centers for Disease Control and Prevention [CDC], 2004) which report a variety of student behavior statistics. Although the YRBSS includes health-risk behavior data (e.g. alcohol/drug use, sexual behaviors, dietary behaviors, physical activity, and behaviors contributing to injury) which may lead to higher morbidity and mortality outcomes in middle and high-school youth, adolescents aged 12 to 17 years were the most likely to report risky behavior (CDC, 2004; Rew & Horner).

Not much is known about how risk-taking and health-promoting behaviors develop during childhood or how these are related to the health-risk behaviors manifested in adolescence (Rew & Horner). In addition to risk factors, researchers have documented that protective resources can interact with risks to influence health promoting behaviors (Davey, Eaker, Wlaters, 2003; Haase, 2004; Hunter, 2001; Rew & Horner, 2003; Rew, Taylor-Sheehafter, Thomas, & Yockey, 2001). Rutter (1993) maintains that the approach of protecting youth from harm through

a combination of risk reduction and the promotion of protective factors has sparked great interest in resiliency-based research.

Resilience is a concept that has been viewed as a categorical construct or as a continuum of adaptation or success (Hunter & Chandler, 1999; Tusaie & Dyer, 2004). As a construct, resilience has been demonstrated to change over time. Its roots are found in two bodies of literature: the psychological aspects of coping and the physiological aspects of stress (Tusaie & Dyer). Much has been written about resilience. Researchers contend that the concept may be a set of traits (Jacelon, 1997), an outcome (Olsson et al., 2003; Vinson, 2002), or a process (Olsson et al.). Resilience has been most often considered as a personality characteristic that moderates the negative effects of stress and promotes adaptation. Resilience can further be defined as the ability to successfully cope with change or misfortune (Wagnild & Young, 1993). This latter definition could serve as a theoretical definition of resilience.

Researchers and scholars have generated resilience theories and frameworks. Polk (1997) developed a middle range theory for this concept. More recently Rew and Horner (2003) developed the Youth Resilience Framework to address individual and sociocultural risk factors and protective resources that could enhance or hamper the positive and negative health outcomes in adolescence. In this model resilience represents the interaction between risk factors (vulnerability) and protective resources (protection) Using this framework, interventions to improve health outcomes enhance resiliency in efforts to decrease high risk behaviors. The Adolescent Resilience Model has been proposed by Haase and colleagues (Haase, 2004; Haase, Heiney, Ruccione, & Stutzer, 1999). This model was developed through triangulation research of adolescents with chronic illness, especially cancer. The components of this model include individual protective factors (courageous coping, hope and spiritual perspective), family

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protective factors (family atmosphere and family support and resources), and social protective factors (health resources and social integration). According to the researchers, the outcome factors depicted by the model include resilience (self-esteem, self-transcendence, and confidence/mastery) and quality of life (sense of well-being) (Haase et al.). Either of the latter two models can be used as a framework to study adolescent resilience.

Empirical evidence has thus led to the development of theoretical and conceptual models of resilience and instruments that operationalize the concept. Resilience has enormous utility for nursing, as it has been demonstrated that resilient individuals are individuals who have positive outcomes in the face of adversity (Rew & Horner, 2003). An understanding of resilient characteristics and the processes that enhance resilience in individuals can enable nurses to promote such behaviors during life transitions and periods of adversity. In order to do this, reliable and valid instruments are necessary to assess resilience.

Methods

Objective of the Review

A review of the literature was undertaken to identify instruments that measure resilience. The instruments were evaluated for their psychometric properties and appropriateness for the study of resilience in adolescents.

Key Questions

The research questions to be considered in the review included:

1.   What instruments are available that measure resilience?

2.   What are the psychometric properties of the identified instruments?

3.   What are the applications for use of the instruments?

4.   Which instrument is most appropriate to measure resilience in the target population of

adolescents?

Inclusion and Exclusion Criteria

Based on these key questions, a list of inclusion and exclusion criteria were developed

(see table 1). Although the target population for application of a research program of study was

the adolescent population, it was decided to evaluate instruments used in all populations. All

criteria had to be met in order for the study to be used in the review.

Literature Search and Retrieval Process

A variety of search strategies were used to identify relevant studies for the systematic

review (see table 2). Search terms included: Resilience AND Scale OR Instrument. Limiters

(where possible) included: English language AND human. PsychINFO and PsychARTICLES

were searched to find studies in the field of psychology, as many of the studies have been

completed in the area of research. In addition, the EBSCO database was used to locate studies in

CINAHL, PreCINAHL, and Academic Search Premier. MEDLINE was also searched for

additional studies. The majority of articles were found in the first search, with mainly

duplications in the latter search strategies. Once original psychometric development studies were

retrieved, author names, instrument or scale names, and journal names were searched for studies

using the resilience instruments/scales. Lastly, an Internet search was made which only resulted

in duplications. Not evident in the search are the attempts made to retrieve "gray" literature.

Where applicable dissertation abstracts were located, attempts were made to contact the authors

($n = 3$). In addition, one instrument author was contacted for further clarification on the

instrument's format and requests for unpublished manuscripts. Refer to figure 1 for a flow diagram of the study selection process.

Evaluation of Quality and Strength of Evidence

One reviewer evaluated the study abstracts for inclusion or exclusion. The main reasons for exclusion were no original data (50%), no reliability and/or validity values (8%), loss of too many study subjects during a longitudinal study (3%), and not able to retrieve the article due to lack of response by the original author (e.g. dissertations and unpublished manuscripts) (39%). Initially seven psychometric development studies were selected for review, but upon closer review, one of the seven was discarded as it did not meet all inclusion criteria. Therefore six initial psychometric development studies were selected for the in-depth review. Studies reporting subsequent use of the instrument were held for review of application of that instrument.

All of the studies were quantitative studies that described the initial psychometric development of the individual instrument. The number of study participants ranged from 59 to 810. The target populations ranged from undergraduate students (n=2) to adults (n=4) in general and clinical populations. The majority of the study subjects were females. The variety of ethnic backgrounds included whites, Norwegians, Japanese, and multiethnic groups (one not reporting). One study was longitudinal (another used a longitudinal piece for the control group), and only one study used controls. All of the instruments evaluated were self-report scales (e.g. Likert, n=5 and Semantic Differential, n=1) which included reliability and validity values.

Results

Data Extraction

Data extraction was completed using a data extraction coding tool. Table 3 displays the complete data collection for each of the 6 studies reviewed. All of the studies measured the construct of resilience either directly or indirectly. While only two studies designated a specific theoretical basis, the remaining authors attributed their framework to resilience in some form. All studies included the full instrument and many included scoring interpretations. Psychometric properties (e.g. norming, scaling, reliability, and validity values, etc.) were reported in all of the studies, many of which were acceptable. Where the reliability and validity values were minimal or unacceptable, they were addressed by the authors. In addition to reliability and validity calculations, descriptive statistics to describe the sample and/or further define the instrument and factor analyses were available. Advantages, disadvantages (by authors and/or reviewer), and instrument applications further assisted in the review of each of the instruments. Refer to summaries of each of the instruments below.

Baruth Protective Factors Inventory (BPFI)

The BPFI is a 16 item 5-point (1-5) Likert Scale. The BPFI measures the construct of resilience by assessing four primary protective factors: Adaptable Personality, Supportive Environments, Fewer Stressors, and Compensating Experiences. The authors state that the reliability and validity of the BPFI need further testing as the scale is refined (Baruth & Carroll, 2002). There are no applications of the BPFI in the literature.

Connor-Davidson Resilience Scale (CD-RISC)

The CD-RISC contains 25 items, each of which is rated on a 5-point (0-4) scale with higher scores reflecting more resilience. The rating scale assessing resilience was evaluated for reliability, validity, and factor structure. Data analyses indicate that the CD-RISC has sound psychometric properties and distinguishes between those with lesser and greater resilience (Connor & Davidson, 2003). The BPFI has been tested in the general population and in clinical settings suggesting that there are numerous potential applications for its use. To date there are only three studies using the CD-RISC in the literature using samples with psychiatric disorders.

Resilience Scale for Adults (RSA)

The RSA is a 37 item, 5-point semantic differential scale (Oddgein Friborg, personal communication, April 18, 2005). The scale is intended to measure the protective resources that promote adult resilience. The RSA contains five factors: Personal Competence, Social Competence, Family Coherence, Social Support, and Personal Structure. According to the authors (Friborg et al., 2003), the RSA is a valid and reliable measure in health and clinical psychology to assess the presence of protective factors important to regain and maintain mental health. To date there is one documented application in the literature using the RSA (written by Friborg).

Adolescent Resilience Scale (ARS)

The ARS is a 21 item scale on a 5 point rating scale (1-5) measuring the psychological features of resilient individuals. The scale was designed for Japanese youth and is comprised of three factors: Novelty Seeking, Emotional Regulation, and Positive Future orientation. Data analyses demonstrate acceptable reliability and validity. The results support the construct of

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adolescent resilience but findings may be difficult to generalize to other populations (Oshio et al., 2002). There is one clinical application in the literature available only in Japanese.

Brief-Resilient Coping Scale (BRCS)

The BRCS is a 4 item scale on a 5-point rating (1-5) which is designed to measure tendencies to cope with stress in a highly adaptive manner. Due to the scale's brevity, it meets only minimal standards for reliability and validity. The authors indicate a need for further testing but suggest that the scale is may be useful for identifying individuals in need of interventions designed to enhance resilient coping skills especially in longitudinal studies (Sinclair & Wallston, 2004). There are no applications of the BRCS in the literature.

Resilience Scale (RS)

The RS is a 25 item scale using a 7 point rating (1-7). The scale has two factors: Personal Competence and Acceptance of Self and Life which measure the construct or resilience. The authors state that their psychometric evaluation support the internal consistency reliability and concurrent validity of the scale (Wagnild & Young, 1993). Although originally testing occurred with adult samples, there are numerous studies in the literature validating that the scale has worked well with samples of all ages and ethnic groups.

Data Synthesis

The six studies were synthesized in terms of population, settings, influencing factors, psychometric properties (including reliability and validity values, etc.), advantages and disadvantages, applications for use, and validity of the evidence. Each instrument was scored

based on these criteria. Refer to table 3 for complete data used for synthesis and finally to table 4 for the review evaluation.

Two of the six instruments (ARS and BRCS) received a poor rating due to lack of evidence that they were appropriate for use with the adolescent population (refer to table 4 for details). Three additional instruments (BPFI, CD-RISC, and RSA) received a fair rating. Although they may be appropriate for use in other settings, they were not appropriate for use with the target population (adolescents). One instrument (RS) was rated as good. Although it was preliminarily tested in adult women, the reliability and validity values reported by the authors, and in subsequent applications of the RS have been good. The RS has been used successfully in the adolescent population to date in at least four studies (Black & Ford-Gilbe, 2004; Hunter & Chadler, 1999; Neill & Dias, 2001; Rew, Taylor-Sheehafer, Taylor, & Yockey, 2002).

Principal Findings of the Review

Although each of the six instruments posses some limitations in terms of their psychometric properties, the findings of the review indicate that the RS is the best choice with the adolescent population. While others may have more potential (e.g. ARS and BPFI) as they were tested in the adolescent and young adult populations, they lack evidence for their use at this time. Further reporting of applications of use of these instruments would be helpful when making a final decision.

Strengths and Weaknesses of the Review

Strengths of the review include finding six studies in the literature describing psychometric development of resilience instruments. The reviewer completed an in-depth review

of the psychometric properties of each of the instruments. Selection of an acceptable instrument resulted in the review process.

The major weakness was the lack of experience of the reviewer in conducting a thorough review. In addition, there were other instruments in the literature which included the study of resilience in adolescent populations. These were all dissertation abstracts and/or unpublished manuscripts. While the reviewer made attempts to contact the original authors, there was no success.

Recommendations

There are a number of recommendations which can be made for the completion of a more thorough review and for clinical and measurement research. Much can be learned from the work of others. The evaluation process for the psychometric properties of an instrument is a complex and time-consuming endeavor. Reading the report of the psychometric evaluation that an instrument developer has completed allows the novice to gain a better understanding of what is necessary to scale, norm, standardize, and establish acceptable reliability and validity statistics. Reviewing the psychometric development literature and other systematic reviews allows the new researcher to critique such works. The recommendations made by researchers can assist others with these complex procedures.

Suggestions can be made for current and future measurement research. Researchers completing current measurement research need to make sure that they follow the procedures necessary for the psychometric development of their instruments. In addition, they need to be aware of what is available in the literature to measure their research concept or construct. Future measurement literature should include more published studies of the psychometric development

and evaluation of instruments and scales, as well as published studies on the uses, adaptations, and translations of measurement instruments. Such publications benefit all researchers. This can only occur if researchers present their findings (positive and negative) through podium, poster, and written presentations. This knowledge can help to advance the science of nursing.

Key Search Terms = Resilience and Scales/Instruments

Limiters = English language and humans

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┌────────────────────────────────────────────────────────┐
│  Potentially relevant citations identified after        │
│  screening of databases (CINAHL, PreCINAHL, Academic    │
│  Search Premier; PsychINFO, PsychARTICLES; MEDLINE; 3   │
│  Journals; and 6 Authors) (n=370)                       │
└────────────────────────────────────────────────────────┘

┌───────────────────────────────────────┐
│  Citations excluded due to not being   │
│  available by study completion &/or    │
│  did not meet inclusion criteria       │
│  (n=338)                               │
└───────────────────────────────────────┘

┌───────────────────────────────────────┐
│  Studies retrieved for more detailed   │
│  review (n=32)                         │
└───────────────────────────────────────┘

┌───────────────────────────────────────┐
│  Studies excluded after a more         │
│  detailed review due to not completely │
│  meeting inclusion criteria (n=26)     │
└───────────────────────────────────────┘

        ╭───────────────────────────────╮
       (   Relevant studies included in   )
      (    Systematic Review (n=6):        )
      (    Baruth & Carroll, 2002          )
      (    Connor & Davidson, 2003         )
      (    Friborg et al., 2003            )
      (    Oshio et al., 2003              )
      (    Sinclair & Wallston, 2004       )
       (   Wagnild & Young, 2003          )
        ╰───────────────────────────────╯

┌───────────────────────────────────────┐
│  Additional studies reviewed for       │
│  usage of instrument/scale (n=20)      │
└───────────────────────────────────────┘
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Figure 1
Flow Diagram of Study Selection Process

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Table 1

Literature Searches: Inclusion and Exclusion Criteria

Inclusion Criteria:	1. Study population • All races, cultural, and ethnic groups • Individuals of any age
	2. Study settings • Studies which were conducted in the developed world (e.g. not including any third world countries) • Any types of settings
	3. Time period • Original study of the psychometric development and/or evaluation of the instrument • Published from 1980 to present
	4. Publication criteria • English only • Articles in print and unpublished manuscripts identified which can be retrieved from the original author

	5. Admissible criteria (study design and other criteria)
	• Original research study of the psychometric development and/or evaluation of the instrument
	• Study included instrument items
	• Eligible research studies include:
	    All types of study designs
	    Relevant outcomes need to be extracted from review
	    Minimum sample population of at least 50
	    If longitudinal study, retention $\geq 70\%$
	    When several studies from the same research data were published, the most recent and/or relevant were included

Exclusion Criteria:	1. Study contains no original data
	2. Study did not measure resilience, or a construct of resilience, in study participants
	3. Study did not include the sample items from the instrument
	4. The article or manuscript cannot be retrieved prior to the completion of the review process

Table 2
Literature Search Strategy: Yield and Final Article Count

Database and Search Strategy	Total References Identified	Articles Excluded	Articles Retained for Full Review	Articles Rejected After Full Review	Articles Included in Systematic Review
PsychINFO and PsychARTICLES	123	110	13	8	5
EBSCO (CINAHL, PreCINAHL, Academic Search Premier)	181	173	8	7	1
MEDLINE	45	43	2	2	0
Journal searches	3	3	0	0	0
Author searches	18	9	9	9	0
Internet – Google search engine	0 duplicates	0	0	0	0
Totals	370	338	32	26	6

Note: Numbers retained for review reflect deletion of duplications

Table 3
Data Extraction of the Instruments Measuring Resilience

Instrument Name	Baruth Protective Factors Inventory (BPFI)	Connor-Davidson Resilience Scale (CD-RISC)	Resilience Scale for Adults (RSA)	Adolescent Resilience Scale (ARS)	Brief-Resilient Coping Scale (BRCS)	Resilience Scale (RS)
Author(s)	Baruth & Carroll, 2002	Connor & Davidson, 2003	Friborg et al., 2003	Oshio et al., 2003	Sinclair & Wallston, 2004	Wagnild & Young, 1993
Article citation	Baruth, K. E., & Carroll, J. J. (2002). A formal assessment of resilience: The Baruth Protective Factors Inventory. *The Journal of Individual Psychology, 58*(3), 125-244.	Connor, K. M., & Davidson, J. R. (2003). Development of a new resilience scare: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety, 18*, 76-82.	Friborg, O., Hjemdal, O., Rosenvinge, J. H., & Martinussen, M. (2003). A new rating scale for adult resilience: What are the central protective resources behind healthy adjustment? *International Journal of Methods in Psychiatric Research, 12*(2), 65-76.	Oshio, A., Kaneko, H., Nagamine, S., & Nakaya, M. (2003). Construct validity of the Adolescent Resilience Scale. *Psychological Reports, 93*, 1217-1222.	Sinclair, V. G., & Wallston, K. A. (2004). The development and psychometric evaluation of the Brief Resilient Coping Scale. *Assessment, 11*(1), 94-101.	Wagnild, G. M., & Young, H. M. (1993). Development and psychometric evaluation of the resilience Scale. *Journal of Nursing Measurement, 1*(2), 165-178.
Verification of study eligibility	Yes	Yes	Yes	Yes	Yes	Yes

Instrument Name	Baruth Protective Factors Inventory (BPFI)	Connor-Davidson Resilience Scale (CD-RISC)	Resilience Scale for Adults (RSA)	Adolescent Resilience Scale (ARS)	Brief-Resilient Coping Scale (BRCS)	Resilience Scale (RS)
Risk domain or construct measured	Protective factors that support resiliency Psychometric development of instrument	Resilience as a measure of successful stress-coping ability Psychometric development of instrument	Central protective resources of healthy adjustment Psychometric development of instrument	Adolescent resilience Construct validity of the ARS	Resilient coping behaviors Psychometric evaluation of instrument	Resilience as a positive personality characteristic that enhances individual adaptation Psychometric development of instrument
Theoretical basis	Research support of four protective factors: adaptive personality, supportive environment, fewer stressors, and compensating experiences	Stress, coping, and adaptation research	Adjustment and coherence	Research support of resilience	Polk's middle range theory of resilience	Research support of the construct of resilience
Target population ▪ Number ▪ Age ▪ Gender	Undergraduate psychology students 98	Multi-study sample: general population (n=577), Primary care	Patients from an adult outpatient clinic 59	Undergraduate students 207 104 Males	Two samples of adults with rheumatoid arthritis Group 1 – 90	Random sample of readership of senior citizen periodical

Instrument Name	Baruth Protective Factors Inventory (BPFI)	Connor-Davidson Resilience Scale (CD-RISC)	Resilience Scale for Adults (RSA)	Adolescent Resilience Scale (ARS)	Brief-Resilient Coping Scale (BRCS)	Resilience Scale (RS)
▪ Ethnicity	19-54 years (predominantly young) 19 male, 79 female multi-ethnic	outpatients (n=139), psychiatric outpatients in private practice (n=43), subjects in a study on generalized anxiety disorder (n=25), subjects in 2 clinical trials on post-traumatic stress disorder (n=22, n=22) (last group only used for partial comparisons; other groups total n=806) Majority female Majority white	Males (n=14) aged 19 to 75 (mean = 33.7); females (n=45) aged 18 to 75 (mean = 36.2) Normal controls (randomly selected) consisted of 128 males (mean age 37.1) and 162 females (mean age 35.6) Norwegian sample	103 Females Aged 19 to 23 (mean = 20.2 years) Japanese sample	females Group 2 – 140 males and females Group 1 – mean age 46 years Group 2 – 57.8 years Ethnicity not reported	810 adults Age range – 53 to 95 (mean = 71.1) 62.3% female Caucasian (n = 796) Asian (n = 7) Ethnicity not reported (n = 7)

Instrument Name	Baruth Protective Factors Inventory (BPFI)	Connor-Davidson Resilience Scale (CD-RISC)	Resilience Scale for Adults (RSA)	Adolescent Resilience Scale (ARS)	Brief-Resilient Coping Scale (BRCS)	Resilience Scale (RS)
Study setting	University	Multi-site	Adult psychiatric outpatient clinic and controls	University	Not reported	Mailed survey
Study type and design	Quantitative, Exploratory, Psychometric development	Quantitative, Exploratory, Psychometric development	Quantitative, Quasi-experimental, Longitudinal component for controls only, Psychometric development	Quantitative, Exploratory, Psychometric development	Quantitative, Longitudinal, Psychometric development	Quantitative, Quasi-experimental, Psychometric development
Length of follow-up	N/A	N/A	4 months for control group	N/A	3 months	N/A
Drop-outs	none	none	Response rates for both groups reported	none	None	Response rate reported
Missing data	Not reported	Missing data available for gender and ethnic status	Not reported	Not reported	Not reported	Not reported
Number of items	16	25	37	21	4	25
Psychometric Properties						
• Scaling	Five point Likert Scale	Five point Likert Scale	Not indicated	Five point rating scale	Five point rating skill	Seven point Likert scale
• Dimension-ality	Factor analysis yielded 3 subscales	Factor analysis yielded 5 subscales	Factor analysis yielded 5 subscales	Factor analysis yielded 3 subscales	Unidimensional A factor analysis	Factor analysis yielded 2 subscales

Instrument Name	Baruth Protective Factors Inventory (BPFI)	Connor-Davidson Resilience Scale (CD-RISC)	Resilience Scale for Adults (RSA)	Adolescent Resilience Scale (ARS)	Brief-Resilient Coping Scale (BRCS)	Resilience Scale (RS)
					did not support multi-dimensionality of the scale	
• Norming	Reported with this original psychometric development	Reported with this original psychometric development	Reported with this original psychometric development	Reported with this instrument development but not described	Reported with this original psychometric development	Reported with this original psychometric development
• Administra-tion Procedure	Directions for completion	Not described	Not described	Not described	Directions for completion	Directions for completion
• Scoring procedure	Combine scores of all items; Higher score equals higher resiliency for total scale and subscales	Combine scores of all items; Higher score equals higher resilience	Not described	Total scale score and subscale scores obtained by calculating means	Not described	Combine scores of all items; Higher score equals higher resilience
• Reliability	Internal consistency- for total scale Cronbach's Alpha (.83) and subscales (adaptive personality .76, supportive	Internal consistency for full scale Cronbach's Alpha .89 for group 1 and item-total correlations ranged from	Internal consistency (Cronbach's alpha) of all contrast scales indicate adequate psychometric properties. Internal	Internal consistency among all factors of the ARS (r = .72 to .75 for subscale range).	Internal consistency – Cronbach's alpha reliability for the scale was computed for group 1 as.64 (first baseline), .76 (second	Authors cite acceptable reliability from previous studies using the RS Reliability coefficient alpha of .91

Instrument Name	Baruth Protective Factors Inventory (BPFI)	Connor-Davidson Resilience Scale (CD-RISC)	Resilience Scale for Adults (RSA)	Adolescent Resilience Scale (ARS)	Brief-Resilient Coping Scale (BRCS)	Resilience Scale (RS)
	environment .98, fewer stressors .55, and compensating experiences .83) using	.30 to .70 Test-retest reliability assessed from subjects in groups four and five with intraclass correlation coefficient of .87	consistency of subscales ranged from 0.67 to 0.90. Test-retest correlations satisfactory for subscales ranging from 0.69 to 0.84 (p<0..01) Item-total correlations for subscales: personal competence (0.51 to 0.75), social competence (0.48 to 0.74), family coherence (o.56 to 0.74), social support (0.43 to 0.70), and personal structure (0.37 to 0.48)		baseline), .69 (end of intervention), and .71 (3 month follow-up). Cronbach's alpha reliability for the scale was computed for group 2 as .68. Pooled sample alpha was .69 Test-retest reliability for group 1 was .71 (n=87, p<.001) during baseline and .68 (n=83, p<.001) at 3 months follow-up	Item-to-item correlations ranged fro, .37 to ,75 (majority between .50 and .70, p ≤ .001
• Validity	Content validity – expert Construct	Convergent and discriminant validity were	Construct validity reported as high (no statistics	Coefficients alpha for total scale score .85;	Content validity – panel of experts	A priori content validity (during construction of

Instrument Name	Baruth Protective Factors Inventory (BPFI)	Connor-Davidson Resilience Scale (CD-RISC)	Resilience Scale for Adults (RSA)	Adolescent Resilience Scale (ARS)	Brief-Resilient Coping Scale (BRCS)	Resilience Scale (RS)
	validity – established by comparison with other established tools to determine correlations of the subscales	assessed by correlating the scores of this scale with other more established instruments Convergent validity – present Discriminant validity – not present	reported) Discriminant validity was indicated by differential positive correlations between scale and the Sense of Coherence Scale and the Hopkins Symptom Checklist	subscales Novelty Seeking (.75), Emotional Regulation (.77), Positive Future Orientation (.81) Construct validity was reported with comparison of mean scores to those of two other established scales	Predictive validity reported that the BRCS scores correlated in theoretically predicted directions with scores from a variety of other measures	scale, items were selected that reflected generally accepted definitions of resilience from interviews with resilient individuals and with an expert panel Authors cite acceptable validity from previous studies using the RS Concurrent validity support was shown by high correlations of the RS with well-established valid measures of the constructs linked with

Instrument Name	Baruth Protective Factors Inventory (BPFI)	Connor-Davidson Resilience Scale (CD-RISC)	Resilience Scale for Adults (RSA)	Adolescent Resilience Scale (ARS)	Brief-Resilient Coping Scale (BRCS)	Resilience Scale (RS)
						resilience and outcomes of resilience (depression r = -.37), life satisfaction (r = .30), morale (r = .28), and health (r = -.26)
Study results	Reliability and validity of the scale need to be further investigated to insure the accuracy and precision of the scale in the assessment of protective factors	Scale demonstrated good psychometric properties with a factor analysis yielding 5 factors Scale demonstrates that resilience is modifiable and can improve with treatment	Scale may be used as a valid and reliable measurement in health and clinical psychology to assess the presence of protective factors important to regain and maintain mental health	Scale correctly reflects psychological features of individuals who show resilience after facing negative life events	Scale demonstrated to possess adequate reliability and validity. The BCRS may be useful for identifying individuals in need of interventions designed to enhance resilient coping skills	Study supports the internal consistency reliability and concurrent validity of the RS as an instrument to measure resilience
Instrument advantages	Scale can be useful for educators and	Tested in general population and	Good construct and discriminant validity	Results support the construct of adolescent	Easy to administer (4 items)	Multiple applications of the scale in both

Instrument Name	Baruth Protective Factors Inventory (BPFI)	Connor-Davidson Resilience Scale (CD-RISC)	Resilience Scale for Adults (RSA)	Adolescent Resilience Scale (ARS)	Brief-Resilient Coping Scale (BRCS)	Resilience Scale (RS)
	counselors (with further refinement of the scale) Presence of reversed scored items	in clinical samples Good internal consistency and test-retest reliability Validity demonstrated with other measures of stress and hardiness reflecting different levels of resilience 4 item Likert – forced response to positive or negative	Presence of reversed scored items	resilience	Sufficient internal consistency and stability for a 4-item scale Scale can easily be administered multiple times in a longitudinal study	sexes, multiple ages and ethnic groups with good reliability and validity are available
Instrument disadvantages	Other factors not measured can affect resilience Reliability and	Assesses characteristics of resilience but does not assess the resiliency	Questionable external reliability of scale due to non-random sample and low response	Findings only generalizable to Japanese adolescents One published	Scale meets minimal reliability standards (.70) Scale brevity (4 items) can affect internal	Test-retest reliability needs further evaluation Initial wording

Instrument Name	Baruth Protective Factors Inventory (BPFI)	Connor-Davidson Resilience Scale (CD-RISC)	Resilience Scale for Adults (RSA)	Adolescent Resilience Scale (ARS)	Brief-Resilient Coping Scale (BRCS)	Resilience Scale (RS)
	validity need further investigation Cannot generalize findings to all ages and ethic groups Possibly small sample size Lack of administration procedure description and detailed scoring procedure	process Lack of administration procedure description and detailed scoring procedure No reversed scored items (risk for rating bias)	rate Findings may be only generalizable to Norwegian adults seeking psychiatric treatment Lack of administration procedure description and detailed scoring procedure No reversed scored items (risk for rating bias)	application of instrument (in Japanese) Lack of administration procedure description and detailed scoring procedure	consistency Lack of administration procedure description and detailed scoring procedure No reversed scored items (risk for rating bias)	of items were compiled from women's statements only Further piloting of item wording is needed Questionable as to whether the construct is unidimensional or multidimensional Lack of administration procedure description and detailed scoring procedure No reversed scored items (risk for rating bias)

Instrument Name	Baruth Protective Factors Inventory (BPFI)	Connor-Davidson Resilience Scale (CD-RISC)	Resilience Scale for Adults (RSA)	Adolescent Resilience Scale (ARS)	Brief-Resilient Coping Scale (BRCS)	Resilience Scale (RS)
Articles reporting research using instrument	None	Assessment of post-traumatic stress disorder (Connor & Davidson, 2001) Post-traumatic stress disorder (Davidson, Payne, & Connor, 2005) Treatment of anxiety disorders (Pollack, Murray, & Davidson, 2004)	Resilience, personality, and intelligence (Friborg, Barlang, Martinussen, Rosenvinge, & Hjemdal, 2005)	One (in Japanese) not application	None	Russian immigrants (Arorian & Norris, 2000) Psychometric evaluation of the Russian version RA (Aroian, Schappler-Morris, Neary, Spitzer, & Tran, 1997) Adolescent mothers (Black & Ford-Gilboe, 2004) Irish immigrants (Christopher, 2000) Resilience and older women (Felten & Hall, 2001)

Instrument Name	Baruth Protective Factors Inventory (BPFI)	Connor-Davidson Resilience Scale (CD-RISC)	Resilience Scale for Adults (RSA)	Adolescent Resilience Scale (ARS)	Brief-Resilient Coping Scale (BRCS)	Resilience Scale (RS)
						Alzheimer family caregivers (Garity, 1997)

Community-dwelling older persons (Hardy, Concato, & Gill, 2004)

Mexican women and depression (Heilemann, Lee, & Kury, 2002)

Psychometric evaluation of Spanish version of RS (Heilemann, Lee, & Kury, 2003)

Sheltered battered women (Humphreys, 2003)

Adolescents |

Instrument Name	Baruth Protective Factors Inventory (BPFI)	Connor-Davidson Resilience Scale (CD-RISC)	Resilience Scale for Adults (RSA)	Adolescent Resilience Scale (ARS)	Brief-Resilient Coping Scale (BRCS)	Resilience Scale (RS)
						(Hunter & Chandler, 1999) Low income young Mexican-Americans (Linderberg, Solorzano, Bear, Strickland, Galvis, & Pittman, 2002) Middle-age Soviet Union women (Miller & Chandler, 2002) Mothers (Monteith & Gilboe, 2002) Young adults and adventure education (Neill & Dias, 2001) Homeless adolescents

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Instrument Name	Baruth Protective Factors Inventory (BPFI)	Connor-Davidson Resilience Scale (CD-RISC)	Resilience Scale for Adults (RSA)	Adolescent Resilience Scale (ARS)	Brief-Resilient Coping Scale (BRCS)	Resilience Scale (RS)
						(Rew, Taylor-Sheehafer, & Taylor, 2002) Military mothers (Schachman, Lee, & Lederman, 2004) Resilience and older women (Wagnild, 1990) Resilience and older adults (Wagnild, 2003) Wagnild and Young report five additional studies performed by other researchers after their initial work with the instrument but prior to their psychometric evaluation (e.g.

Instrument Name	Baruth Protective Factors Inventory (BPFI)	Connor-Davidson Resilience Scale (CD-RISC)	Resilience Scale for Adults (RSA)	Adolescent Resilience Scale (ARS)	Brief-Resilient Coping Scale (BRCS)	Resilience Scale (RS)
						caregivers of spouses with Alzheimer's, graduate students, first time mothers returning to work, residents in public housing, and pregnant and postpartum women). All are unpublished manuscripts. When requested, Wagnild (personal communication, November 24, 2005) reported that these data did not contribute further to the research findings

Table 4
Evaluation of Selected Research-Related to Instruments that Measure Resilience

Instrument	Population & Setting	Psychometric properties	Possible Influencing Factors	Advantages & Dis-advantages	Applications for Use	Validity of Evidence	Quality Rating
BPFI	98 under-graduate students, mostly young, mostly female multi-ethnic University setting	Scaling and norming reported Some administration and scoring procedures described Internal consistency for scale and subscales r = .55 to .98 Content and Construct validity Reversed-scored items	Extraneous variables not measured may influence resilience Sample size Nonrandom sample	A-Not many advantages except for some limited application A-Reversed scored items D-Small sample size D-Cannot generalize to all ages and ethnic groups D-No applications in the literature D-Lack of detailed	Scale may be useful for educators and counselors	Lack of evidence to support its use in the adolescent population due to sample size, potential effect of extraneous variables, and lack of generalilza-bility	Fair

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Instrument	Population & Setting	Psychometric properties	Possible Influencing Factors	Advantages & Dis-advantages	Applications for Use	Validity of Evidence	Quality Rating
				administration and scoring procedures			
CD-RISC	806 subjects from the general population and clinical sites adults, mostly female, mostly white Multi-site study	Scaling and norming reported Some scoring procedure description Internal consistency for scale .89; test-retest reliability .87 Convergent validity present Discriminant validity not present No reversed-scored items 4 item Likert scale – forced response	Missing data reported Sample consisted of mostly white, female, adults Nonrandom sample	A-Assesses characteristics of resilience A-Large sample size D-Does not assess process of resilience D-Cannot generalize findings to larger population D-No reversed scored items (rating bias) D-lack of detailed administration and scoring guidelines	Designed for use with in mental health clinical sites Three applications in the literature (mental health)	Lack of evidence to support its use in the adolescent population due to potential effect of extraneous variables, and lack of generalilza-bility	Fair

Instrument	Population & Setting	Psychometric properties	Possible Influencing Factors	Advantages & Dis-advantages	Applications for Use	Validity of Evidence	Quality Rating
RSA	59 adults (mental health out patients) and 128 adult (controls) Norwegian sample exclusively	Scaling not reported Norming reported Administration and scoring procedures not reported Internal consistency r= .67 to .90 Test-retest correlations r = .69 - .84 Item subscale correlations .37 - .75 Construct validity reported as high Discriminant validity reported Reversed scored items	Nonrandom sample One cultural group used	A-Good construct and discriminant validity A_Reversed scored items D-Questionable external reliability due to nonrandom sample and low response rate D-Findings may only be able to generalized to Norwegian adults seeking psychiatric treatment D-Lack of administration and scaling procedures	One application in the literature, sample population and author	Lack of evidence to support its use in the adolescent population due to sample size, exclusive use of one culture, and potential effect of extraneous variables, and lack of generalilza-bility	Fair

Instrument	Population & Setting	Psychometric properties	Possible Influencing Factors	Advantages & Dis-advantages	Applications for Use	Validity of Evidence	Quality Rating
ARS	207 under-graduate students males and females fairly equal Japanese sample exclusively	Scaling and norming reported Administration procedure not described Scoring description brief Internal consistency of subscales r = .72-.75 Construct validity present Reversed scored items	Small sample size Nonrandom Sample	A-Construct validity of instrument supported A-Reversed scored items D-Small sample size D-Lack of generalize-bility to other cultures Nonrandom sample	Only for same population One application in the literature (by same author and only available in Japanese)	Lack of evidence to support its use due to sample size, exclusive use of one culture, and potential effect of extraneous variables, and lack of generalilza-bility	Poor
BRCS	230 clinical groups adults mostly females no ethnicity reported Site not reported	Scaling and norming reported Administration description brief No scoring procedure described Internal consistency r = .64 - .71	Possibly small sample size Nonrandom sample Instrument brevity	A-Easy to administer D-Minimal reliability and reliability D-Lack of generalil-Zability D-Lack of	Ease of use to measure resilience frequently in a longitudinal study Clinical mental health setting	Lack of evidence to support its use in the adolescent population due to sample size, potential effect of extraneous variables,	Poor

Instrument	Population & Setting	Psychometric properties	Possible Influencing Factors	Advantages & Dis-advantages	Applications for Use	Validity of Evidence	Quality Rating
		Test-retest reliability .68 - .71 Content validity		detailed administration and scoring procedures D-No reversed scored items	No applications of use in the literature	minimal reliability and validity values, and lack of generalilza-bility	
RS	810 adults majority female and Caucasian Mailed survey	Scaling and norming reported Brief administration and scoring procedure description Item-to-item correlations .37 - .75 Content validity Concurrent validity No reversed scored items Authors cite numerous acceptable reliability and validity from previous studies	Sample content Response rate	A-large sample size A-Random sample A-Numerous applications in the literature D-Questionable generalize-bility from this study alone D-No reversed scored items	Numerous applications in the literature including both sexes, all ages, and ethnic groups	Possible lack of evidence to support its use in the adolescent population due to potential effect of extraneous variables, and lack of generalilza-bility. Subsequent reports of numerous applications in the literature in	Good

Instrument	Population & Setting	Psychometric properties	Possible Influencing Factors	Advantages & Dis-advantages	Applications for Use	Validity of Evidence	Quality Rating
						all ages and ethnic groups make the selection of this instrument a viable choice	

Key: Poor – Does not indicate that there is acceptable validity for evidence for use to study resilience in the adolescent population

Fair – Indicates that there may be acceptable validity for evidence for use to study resilience in the adolescent population with   further study of the instrument (more applications of use, reliability, and validity values).

Good- Indicates that there may be acceptable validity for evidence for use to study resilience in the adolescent population

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CHAPTER FOUR:
EXPLORATION OF THE RELATIONSHIPS AMONG PERSONAL CHARACTERSITICS, LEVELS OF STRESS, HIGH RISK BEHAVIORS, AND LEVELS OF RESILIENCE IN ADOLESCENT COLLEGE STUDENTS

Background

Relevant Literature

The construct of resilience has gained considerable attention over the last four decades. Roots of the construct can be found in two bodies of literature, i.e. the psychological aspects of coping and the physiological aspects of stress (Tusaie & Dyer, 2004, p. 4). Early psychological researchers began to notice that children were growing up in environments that exposed them to a variety of risks. Many of these children, who were able to adapt and cope despite these unfavorable conditions, were soon labeled as "resilient" (Masten, Best, & Garmezy, 1990). Research endeavors flourished in an attempt to determine the characteristics, traits, or other protective mechanisms that allowed these individuals to adapt, cope and be successful in spite of adverse conditions. Although the earlier research focused on children who were living in adverse conditions, it became evident that children in general are frequently exposed to multiple stresses. This is especially true during periods of transition, which can be quite evident during adolescence when young people are making a transition to adulthood and are more exposed to high risk behaviors.

Adolescence is considered as a period of vulnerability for most individuals. They are more susceptible to illness and health problems (DeChesnay, 2005) and more likely to partake in high risk behaviors (Erikson, 1968) which can be developmental in nature. Adolescents often

consider themselves to be invulnerable and many times make less than optimal life choices (Erikson, 1968; Fischhoff, Nightingale, & Iannotta, 2001). Adults have often raised concerns about this sense of invulnerability that adolescents feel and the link to high risk behaviors. The most recent findings of the Youth Risk Surveillance Survey (YRBSS) and the National Survey of Family Growth (NSFG) conducted by the National Center for Health Statistics (NCHS) support such concerns. The YRBSS trending data indicate that many of the risk behaviors of high school youth are increasing. Survey findings from the most recent report (n = 13, 953) indicate that 23% smoke, 43% drink alcohol, and 25% have had sexual intercourse (CDC, 2006a, 2006b). The NSFG findings indicate that more than half of males (55.2%) and females (54.3%) aged 15 to 19 years surveyed have engaged in oral sex (CDC, 2005). These adolescents revealed that they have engaged in oral sexual behaviors rather than sexual intercourse so that they will remain as virgins and decrease their risks of getting pregnant. These high risk behaviors may be a result of adolescence.

Adolescence can also be a turbulent time of normative developmental stress, but for those individuals who are in their early college years, the developmental challenges of this life phase can be complicated by numerous stresses. For years, researchers in the social sciences, education, and health-related fields have found a significant association between life stress and adjustment problems (Chang, 2001; Williams & Lisi, 2000) and illness (Li & Lin, 2003) in both adult and adolescent both populations. An adolescent who is exposed to stress may be a psychologically healthy and well-adjusted individual or be one who experiences psychological vulnerability (Taylor & Brown, 1988). Indeed "vulnerability can be thought of as potential threat that is transformed into active threat when that which is valued is actually put in jeopardy in a particular transaction" (Lazarus & Cohen, 1977, p. 51).

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The prevailing theoretical basis for the body of research on coping behaviors of adolescents arises from the work of Lazarus and Folkman (1984). Lazarus' transactional theory of psychological stress provides a framework for coping and appraisal. Psychological stress is defined in terms of the "relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus & Folkman, 1984, p. 19). Lazarus and Folkman considered an individual's appraisal of a stressful event as a critical factor in the process of coping.

Given that coping strategies can change as one learns new skills of appraisal, the determination of which coping strategies are effective for adolescents, ages 18-20, is essential in the study of adolescent resilience. Further, such knowledge is essential for the adolescent who engages in high risk behaviors or is faced with the decision to participate in these behaviors. Knowing more about stress and coping used by this population and/or whether resilience influences stress could contribute to a better understanding of adolescent resilience.

Stress is a common theme among college students thus effective coping strategies are associated with decreased anxiety and increased academic success (Murff, 2005). Based on this premise Pritchard and Wilson (2006) surveyed freshmen students at the beginning and end of their first college semester to examine whether the coping styles of such students change over the course of the first semester. Using an author-revised Brief COPE scale (Carver, 1997; Wilson, Prichard, & Revalee, 2005) the researchers classified the survey items into emotion-focused, problem-focused, and avoidant coping. Contrary to the authors' expectations they found few differences in the coping styles of these freshmen. The authors found only few gender differences in coping strategies used by these students. Earlier research revealed gender

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differences where females used more emotion-oriented coping strategies with males more likely to use problem-oriented coping (Wilson, Prichard, & Revalee).

Researchers contend that the response to two types of stress (daily hassles and major life events) may be developmental (Donaldson, Prinstein, Danovsky, & Spirito, 2000; Williams & Lisi, 2000). For adolescents, daily hassles may include homework, quarrels with friends, etc.; major life events may include parental divorce, death of a loved one, changing schools, etc. (Williams & Lisi; Kanner, Coyne, Schaefer, & Lazarus, 1981; Kanner, Feldman, Weinberger, & Ford, 1987). Although both types of stress may affect coping processes in adolescents, researchers have determined that the smaller daily hassles may cause more stress in this population (Dumont & Provost, 1999; Kanner, Feldman, Weinberger, & Ford, 1987).

Postulating that there are developmental changes in coping during adolescence and that specific strategies may vary with gender and the type of stress, Williams and Lisi (2000) examined coping strategies used by adolescent students with daily hassles and major life events. Finding differences in coping strategies in the age groups of the adolescents, their results suggest that significant changes may affect adaptive process and have implications for interventions aimed at decreasing the negative effects of stress during this period of development (p. 537). Similarly Donaldson, Prinstein, Danovsky, and Spirito (2000) found that patterns of coping were similar across the various stressors, determining that older adolescents, when compared to younger children, tended to use a wider range of coping strategies, regardless of the stress.

To date the adolescent resilience literature has focused primarily on the areas of risk and vulnerability, protection and positive health practices, resilience, and stress. Empirical evidence of the construct has been framed within a variety of global models including the compensatory, challenge, and protection versus vulnerability. The compensatory model assumes that some

mechanism can neutralize the risk effects (Luthar, 1991; Masten et al., 1988). Challenge model is built on the premise that stress can either enhance or reduce stress (Garmezy, Masten, & Tellegen, 1984). The more well-known protection-vulnerability model includes the premise that some personal attribute(s) reduce stress (Luthar, 1999), and are often viewed as a balance between risk and protection (Garmezy, 1985; Rutter, 1985; Rutter, 1987). Furthermore Stouthamer-Loeber et al. (1993) contend that risk and protection may not be a linear relationship but may interact.

There is a plethora of evidence on the effects of risk and adversity on adolescents. Likewise there has been an increase in resilience research focusing on the characteristics, traits, or factors that may help one to thrive despite such adversity. Such research examined a multitude of the intrapersonal and environmental factors that could influence resilience. Completing an historical review of the construct of resilience, Tusaie and Dyer (2004) so aptly conclude their observations as "(1) the importance of a dynamic, interactive perspective of a dynamic, interactive perspective for understanding resilience, (2) the complexity of the construct requires a holistic perspective, and (3) the importance if exposure to diverse experiences and educational perspectives of professional health care students" (p. 6).

Nurse researchers have focused on the characteristics and processes of the concept of resilience, the relationships between resilience and other study variables, models and measurement instruments. Rew and colleagues have studied adolescent resilience, especially homeless youths (Rew, 2001; Rew & Horner, 2003; Rew, Taylor-Sheehafer, Thomas, & Yockey, 2001). Examining the sexual health practices of homeless adolescents, Rew (2001) determined that these youths were vulnerable to physical, social, and emotional risks related to cultural and

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sexual health practices. The research by Rew and colleagues has led to the development of a framework for interventions for this vulnerable population.

Rew, Taylor-Sheefar, Thomas, and Yockey (2001) considered resilience in homeless adolescents. Using a convenience sample of 59 homeless youth ages 15-22 years, the researchers determined that "approximately half of the sample (47%) reported a history of sexual abuse while more than a third (36%) self-identify as gay, lesbian, or bisexual orientation" (Rew, Taylor-Sheehafer, Thomas, & Yockey, p.38). The majority of the study population had been thrown out of their homes, and others had left because their parents disapproved of their drug or alcohol use or had been sexually abused by their parents. Lack of resilience was significantly related to loneliness, hopelessness, life-threatening behaviors, and connectedness, but not to sexual orientation or gender. The researchers concluded that "those who perceived themselves as resilient were less lonely and less hopeless and engaged in less life-threatening behaviors than those who were not self identified as resilient" (Rew, Taylor-Sheehafer, Thomas, & Yockey, p. 38). The researchers recommended that interventions should be designed to promote health and well-being in this vulnerable population (e.g. minimizing risks and maximizing the protective factors of resilience) (p. 39).

Using the data from the National Longitudinal Survey of Youth data set of 443 young girls, Aronowitz and Morrison-Beedy (2004) investigated the relationships among connectedness to mother, time perspective, and resilience to risk-taking behaviors in poor African American girls 11-15 years old. Despite identified measurement issues (e.g. limitations of secondary analysis requiring instrument development from an established data set), these researchers established that there was no direct relationship between maternal connectedness and resilience.

Instead, they determined that future time perspective was the "mediator between maternal connectedness and resilience (path = -.26, and -.37)" (Aronowitz et al., p. 36).

In an attempt to clarify the concept of resilience in adolescents, Hunter (2001) conducted a qualitative study using a focus group of 40 adolescents. The researcher found that "irrespective of age, gender, cultural, and socioeconomic status, adolescents usually believe they are resilient" (p. 178). While those adolescents who identified the existence of social support in the form of a caring, loving, and mentoring adult showed a connected form of resilience, those who did not have such social support in their lives showed survival and self-protective forms of resilience (Hunter, p. 178).

Subsequent to the development of the Adolescent Resilience Model (ARM) and the related work by Haase and colleagues, Decker and Haase (2005) investigated the relationships of uncertainty, family, social support, and resiliency to coping in adolescents with cancer (AWC). Using the data from two previously conducted ARM studies at multiple cancer centers, the researchers performed a factor analysis to determine a coping model. This testing resulted in two factors they labeled as "active (problem-solving behaviors) and avoidant (changing behavior in order to avoid thoughts or behavior related to situation based on adolescent coping literature" (Decker & Haase, p. 127). They concluded that AWC from both groups had a "significant positive correlation with avoidant coping indicating that AWC (regardless of time since diagnosis) with higher uncertainty about their illness are able to use more avoidance coping strategies" (p. 127). "Avoidant coping was also significantly negatively correlated with resilience" in newly diagnosed adolescents with cancer (p. 127). Their findings supported the previous work of Haase (1997) who determined that if left unchecked, defensive coping could possibly have an adverse effect on the physical health of adolescents.

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Nurse researchers have also explored the process by which adolescents develop resilience through grounded theory qualitative research. With her work again with homeless youth, Rew (2003) developed a theory of "Taking Care of Oneself." She theorized that "survival on the streets is a major demonstration of this population's ability to be resilient" (p. 239). Likewise, Aronowitz's (2005) theory of "Envisioning the Future" allowed the researcher to reason that at-risk youth become resilient despite environmental stressors by setting higher expectations of themselves and feeling self-confident.

Rew and Horner (2003) completed a secondary analysis of qualitative data to identify the strengths that protect homeless youth in a high risk environment. Their analysis contained focus group interviews and a grounded study from three previous studies to aid in the development of the Youth Resilience Framework. According to the authors, the "purpose of this framework was to address individual and sociocultural risk factors and protective resources that could improve or hinder the positive and negative health outcomes in adolescence" (p. 90). In this model, resilience is seen as the interaction between risk factors (vulnerability) and protective resources (protection) (Rew & Horner). Health care providers can use the framework to develop interventions to improve health outcomes enhance resiliency in efforts to decrease high risk behaviors.

In an attempt to formulate an organizing framework for conceptualizing resilience in children [and adolescents], Mandleco and Peery (2000) have stressed the inclusion of "internal factors (biological; psychological) and external factors (within the family; outside the family) affecting resilience in pediatric populations" (p. 110). The authors recommend the use of their basic framework in a variety of settings.

The specific aim of this research is to add to the body of knowledge about adolescents and resilience. Although there is an abundance of literature regarding resilience and adolescent resilience, there is little known about this process in the healthy well-adjusted adolescent college student. There are a number of empirical findings regarding resilience of adolescents with learning problems, those who are homeless, delinquent, or who are otherwise experiencing extreme vulnerabilities, but there is a paucity of empirical evidence regarding resilience in the healthy adolescent who attends college. Additionally there are inconsistencies in reported findings about whether resilience is a healthy state.

Although most researchers have assumed that resilience is a healthy state, others have theorized that this may not be so. Researchers contend that this premise may not always be true (Hunter, 2001; Hunter & Chandler, 1999). Hunter's ongoing study of resilience in adult and adolescent populations indicates that resilience may not always be a positive adaptation to adversity, and in some cases can be detrimental (A. J. Hunter, personal communication, February 12, 2007). Likewise, Haase's (1997) research with adolescents with cancer led her to conclude that these youth could develop defensive coping to deal with the adversities of their diagnoses. According to Haase, this defensive coping could negatively affect their physical health (p. 20). Additional researchers have also questioned the positive affect of resilience on adolescents in every situation (Decker & Haase, 2005; Higgins, 1994; Valliant, 1993), therefore leading one to question what is known about states of maladaptive resilience.

There is also evidence in the literature that contradictions exist regarding the effect of social support on this process. Despite empirical evidence that social support of a variety of forms enhances resilience (Carbonell, Reinherz, & Giaconia, 1998; Hess, Papas, & Black, 2002;

Hunter, 2001; Kenny, Gallagher, Alvarez-Salvat, & Silsby, 2002; Printz, Shermis, & Webb, 1999; Tiet et al., 1998), other researchers have found that social support was not predictive of resilience (Aronowitz & Morrison-Beedy, 2004; Dumont & Provost, 1999; Markstrom, Marshall, & Tryon, 2000; O'Donnell, Schwab-Stone, & Muyeed, 2002; Rouse, 2001).

Resilience is significant in the study of individuals who are exposed to stress. Adolescents are known to be vulnerable for a variety of reasons. Times of transition during their achievement of developmental tasks often expose them to stress (e.g. daily hassles and major life events). Thus, it is of great importance to study resilience in college students who are adding the possibilities of additional stress as they make a more formal transition into adulthood. Therefore resilience has enormous value for nurses, health care providers, and other individuals who work with adolescents.

There is a plethora of resiliency literature and research studies on children, adolescents, adults, families, and communities who have experienced adversity, and therefore stress. Yet, minimal research has been conducted with well-adjusted, healthy adolescents who are confronted with daily hassles rather than major life events and psychological vulnerability. An understanding of resilient characteristics and the processes that enhance resilience in adolescents can enable individuals to encourage such behaviors during such life transitions and periods of adversity. Researchers have also determined that it is not just enough to reduce risk in adolescent behavior, but it is becoming more important to strengthen the protective factors in the lives of vulnerable adolescents (Blum & Ireland, 2004). Thus, approaches to and interventions that enhance protective factors in adolescents, such as college students, can potentially minimize vulnerabilities and promote healthy outcomes. Therefore, adolescents who are resilient are more likely to develop into adults who can cope and adapt to adverse conditions. Investment in

measures to enhance the positive health and behavioral outcomes of adolescents is well worth the effort (Burt, 2002; Shi & Stevens, 2005).

These efforts are especially important in light of the fact that a recent study has indicated that nurse may not feel competent to meet the health care needs of adolescents. Saewyc, Bearinger, McMahon, and Evans (2006) compared the findings of parallel national survey results completed in 1985 and 1997 by nurse members of the American Public Health Association, the National Association of Pediatric Nurse Associates, and the National Association of School Nurses. Although the researchers determined that self-reported competence improved, still almost a quarter of the study participants reported a less knowledge in approximately half of adolescent health areas (Saewyc et al.). These same nurses indicated in the more recent that they "did not feel competent to address the needs of gay, lesbian, and bisexual youth" (p. 304). The most surprising finding was that the same proportion of nurses did not feel that a number of Healthy People 2010 priority areas for adolescents were not relevant to their practice. These findings support the need for nurses and other health care providers to be more cognizant of adolescent health care issues, to be more competent in providing care, and to be able to develop and provide strategies to promote health and wellness in adolescent youth.

Conceptual Model

Hunter and Chandler offer a depiction of resilience as the Continuum of Resilience in Adolescence (1999) (see figure 2). Using a triangulated research design, the authors studied resilience in a small group (n = 51) of inner-city high school students. Their findings suggested that "being resilient was not having a healthy sense of self, a strong sense of self-worth, or the ability to connect and trust others" (p. 246). Instead, their sample indicated that resilience to them was survival. These findings led the authors to conclude that resilience may be a process of

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defense for survival. Thus, Hunter and Chandler developed a depiction of resilience in their Continuum of Resilience in Adolescents indicating that "it might be more appropriate to consider the possibility that resilience exists along a continuum, that moves between less than optimum and optimum resilience… and varies with each developmental stage" (p. 246). Although not originally a formal model or theory, the primary author has used the continuum as a model in research studies (A. J. Hunter, personal communication, February 12, 2007). Hunter and Chandler suggest that resilience in adolescents is adaptive and must therefore exist along a continuum of risk and healthy adaptation. This model was used for this research with permission (see Appendix A for permission letter).

This parsimonious model was revised for the current research. The study variables included stress (perceptions of stress), the personal characteristics (demographics), high risk behaviors (lower end of the resilience continuum) and resilience (higher end of the resilience continuum). Although personal characteristics may be mediating factors for resilience, as in the original model, they were left as just personal characteristics in the current study. The continuum of resilience was interpreted for this study to mean that the higher positive end of the continuum to represent higher levels of resilience while the lower end of the continuum to represent high risk behaviors. The model assumes that individuals may be influenced by the factors of resilience, e.g. internal and external factors, developmental and moral processes. Behavioral risks, which are negative, can be manifested by their behavior (behavioral risk and emotional risk). Resilience may influence the relationship of risks and the outcome of stress. Although the model is portrayed in a linear fashion, resilience is viewed as a dynamic process. High risk behaviors (health behaviors) and resilience may function in alternate ways for different age groups and at different periods, therefore these variables can be viewed as bidirectional (Windle,

1999). This model is well-suited for this study as resilience is viewed as an interaction of risks and protective resources which can be affected by resilience.

Definitions of Study Variables

The study variables as evident in the conceptual model included the adolescent, personal characteristics, perceived stress, high risk behaviors, and resilience (see table 5 for conceptual and operational definitions of study variables). Additional terms are further defined for this study especially as related to the outcome of stress.

An adolescent who is exposed to stress may be a well-adjusted (e.g. psychologically healthy) individual or one who experiences psychological vulnerability. A psychological healthy person is one who sustains a close contact with reality (Taylor & Brown, 1988). Such a person has a view of self that includes an awareness and acceptance of both the positive and the negative aspects of self. In contrast, psychological vulnerability refers to an individual's lack of resources for response to demands from the environment and by the relationship between the individual's pattern of commitments. Indeed "vulnerability can be thought of as potential threat that is transformed into active threat when that which is valued is actually put in jeopardy in a particular transaction" (Lazarus & Cohen, 1977, p. 51). One who is vulnerable to stress is most likely to participate in high risk behaviors.

Researchers posit that the individual responses to the two types of stress (daily hassles and major life events) may be developmental (Donaldson, Prinstein, Danovsky, & Spirito, 2000; Williams & Lisi, 2000). Daily hassles are defined as frustrations or irritations resulting from interactions with the environment (e.g. homework, quarrels with friends, etc.), while a major life event can be a critical or traumatic event that is often normative in nature (Kanner, Coyne, Schaefer, & Lazarus, 1981; Kanner, Feldman, Weinberger, & Ford, 1987). For adolescents, such

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life events can include the death of a loved one, parental divorce, relationship break-ups, or changing schools, etc. (Williams & Lisi, 2000). Although both types of stress may affect coping strategies in adolescents, researchers have determined that the smaller daily hassles may cause more stress in this population (Dumont & Provost, 1999; Kanner, Feldman, Weinberger, & Ford, 1987).

Procedures

Research Design

An exploratory model testing design was used to answer two research questions. This design was best suited for this study as the aim of this research was to explore the relationships among variables to learn more about adolescents and resilience.

Purpose

The purpose of this research study was to explore the relationships among a set of variables, including personal characteristics, levels of stress, high risk behaviors, and levels of resilience in what should be a well-adjusted population. The proposed research study assisted in providing a better understanding of resilience and its effects on stress in adolescent college students who are not at extreme vulnerability.

Research Questions

The research questions included: (1) What are the personal characteristics, levels of stress, high risk behaviors, and levels of resilience of college students who are 18 to 20 years old? (2) What are the relationships among personal characteristics, levels of stress, high risk behaviors, and levels of resilience of college students who are 18 to 20 years old?

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Sample and Setting

Study Participants

Description of Participants. The study participants in this research included adolescent college students ages 18 to 20 years old, who attended community college at the study site, and who met the sample selection criteria. A convenience sampling plan was used. Recruitment of participants followed the college protocol for contacting professors teaching general education classes during the planned data collection time.

Power Calculation. A power analysis calculation was performed after the pilot study to determine the necessary sample size. The SPSS Sample Power 2.0 was used for three levels of the dependent variable of stress (low, medium, and high stress), a moderate effect size, power of 0.82, and an alpha of 0.05 which yielded a projected sample of 165 study participants.

Sample Selection Criteria. Sample selection criteria included: (a) matriculating community college student at the designated site taking at least three credits in the current semester, (b) enrolled and present in the general education class on day of data collection, (c) 18 to 20 years old, (d) able to read and write in English, and (e) physically able to complete the surveys.

Setting Description

The setting for the research study was a community college located in the southeastern United States. This school served approximately 25,000 potential students county-wide. More than 15,000 were registered county wide, with over 4,500 students attending classes on the selected campus during the semester of data collection. These students were more likely to be young, White individuals who were residents of the county. There was a fairly equal distribution

of both genders. The majority were attending day classes attempting to earn an Associate of Arts degree.

Measures

The study measures included personal characteristics (age, gender, race/ethnicity, education, grade point average [GPA], class, employment, parental income, financial support, living arrangement, housing, activities, study habits, social support, and religion) (Demographic Questionnaire). Additional study variables included perceived stress (two visual analog scales), high risk behaviors (Health Behaviors Questionnaire), and resilience (Resilience Scale). Acceptable reliability coefficients were calculated for the Health Behaviors Questionnaire and the Resilience Scale. Additionally, test-retest reliability data were collected for the two stress scales. Content validity was established by *a priori* descriptions of the psychometric development of the instruments and by faculty experts in the field. Face validity was evaluated during the pilot study phase of data collection. Flesh Reading Ease (FRE) and Flesh-Kincaid (F-K) readability scores were calculated for the three self-report surveys using the Microsoft Word Program. The FRE scores ranged from 57.1 to 74.1 which were close to the accepted standard average score of 60-70 (Calderon, Morales, Liu, & Hays, 2006). The F-K scores were well below the 12th grade level or lower recommendation with a range from 4.7 to 8.3 (Calderon et al.). Permissions were acquired to use all study instruments not developed by the researcher (see Appendices B and C for permissions of instruments).

Demographic Questionnaire

Demographic variables were collected to describe the sample and to attempt to identify the characteristics of the population (e.g. personal characteristics) and to control for extraneous

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variables. The Demographic Questionnaire (see Appendix D) included the variables of age, gender, race/ethnicity, education level, GPA, class, employment, parental income, financial support, living arrangement, housing, activities, study habits, social support, and religion.

The Perceived Stress Scale

The Perceived Stress Scale is a self-report visual analog scale (VAS) global measure of perceived stress (Hill, Aldag, Chatterton, & Zinaman, 2005, p. 681). The VAS is a unidimensional instrument quantifying intensity of stress. A horizontal line 100 millimeters long with anchors at either end (none, extreme) is used where scores are recorded to the nearest millimeter.

In the current research two visual analog scales (VAS) were used to measure perceptions of stress, one for perceived stress "right now" and another for perceived stress "in general" (see Appendices E and F)**.** It was necessary to use two separate scales as the VAS is unidimensional. Visual analog scales have often been used by researchers "to measure the intensity, strength, or magnitude of individuals' sensations and subjective feelings and the relative strength of their attitudes and opinions about specific stimuli" (Waltz, Strickland, & Lenz, 2005, p. 281). The popularity of the VAS as a measurement instrument in research and practice is because of ease in use with study participants (Wewers & Lowe, 1990). While this measurement scale has the advantages of being easy to use by the researcher and research participant, researchers must be careful with development and use to decrease measurement bias (Torrance & Feeny, 2001). In this study, bias was minimized by printing the instruments, rather that copying which could distort the image. Additionally, measurements were completed by the researcher using one ruler.

This measurement device consists of a drawn or printed line, 100 millimeters long, with right angle stops and anchor phrases depicting extreme subjective states or stimuli (Streiner & Norman, 2003). The left anchor was be labeled as "none" and the right anchor was labeled as "extreme." The study participants were instructed to place vertical marks on the horizontal line of each of the two scales to report the amounts of stress he or she perceived. The scales were scored by the researcher by measuring the distance in millimeters from the left side (low end) to the mark made by the participant. These data were considered as interval data for this research.

Although fairly simple to use, VAS scores have been found to correlate positively with other numerical rating scale scores. In their research on pain, Good, Stiller and Zauszniewski, Anderson, Stanton-Hicks, & Grass (2001) determined that the pain VAS could be more sensitive than other numerical scales. In most studies, the reliability of visual analog scales has been determined by using the test-retest method with the computation of correlations on the two scores. Waltz, Strickland, and Lenz (2005) report that such correlations tend to be strong, although Wewers and Lowe (1990) cautioned that phenomena are often dynamic and likely to change with repeated measurement. Although this may exist, the currently accepted reliability measurement of the VAS is the test-retest method. Revill, Robinson, Rosen, and Hogg (1976) reported test-retest reliability ranges from .95 to .99 for most visual analog scales (p. 1196). The most common method to determine validity of this scale has been to correlate the VAS scores with other measures of the phenomenon. When assessing for construct validity of the Perceived Stress Scale, Hill et al. (2005) found a positive correlation ($r = .283$, $p < .01$) between VAS scores and those on the Multiple Affect Adjective Checklist – Revised (p. 681).

The test-retest method was used to measure reliability was used for the current research study. Cronbach's Alpha values were 1.0 and .96 for stress right now and stress in general

respectively. Content and face validity were measured for the two Perceived Stress visual analog scales with use of expert examination prior to the study, and pilot study feedback from students respectively.

A researcher-developed open-ended question, "What is the most stressful event you have experienced in the last 6 months?" was used to determine the daily hassles and major life events identified by the participants. This question appeared at the end of the demographic questionnaire.

Health Behaviors Questionnaire

The original Health Behaviors Questionnaire (HBQ) (see Appendix G) (Hibbard, Brack, Rauch, Orr, 1988; Ingersoll & Orr, 1989; Orr, Wilbrandt, Brack, Rauch, & Ingersoll, 1989) consisted of a set of 32 items asking participants to indicate the degree to which they participated in health-related behaviors or experienced certain feelings. Most of the items assess behaviors and feelings during the past 12 months on a 4-point Likert scale ranging from 1 (never) to 5 (daily), although 5 items ask the respondent to choose "never" or "at least once" to lifetime questions. The subscales of Behavioral Risks (HBQ BR) and Emotional Risks (HBQ ER) are derived from the questionnaire. The five final questions speak to major life events and are only scored as part of the total scale score. Additionally, two reverse-scored items (e.g. attendance or religious services and doing volunteer work) are part of the total scale score but not part of either of the subscale scores.

The HBQ was originally used with research to determine abuse, feelings, self-esteem, and sexual and health behaviors in young adult students (Hibbard, Brack, Rauch, Orr, 1988; Orr, Wilbrandt, Brack, Rauch, & Ingersoll, 1989). The questions were derived from the Rosenberg

Self-Esteem Inventory (Rosenberg, 1965) and researcher-developed demographic questions including questions related to abuse, feelings and behaviors. Behaviors and feelings that were associated with abuse were considered by the researchers to be significant for risk of abuse. Although relative risk statistics are used in the early use of the initial version of the HBQ, there are no validity statistics available in the literature. Ingersoll and Orr (1989) used the early results and further developed the HBQ to categorize behavioral risks and emotional risks. In addition to the health-related items already in the HBQ, they included items from the Rosenberg Self-Esteem Inventory (Rosenberg) and the Hunt Paragraph Completion Method Test (Hunt, Butler, Noy, & Rosser, 1978). Although no validity statistics are included, Ingersoll and Orr describe the factor analysis techniques the yielded the Behavioral Risks and Emotional Risks subscales of the HBQ.

The standardized instrument scores have a mean of 50 and a standard deviation of 10 (Ingersoll and Orr, 1989, p. 399). These researchers "performed a factor analysis which yielded two subscales, behavior risk and emotional risk. In the initial HBQ, behavior risk was indicated by a willingness to engage in health risk behaviors (e.g. smoking cigarettes, using marijuana, using alcohol and drugs, being sexually active, arrested, gotten someone pregnant, ran away, rode with a drunk driver, and was suspended from school) while emotional risk was indicated by reporting of aversive emotions (e.g. upset, lonely, nervous, tense, sad, having trouble sleeping, having difficulty making friends, and considering hurting oneself" (Ingersoll & Orr, p. 400). According to the researchers, factor structures have been stable in content with gender and between younger and older adolescents.

The most recent form contains 8 demographic questions and 27 Likert scale questions. Ingersoll and Orr reported the initial reliability scores for the HBQ total scale using Cronbach's

alpha of .80. Reliability for the behavior risk scale was reported as a "Cronbach's alpha of .84 and .81 for the emotional risk scale with a four-month test-retest reliability of .75 and .56" respectively (Ingersoll & Orr, 1989, p. 403). Other researchers have used the HBQ for the study of adolescent risk factors (Hibbard, Ingersoll, & Orr, 1990; McCarthy, & Brack, 1996; Rouse, Ingersoll, & Orr, 1998). The demographic questions were not used for this study as they were subsumed into the demographic questionnaire. Ingersoll and Orr recommend the use of the subscale scores of behavioral risk and emotional risk rather than a total scale score for research on health behavioral risk. The researchers report that the higher the scores in each of the subscales, the greater the indication of risk. Despite this recommendation, the subscale scores and the total scale scores were identified in this study.

Internal consistency of the Cronbach's alpha values for the current study included .80, .88, and .77 (n = 166) for the total scale, emotional risk, and behavioral risk respectively. Content and face validity were measured for the HBQ with use of expert examination prior to the study, and pilot study feedback from students respectively.

Resilience Scale™

The 25-item Resilience Scale (RS) (see Appendix H) measures the degree of individual resilience, "considered to be a positive personality characteristic that increases an individual's adaptation" (Wagnild & Young, 1993, p. 167). The authors of the scale report that the "potential use of the RS is as a measure of internal resources and of the positive contribution of what one brings to a difficult life event" (Wagnild & Young, 1993, p.175). The scale items are scored on a 7-point scale from 1 (strongly disagree), to 7 (strongly agree). They are worded positively and reflect statements made by participants in the initial study on resilience conducted by Wagnild

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and Young. Scores on the RS can range from 25 to 175 with higher scores mean greater resilience. Wagnild (2003) categorizes the scores into high (147-175), medium (121-146), and low (less than 121) levels of resilience. Question 26 asks the study participants if they are resilient. This question is an optional measure of the concurrent validity of the RS which can be used at the researcher's discretion.

The authors developed the items reflecting five themes (equanimity, perseverance, self-reliance, meaningfulness, and existential aloneness) of resilience which were selected from a review of the literature. These items were validated *a priori* by content experts and further by interviewing 24 American women who were judged to have successfully adapted to major life events (Wagnild & Young). Psychometric evaluation of the initial tool was conducted with a sample of 810 community-dwelling adults. A factor analysis was performed for the determination of internal consistency of the instrument. According to the authors, the factor analysis of the RS in initial studies has validated that resilience is multidimensional. Subscales of this instrument include personal competence (factor one) and acceptance of self and life (factor two). Wagnild and Young report "high reliability with a coefficient alpha of .91, item-to-item correlation ranges from .37 to .75 at $p \leq .001$" (Wagnild & Young, p. 175). Concurrent validity of the RS was evaluated by correlating the RS with theoretically relevant constructs of life satisfaction (Life Satisfaction Index, [Neugarten, Havighurst, & Tobin, 1961]), morale, (Philadelphia Geriatric Center Morale Scale, [Lawton, 1975]), depression, (Beck Depression Inventory, [Beck & Beck, 1972]), and physical health, (self-report of physical health). All of the "relationships of the RS with the above measures were significant in the expected directions at $p \leq .001$" (Wagnild & Young, p. 173). Thus their psychometric findings indicated positive correlations with adaptation and negative correlations with depression. The researchers further

reported test-retest correlations from other studies ranging from .67 to .84 ($p <. 01$) (Wagnild &

Young, p. 175). Internal consistency Cronbach's alpha values for the current study included .88,

.86, and .67 ($n = 166$) for the total scale, personal competence subscale (factor 1), and acceptance

of self and life subscale (factor 2) respectively. Although the RS was developed using adult

participants, the authors substantiate that the scale can be useful to study other populations,

including children and adolescents.

Multiple applications of the scale in both sexes, a variety of ages and ethnic groups with

good reliability and validity are available. Although initially used with adults, this instrument has

subsequently been used in a variety of adult populations including immigrants (Aroian & Norris,

2000; Christopher, 2000); women at-risk (Heilemann, Lee, & Kury, 2002; Humphreys, 2003;

Miller & Chandler, 2002); mothers (Monteith & Ford-Gilboe, 2002; Schachman, Lee, &

Lederman, 2004); older women (Felton & Hall, 2001; Wagnild, 2003); and caregivers (Garity,

1997). There are published studies indicating that the RS has been useful with the study

adolescent populations (Black & Ford-Gilboe, 2004; Hunter & Chandler, 1999; Neill & Dias,

2001; Rew, Taylor-Sheefer, Thomas, & Yockey, 2001). The instrument has also been translated

and psychometrically tested in other languages (Aroian, Schappler-Morris, Neary, Spitzer, &

Tran, 1997; Heilemann, Lee, & Kury).

Data Collection Procedures and Human Subjects Protections

Ethical approval was obtained from both the Institutional Review Board (IRB) of the

university and the community college administration selected for this study prior to data

collection (refer to Appendix I). Prior to data collection a pilot study was conducted to determine

reliability and validity of the study instruments, to perform power analysis for sample size, and

to evaluate the data collection procedure. Participants were then recruited by gaining entry into a

general education classroom setting which provided a larger access to the ages of the adolescent participants needed for an acceptable sample size. This was accomplished by following the correct protocol for locating college professors willing to allow the researcher to take approximately 10 minutes of class time to explain the study and to administer the two visual analog scales, the two short self-report surveys, and demographic questionnaire.

Once it was determined which students met sample selection criteria, an explanation of the study was given. Potential study participants were told that participation in the study was completely voluntary, that there were no risks or benefits for their participation, and that they could withdraw at anytime. Students were also instructed not to volunteer to complete the study instruments if they had previously completed them in another data collection session. They were informed that their answers were completely anonymous and any reporting of data would be done in an aggregate form. Those students who then volunteered to participate were given a packet containing the IRB research study explanation and the surveys to complete. The participants understood that if they agreed to complete the packet, they had given their consent to participate in the research. Pencils were provided for those who needed them. Once they consented (see consent in Appendix J), they were instructed to begin the completion of the surveys. The researcher remained in the classroom to answer any questions. Once the participants had completed the surveys, they were collected and secured. A waiver of documentation of consent assured anonymity. All research data were collected by the primary researcher. All data are being kept in a password protected computer. The completed questionnaires are secured in a locked cabinet in the researcher's office and will be kept for a period of three years.

Data Analysis

Data were entered into the Statistical Package for the Social Sciences (SPSS) for windows (version 14) which was used to analyze the data. Prior to answering the research questions, exploratory data analyses were performed to screen the data for accuracy, empirical distributions, outliers, and missing data. Pre-analysis screening revealed normally-distributed data with few outliers and 12 instances of missing data (GPA [$n = 6$], ethnicity [$n = 4$], race [$n = 1$], multiple omissions [$n = 1$]). The technique used to replace missing data for GPA scores was sample mean substitution. This approach has been recommended as the best to use for a normally distributed variable (Mertler & Vannatta, 2005; Tabachnick & Fidell, 2001). The value of the variable does not change as the missing data values are replaced with the existing mean. Missing data for ethnicity and race were not replaced. This method was chosen in an effort to minimize the risk of computing errors with the use of data codes (Roberts, Anthony, Madigan, & Chen, 1997). Due to the limited number of cases in this data set, missing data for case number 166 (major responses omitted) were handled by the deletion of that case. Outliers were left as part of the data after careful examination of histograms and box plot distribution revealed a small number of cases which were not extreme. There was no need for transformation of data as the exploratory data analyses indicated normality of data sets.

Descriptive statistics were computed for all variables for the total sample ($n = 166$). To describe categorical, nominally- and ordinally-scaled characteristics, frequency counts and percentages were used. The Resilience Scale and subscale scores and the Health Behaviors Questionnaire and subscale scores were handled as scale data in this study. Interval- and ratio-scaled variables were summarized using measures of central tendency (mean and median) and dispersion (standard deviation and range).

Some of the variables needed to be recoded prior to data analysis. New variables were created through recoding for the RS total scale score and subscale scores as well as for those representing the HBQ total scale score and subscales (HBQ ER and HBQ ER) as outlined by the authors of the two instruments. Two of the HBQ items needed to be recoded as these items were reverse-worded.

In an attempt to determine if differences existed in levels of stress in the well-adjusted college population, analysis of ratio level and dichotomous level data were performed to further explore the model. Initially in the research proposal, the researcher planned to explore three categories of stress (low, medium, and high). However, after exploring frequency distributions (Mertler & Vannatta, 2005; Waltz, Strickland, & Lenz, 2005), a normal distribution of the data was observed. A psychometric decision was made to establish two categories (low, high) for stress as no clear cutoff points existed for the planned-for three (low, medium, high) categories. Stress scores (right now and in general) were then recoded into low (0 - 49) and high (50 - 100) categories for the purposes of categorical comparisons. The participant responses for the open-ended question, "What is the most stressful event you have experienced in the last six months?" were evaluated and categorized into either daily hassles or major life events as per accepted definitions for these variables (Kanner, Coyne, Schaefer, & Lazarus, 1981; Kanner, Feldman, Weinberger, & Ford, 1987).

Depending on the levels of measurement, correlations were calculated to determine relationships among the study variables. Bivariatiate correlations (Pearson coefficients) were calculated for continues data while Spearman Rho calculations were made for ordinal data. In an effort to evaluation all possible relationships, model testing for research question two was

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completed starting with correlations and progressing to path analysis. A significance level of $p \le$ .05 was accepted as significant for this study.

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

<div align="center">*Research Question One:*</div>

<div align="center">*What are the Personal Characteristics, Levels of Stress, High Risk Behaviors, and Levels of*</div>

<div align="center">*Resilience of College Students who are 18 to 20 Years Old?*</div>

In order to answer research question one, the personal characteristics, perceived stress, high risk behaviors, and resilience were described for the study sample.

Personal Characteristics

Personal characteristics data were collected to describe this population. A total of 167 participants completed the study surveys. Data from one participant was excluded due to an incomplete survey. The study participants ranged in age from 18 - 20 ($M = 18.7$, $SD = .74$). These students were more likely to be males ($n = 99$, 59.6%) than females ($n = 67$, 40.4%). The majority were non-Hispanic or Latino ($n = 153$, 92.2%) and White ($n = 130$, 78.3%). The grade point average (GPA) was 3.21 ($SD = .42$) which was more often a final high school GPA ($n = 97$, 58.4%) rather than a current college GPA ($n = 69$, 41.6%). Nearly two-thirds were freshmen ($n = 105$, 63.3%) rather than sophomores ($n = 58$, 34.9%), juniors ($n = 2$, 1.2%), or seniors ($n = 1$, 0.6%). These students usually lived at home ($n = 140$, 84.3%) with parents. There were no statistically significant differences in the demographic findings by gender, age, class, ethnicity, or race.

The demographic question regarding religious affiliation was eliminated following analysis of the data. The categories used by the researcher to capture religion resulted in conflicting responses by the participants. Regardless of the issue regarding religious affiliation, it was interesting to note that 38 participants (22.9%) chose "none" as their response to that question. Otherwise the resultant data related to religion were not able to further describe this study sample. See table 6 for additional sample characteristics.

The characteristics of the study participants were representative of the student body of the college campus where data were collected. The first time in college (FTIC) students of that college accounted for the majority of students found in the general education classes similar to the study participants. The college data indicated that for this specific campus, the majority were male (52.1%), White (81.2%), non-Hispanic (94.9%), and taking courses towards their associate of arts degree (F. Billings, personal communication, September 25, 2006).

Perceived Stress

The stress levels as measured by the VAS for "stress right now" ($M = 48.8$, $SD = 27.7$) and "stress in general" ($M = 48.9$, $SD = 24.3$) were essentially similar in this sample (see table 7). The data from the recoded "high" and "low" stress yielded similar results as compared to the previously aforementioned findings above. The numbers of participants for the "stress right now" were 77 and 89 and "stress in general" were 80 and 86 for the low and high groups respectively.

Results from the open-ended question regarding recent stressful events indicated that 104 (62.7%) experienced major life events rather than daily hassles ($n = 53$, 31.9%) or none ($n = 9$, 5.4%). Commonly listed daily hassles included the balancing of work, school, and family

responsibilities, everyday challenges, financial needs, academic assignments, work, school and relationship problems, while reported major life events included the death of a loved one, starting college, accidents, and serious medical, legal, and relationship problems. Each of the age groups reported that they had experienced daily hassles and major life events. Eighteen-year-old participants were more likely to report the presence of major life events, although nineteen and twenty year old participants reported daily hassles more frequently. Males were more likely to report experiencing daily hassles ($n = 34$, 64.2%) and major life events ($n = 61$, 58.7%) than females ($n = 19$, 35.8% and $n = 43$, 41.3% respectively). Data on ethnicity and race indicated that non Hispanics were more likely to stressful events in all categories than Hispanics as the Whites in the sample as compared to the other races. There were no significant differences or relationships among any of the stressful event categories and the demographics or age, gender, ethnicity, or race in the study participants.

High Risk Behaviors

High risk behaviors as measured by the HBQ total scale scores and the HBQ subscale scores of Emotional Risk (ER) and Behavioral Risk (BR) were calculated for this study and are reported in table 7. Ingersoll and Orr (1989) have stated that the instrument scores are standardized to have a mean of 50 and a standard deviation of 10. The HBQ total scale score, the mean, and median values for this population were similar. The HBQ ER subscale scores were higher than those for the HBQ BR. The HBQ ER scores had a wider range with scores more dispersed from the mean. No documented values for these subscale scores are present in the literature except references made by Ingersoll and Orr regarding standard scores. Except for

gender, there were no statistically significant differences in any of the HBQ or subscales related to demographics of this population (see table 8).

The item means for the total HBQ scale, the HBQ ER and HBQ BR subscales were 2.04, 2.36, and 1.85 respectively. The highest item means for the HBQ ER included those items related to feeling tense ($M = 2.91$, $SD = 1.22$), feeling nervous ($M = 2.88$, $SD = 1.18$), and having headaches ($M = 2.73$, $SD = 1.14$). The highest means for the HBQ BR were related to having had sexual intercourse ($M = 2.76$, $SD = 1.31$), drinking alcohol ($M = 2.32$, $SD = 1.22$), and smoking pot ($M = 1.66$, $SD = 1.08$).

The results of the final five questions (not part of either of the subscales) report incidences of major life events. The questions included: (a) "I have been arrested or picked up by the police; (b) I have run away from home; (c) I have been suspended/expelled from school; (d) I have attempted suicide; (e) (Female) I have been pregnant (Male) I have gotten someone pregnant" (G. M. Ingersoll, Personal Communication, December 3, 2004). These results indicated that 21. 1 percent ($n = 35$) have had problems with the police, 13.9 percent ($n = 23$) have run away from home, 24.1 percent ($n = 40$) have been suspended or expelled from school, 4.8 percent ($n = 8$) have attempted suicide, and 6.6 percent ($n = 11$) have either been pregnant or gotten someone pregnant. These data add further significance to the HBQ BR data reported earlier. History with the police and suicide attempts were found to be correlated with some of the personal characteristics of the study population.

Resilience Levels

Resilience scores as measured by the RS total scale and subscale scores are reported in table 7. Wagnild (2003) categorizes the total scale scores into high (147-175), medium (121-

146), and low (less than 121) levels of resilience. The RS scores reported in the literature are for the total scale score and for item means, especially for the final (an optional) question to be used at the researchers discretion. This question asks the study participant to rate their overall resilience. The final question was used in the current research as part of the total scale score and was used as an item mean for comparison with reported findings in previous empirical studies.

The overall mean scores of the RS total scale, factor 1 (personal competence), and factor 2 (acceptance of self and life) subscales were 139.8 ($SD = 17.5$), 92.7 ($SD = 12.5$), and 42.2 ($SD = 6.6$) respectively. The total scale mean was well within the midrange of resilience as determined by Wagnild (2003). Although subscale values were not offered for Wagnild, it is understood that the higher the score, the more resilience the individual possesses.

For this sample, scores for the females were slightly higher on the RS total scale, slightly lower on the RS factor 1, and slightly higher on the RS factor 2 than the males. In addition to total scale scores, item means for the RS are reported in the literature. For this sample these included RS total scale ($M = 5.38$), RS factor 1 ($M = 5.45$), and RS factor 2 ($M = 5.27$) item means. The minimum and maximum item means for the RS total scale were 4.39 ($SD = 1.79$) and 6.11 ($SD = 1.19$) respectively. The item mean for the final question asking for a rating or overall resilience in this sample was 5.11 ($SD = 1.24$). There were no other significant differences in any of the RS scale or subscale scores related to the demographics of this population (see table 8).

Research Question Two:

What are the Relationships Among Personal Characteristics, Levels of Stress, High Risk Behaviors, and Levels of Resilience of College Students who are 18 to 20 Years Old?

Based on the review of the literature, a researcher-revised version of the Hunter and Chandler (1999) Continuum of Resilience in Adolescence was chosen as the initial conceptual model (figure 2) for this study. In order to answer research question two, the relationships among the study variables initially were explored with the use of a schematic for data analysis (see figure 3). Data were analyzed for relationships using Chi-square or Spearman Rho for categorical data and Pearson correlations for continuous variables as appropriate for the level of measurement. Prior to the next step in the analysis, all categorical data were dummy coded for use in the multiple regression analysis (Spicer, 2005). Bidirectional hierarchical multiple regression analyses were performed for each aspect of the model. Finally, the most robust predictive model was used for path analysis.

Relationships between Stress and Personal Characteristics

The relationships between stress and personal characteristics were analyzed. Stress was measured by the Stress Right Now and Stress in General VAS scores, recoded high/low Stress Right Now and Stress in General scores, and the open-ended question regarding daily hassles/major life events. Personal characteristics included the internal/external factors, developed competencies, and developmental stages from the demographic data. For this analysis, ordinal level and above data were included in the analysis due to violations of assumptions of lower levels of measurement.

Bivariate correlations between the population demographics and the VAS mean scores for Stress Right Now and Stress in General only revealed a significant correlation of Stress in General and calculated age ($r = .177$, $p = .05$). An independent sample t test revealed one significant difference in stress scores related to the personal characteristic of ethnicity and the

VAS Stress in General score (t = 2.11, df = 160, p = .036). There were no significant relationships between the demographic variables and the recoded Stress Right Now and Stress in General (Hi/Low groups) scores. The same was true for the calculated Chi-square scores for the demographic variables and the stress event groups (none, daily hassles, or major life events).

Relationships between Personal Characteristics and the Continuum of Resilience

To further evaluate the relationships among the personal characteristics and the Continuum of Resilience the HBQ total scale and HBQ ER and HBQ BR subscale scores and by the RS total scale and RS factor 1 and RS factor 2 scores were analyzed. Only ordinal level or above data were used for this analysis due to the need to meet statistical assumptions.

Differences for the HBQ BR (t = 2.645, df = 109.13, p < .05) and HBQ ER (t = -2.645, df = 164, p < .05) subscale scores were statistically significant by gender as indicated by independent sample t-tests (see table 8). The only other significant differences in the HBQ scores for this population were related to current class and the HBQ total scale score and the HBQ ER subscale scores. Freshmen students usually had the lowest HBQ scores which sequentially increased with the higher academic classes, yet correlations indicated a statistically significant positive relationship between age and the HBQ total scale scores (r = .154, p =.048). Additionally, correlations between the fives questions on the HBQ related to major life events indicated significant relationships between arrest history and gender (Chi-square = 11.84, df = 1, Fisher's Exact test = .001), and suicide attempt with race (Chi-square = 12.77, df = 5, p = .026) and current class (Chi-square = 20.10, df = 3, p = .000). See table 9 for descriptive statistics regarding the HBQ major live event questions by selected demographics.

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Relationships between Stress and the Continuum of Resilience

Next, the relationships between stress and the Continuum of Resilience were analyzed. Bivariate correlations for Stress Right Now and Stress in General VAS scores with RS and HBQ and subscales are depicted in table 10. These data indicated significant negative relationships of the Stress Right Now scores with the RS, RS factor 1 and RS factor 2. There were significant positive relationships of the Stress Right Now scores with the HBQ and HBQ (ER) scores. The relationships between these stress scores with HBQ (BR) were not statistically significant. The Stress in General VAS scores showed the same statistically significant relationships. In this phase of model testing, bivariate correlations on relationships between the RS total scores and subscales (RS factor 1 and RS factor 2) with HBQ total scores and subscales, (HBQ ER, and HBQ BR) indicated significant negative relationships of all of the RS scores with the HBQ scores. At this phase of model testing, the relationships among the study variables are presented in figure 4. Similarly, Spearman Rho correlations of the recoded stress scores with the RS and HBQ scales indicated that significant negative relationships existed between the RS scales and subscales while significantly positive correlations existed between the stress scores and the HBQ total scale and HBQ (ER) subscale scores (see table 11).

For the next phase of model testing, bidirectional hierarchical multiple regression was performed for all possible relationships in the preliminary model (Meyers, Gamst, & Guarino, 2006). Five of the twenty-four regressions were statistically significant as predictors for either Stress Right Now or Stress in General. None of the regression models were predictive for high risk behaviors or resilience. See table 12 for the data on the statistically significant predictive models.

The most robust (i.e. highest predictive model with the highest R^2) predictive model was used for path analysis. This model accounted for 51.9 percent of the variance in stress in general for this population. The first step of the path analysis was to review the results of the hierarchical multiple regression analysis for personal characteristics and HBQ ER for the prediction of VAS Stress in General. The path analysis was calculated by regressing each significant variable one at a time to the VAS Stress in General dependent variable to obtain the standardized beta coefficients. The only statistically significant variables in the model were ethnicity and HBQ ER. The HBQ ER was the stronger predictor of Stress in General in this path analysis (see figure 5) as the beta coefficients of this final model indicated that the HBQ ER variable was more than three times stronger as a predictor than the ethnicity variable. After calculating this path analysis, another simultaneous multiple regression was run with the elimination of all of the personal characteristics variables with the exception of ethnicity. This final parsimonious model yielded a lesser R^2 of .357 (F = 44.21, p = .000). Although the other variables were not individually significant, they did contribute collectively to prediction of stress in general (VAS Stress in General). No other variable significantly contributed to the model individually based on the p values for their standardized coefficients.

Discussion of Findings

Personal Characteristics

The study sample consisted of a homogeneous group of college students who were more likely to be male, non-Hispanic White, and young (M = 18.7, SD = .74). Most of them lived at home with their families. The majority of these participants were middle class, they received financial support from their parents, and/or worked. These participants were not very likely to be

involved in school or community activities. Non-financial support was typically provided by the family. The profile of this study sample reflected similar characteristics for the majority of students who attended the community college where data were collected.

Perceived Stress

Stress levels for this sample were similar across gender and age. Results from the open-ended question regarding stressful events indicated that more of these students experienced stress from major life events rather than daily hassles. This finding is inconsistent with the literature as researchers have determined that most adolescents are more likely to experience more stress from daily hassles rather than from major life events (Dumont & Provost, 1999; Kanner, Feldman, Weinberger, & Ford, 1987). The resultant high number of major life events can most likely be explained by the fact that nearly two-thirds of the sample were freshmen starting a new school year. This in itself is classified as a major life event (Williams & Lisi, 2000). This is an important finding as researchers posit that while both types of stress affect the coping processes of adolescents, although daily hassles usually are viewed as sources of more stress. Therefore, it can be anticipated that this sample has been exposed to a multitude of stress, both from major life events and daily hassles.

High Risk Behaviors

Both males and females took part in high risk behaviors. Although total HBQ scores were similar by gender, there were statistically significant differences in the HBQ ER and HBQ BR scale scores. While females were more likely to admit to behavioral risk behaviors (e.g. smoking, drinking, etc.), males were more likely to report emotional risk (e.g. difficultly sleeping, feeling tense, sad, nervous, etc.). This finding also diverges from extant literature.

Previous work reports that emotional and behavioral risks are influenced by gender, but consistently shows that females are more likely to have higher emotional risk and males have higher behavioral risk (Hibbard, Ingersoll, & Orr, 1990; Ingersoll & Orr, 1989; McCarthy, Brack, & Lambert, 1996). The current study results thus demonstrate a difference that may be partially explained by the fact that the samples in prior research were more likely to include the periods of early to middle adolescence, rather than late adolescence. It has been documented in the literature that many health risk behaviors, such as smoking, drinking alcohol, and unsafe sexual practices, are more likely to occur in older adolescence (CDC, 2005a; CDC, 2006a; CDC, 2006b; Erikson, 1968; Gruber, 2000). Additionally, the most recent trend data from the CDC regarding health risk behaviors also indicate that females participate in these behaviors at least at the same rate and frequently more often than males (CDC, 2005c).

Although not calculated in the measurement of the subscale scores, it may be important to mention that the males in the study sample were considerably more likely than their female counterparts to answer positively to the final five questions on the HBQ regarding histories of arrest, school suspension/expulsion, running away from home, attempted suicide, and pregnancy/gotten someone pregnant, although the only statistically significant correlation was related to the question regarding arrest and contact with police (Pearson Chi-Square = 11.84, *df* = 1, *p* = .001). These questions document high risk behaviors, the responses are not calculated into the HBQ ER or HBQ BR scores. Gender, race, and current class were significantly correlated with some of the responses to these five questions (e.g. police history and suicide attempt).

Resilience

The total scale mean score for resilience (139.8) was reflective of the medium resilience category (121-146) as reported by Wagnild (2003). The majority of the empirical research results

report mean scores of at least 142 (Black & Ford-Gilboe, 2003; Garity, 1997; Humphreys, 2003; Monteith & Ford-Gilboe, 2002; Nygren, Randstrom, Kejonklou, & Lundman, 2004; Schachman, Lee, & Lederman, 2004; Wagnild, 2003; Wagnild & Young, 1993). The only reported mean lower than the one present in the current study was a mean of 111.98 by Rew, Taylor-Sheehafer, Thomas, and Yokey (2001) with a sample of homeless adolescents. Although most people in general appear to have some resilience, unanswered questions remain as to whether adolescents may have lower levels of due to their high risk behavior or whether or not that resilience can be harmful. Most studies in the literature reporting RS scores were conducted with adult samples. Additionally some results of findings in previous work cannot be compared to the current research results as the Resilience Scale instrument has frequently been revised to meet the needs of the researchers.

Females participants in the current study scored slightly higher in the total scale mean score. The scores for the subscales, however, were similar across gender. Research has supported that there are non-significant relationships between the RS and such demographic variables as age, gender, education or income (Wagnild & Young, 1993), although Hunter and Chandler (1999) documented differences in resilience between gender. These differences could have been related to the age of the study participants as Wagnild and Young studied children, while Hunter and Chandler conducted their research with adolescents.

There is no norming or comparison data for the subscale scores. Results for both subscales were in the mid-range. Item means for the scale and subscales were within the 5 to 5.5 range which is considered to be fairly high, although the majority of the results from the literature report higher item scale ranges and means (Black & Ford-Gilboe, 2003; Hunter &

Chandler, 1999; Humphreys, 2003; Monteith & Ford-Gilboe, 2002). Again, these differences may not be significant due to the fact that the sample populations in the literature were older.

Relationships between Stress and Personal Characteristics

Age and ethnicity were significantly related to stress for this sample. The younger participants who experienced more stress (stress right now and stress in general) were more likely to have stress in their lives partly because they were making a major transition in their lives, enrolling in college. As discussed earlier, changing of schools and environments is a documented major life event (Williams & Lisi, 2000). Stress also has been associated with adjustment to new situations (Chang, 2001; Williams & Lisi) not unlike this study sample. Although Pritchard and Wilson (2006) determined that coping styles did not change for the college freshmen in their sample, such a life transition of starting a new school can tax the ability to cope and adapt. Similarly, researchers have found that older adolescents tend to cope better than their younger counterparts due a wider range of coping styles (Donadlson, Prinstein, Danovsky, & Spirito, 2000). Thus findings should be considered with caution due to the narrow range of the age groups in this study sample.

Of particular interest were the findings relative to Hispanic participants. Hispanic participants in this study sample were more likely to experience stress in general. This finding is consistent with extant literature. Some of the explanations offered by researchers for higher levels of stress in this population include poverty (Turner, Kaplan, & Badger, 2006), cultural issues (Turner, Kaplan, & Badger), social issues (Cho, Meminger, & Roberts, 2006), work-school conflict (Sy, 2006), and racism (Lopez, 2005). The study participants in this research study attended a predominantly White school and community. They likely were experiencing social stresses possibly related to the normative pressures of making a transition into a new

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school. Furthermore, many of the study participants probably worked more than twenty hours per week. Any or all of these risk factors could have contributed to stress in this sample.

<p align="center">*Relationships between Personal Characteristics and Continuum of Resilience*</p>

As previously discussed, the female participants had higher HBQ total scale scores and HBQ BR scores than their male counterparts. In contrast, the males scored higher on the HBQ ER subscale score than the females. These differences for the HBQ BR and HBQ ER subscale scores were statistically significant by gender. The only other significant differences in the HBQ scores for this population were related to current class status (freshmen versus upper levels) and the HBQ total scale score and the HBQ ER subscale scores. Freshmen students tended to have the lowest HBQ scores, which sequentially increased with the upper classes. Hibbard, Ingersoll, and Orr (1990) have reported that risk behavior is associated with advancing age. Similarly the CDC trending data also support the fact that the older adolescents are more likely to participate in high risk behavior (2005a; 2006a; 2006b). Therefore the findings reported here would not be unexpected considering the sample. No other relationships were identified among any of the personal characteristics and the levels of resilience.

Social support has been reported in the literature as an inconsistent predictor of resilience in adolescents. Although there was no a separate measure for this variable in the present study, there were questions on the demographic questionnaire related to non financial support. No statistically significant relationships were identified between the variables of support and resilience.

Relationships between Stress and Continuum of Resilience

Results of the data analyses for the relationships between stress and the continuum of resilience allowed for the restructuring of the Continuum of Resilience Model to become a model of relationships among study variables. The resultant relationships consistently indicated that there were significant positive relationships between stress and high risk behaviors, negative relationships between stress and resilience, and negative relationships between high risk behaviors and resilience. The overwhelming majority of the relationships between these variables were statistically significant. Not unexpectedly, the literature also reports similar relationships (Aronowitz, 2005; Blum & Ireland, 2004; Dumont & Provost, 1999; McCarthy, Brack, & Lambert, 1996; Pollard, Hawkins, & Arthur, 1999; Rew, Taylor-Sheehafer, Thomas, & Yokey, 2001; Rouse, Ingersoll, & Orr, 1998).

The path analysis model for this population indicated that the only statistically significant predictor variables were ethnicity and HBQ ER. While the other personal characteristic variables were not individually significant, they did contribute collectively to the prediction of stress in general for this population. While the remaining personal characteristics were not significant to the prediction of stress in this model, they should not be discounted as they may be clinically significant in a more diverse or high risk population.

The data analyses for this study consistently revealed findings that high risk behaviors were positively related to stress. The path analysis further indicated that high risk behaviors, with the combination of ethnicity, are predictive of stress. Previous research supports the association of high risk behaviors and stress (Chang, 2001; Li & Lin, 2003; Williams & Lisi, 2000). The ethnic group reflective of this prediction is the Hispanic group. In addition to evidence showing more stress in this group, the literature also documents the high risk behaviors in this sample.

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Trend data by the CDC (2005b) report that Hispanic youth partake in more high risk health behaviors than both Blacks and Whites. Recent research supports the association between Hispanic youth and high risk behavior including substance abuse (Stone & Meyer, 2007) and violence (Blum et al., 2000). While these findings are more related to behavioral risks, no clear evidence documenting emotional risks in adolescents exists. Hibbard, Brach and Orr (1990) also do not report ethnicity as an influencing factor for emotional risk.

Although, none of the other study variables was a predictor of resilience. The literature is inconclusive regarding the attributes and/or behaviors that predict adolescent resilience, especially those related to social support. The findings of prior studies only report that gender, age, and ethnicity may contribute to risk behaviors or stress. They do not, however, support the prediction of resiliency in adolescent college students.

Strengths and Limitations

The findings of this study are important to nursing. Strengths of this research included the use of a conceptual model which was modified through various data analysis iterations. The original model was modified to include a schematic for data analysis. This schematic interpretation guided the researcher through a series of progressive statistical analyses. The model was then modified to include the statistically significant relationships among study variables. The final model resulted in the inclusion of three study variables to indicate that ethnicity and emotional risks contributed to the prediction of stress in general for this population. The data analyses performed for this research were robust in order to answer the two research questions. These findings can contribute further to what is known about resiliency in adolescent college students.

Another major strength of the study is that the findings add to the body of knowledge on adolescent health. Much has been reported in the literature about adolescent risk-taking including stress and resilience in adverse situations, yet there is a paucity of findings of resiliency in adolescent college students. While the study findings cannot be generalized to a population outside of the study sample, they can offer opportunities for further exploration of this and related topics in adolescents and other individuals exposed to stressful events.

There are some limitations evident in this study. Several potential limitations exist when conducting research with adolescents. One of the primary issues relates to the fact that the subjects are adolescents. Although they are vulnerable and constantly exposed to multiple risks and stresses, they may also lack developmental maturity. Because of this there are potential issues that can arise during data collection. Some of the findings of the study may have been influenced by lack of maturity, lack of understanding, and/or social desirability. Since the mean age for this sample was just over 18 years, such issues can be disconcerting. Stress may also contribute to the responses of the participants. Stress levels for this sample were influenced by emotional risk which may have had an impact on the findings. Findings indicated that the participants were more likely to experience major life event stresses during the period of data collection. The HBQ contained a number of items that were related to potentially sensitive topics. Although the questionnaire was anonymous, the participants may not have felt compelled to be honest in their responses. Additionally, this non-random, convenience sample yielded a homogeneous sample which may have influenced the study findings.

There were additional limitations related to the questionnaires. Possible lack of clarity on the demographic questionnaire related to the question on religion resulted in the exclusion of that variable in the data analysis. Currently there are no global categories for religion.

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Although found to be a credible instrument to use for collection of data related to resilience, the Resilience Scale was originally designed for adults. It contains no reverse-scored items and it lacks "low resilience" items. The Health Behaviors Questionnaire was originally designed for middle-adolescents, although it has been used with older adolescents. Factor analyses should be completed on both of these instruments on the current data set before subsequent use. Additionally a potential reason why data comparisons between the results in the current study may have not matched with the results from previous studies using the HBQ and the RS may relate the fact that the study sample consisted of members of the Generation X/Millenia group. The psychometric evaluations of the instruments used in this study were most likely from data using samples from the Baby Boomers generation. Comments made by these generations can be quite different.

Implications

The results of this research study are critically important, because they add to what is known about resiliency in adolescent college students. Implications of resilience focus on the ability to reduce stress and enhance positive adaptation to stress and coping. There are implications for practice, education, and research.

Practice Implications

Opportunities exist for assessment and intervention strategies for the promotion of psychosocial and physical health and wellness of adolescents. Practice implications include devoting efforts to assess for stress, high risk behaviors, and resilience. Because it is known that most adolescents are going to participate in high risk behaviors, it becomes significantly important for nurses and health care providers to recognize such behaviors especially within the

context of public health. The current research study findings also indicate that emotional risk is a strong predictor for stress, therefore, it becomes as important to determine this risk in this population. Even though these behaviors are more subtle and may be more difficult to ascertain, such as with student nurses, nurses, disaster victims, war veterans, and during other stressful times, practitioners should be cognizant of such behaviors.

Previous research has indicated the nurses caring for adolescents may not always be aware of the health care needs of adolescents, nor may they feel competent to develop health promotion interventions. Although one does not really know how nurses fare today in regards to adolescent health competencies, since the latest data available are now ten years old. Regardless interventions can be developed to assist individuals to recognize risks and identify efforts to assist in coping and adapting to stress. Nursing students, nurses, and other students and health care practitioners can potentially benefit from such interventions as they are continuously exposed to multiple stresses and are at great risk for psychological distress and even burnout. If strategies could be developed to identify resilience in populations such as nursing students, the incidences of chemical dependency and burnout may be reduced. Opportunities for interventions exist for a variety of nurses ranging from nurse practitioners, school health nurses, other health care providers, and even educators who have significantly more contact with college students. Resources may need to be restructured to allow the college student to seek mental health assistance, including those that will enhance coping skills. Ethnic minorities should not be forgotten, as they may be at additional risk. The literature and the current study results indicate the need for resources to enhance coping skills in Hispanic youth. Health policies may also assist with the development of such services for this population.

Education Implications

Nursing education, at all levels, should focus more on stress and risk behaviors of adolescents for better recognition and earlier intervention. One should not be complacent about the normative behaviors of adolescents as they relate to risk-taking. College students are at increased risk as they make a transition to college resulting in increased stress. Education curricula should be more comprehensive in regards to the assessment and interventions necessary for the evaluation and treatment of stress and coping. Additionally, college students need to be taught ways in which they can deal with these increased stresses and techniques for effective coping. Although not a significant predictor of resilience, adaptive behaviors should continue to be enhanced. Nurses and adolescents themselves should understand the importance of being able to cope with stress and to adapt with everyday life situations.

Such practice implications are not limited to adolescents. In addition to victims of disasters and war, nurses and nursing students are potential victims for physical and emotional health problems. These individuals are exposed to multiple stresses and can potentially experience burnout. The use of emotional intelligence models and assessment instruments has been shown to be promising for improved retention of nurses and patient outcomes (Kooker, Shoultz, & Codier, 2007). Domains of emotional intelligence include "self-awareness, self-management, social awareness, and social/relationship management" (Kooker et al., p. 31). Enhanced emotional intelligence can promote professional nursing practice through positive mentoring, accountability, knowledge, and other positive practice environments.

Research Implications

There are a number of implications for nursing research. Subsequent research should be undertaken using a random sample. Additionally, a more diverse population would enhance the

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findings as the population from the current study was too homogeneous. Perhaps freshmen should be excluded to eliminate the confounding influence of a major life event. If possible, the study should be replicated in high school students or in other environments in which there is a wider range of adolescent ages. Psychometric evaluation of the instruments with completion of a factor analysis for the RS and HBQ would alleviate some of the limitations identified with the study. Sequential Equation Modeling should be completed on this research data to further test the Continuum of Resilience Model. The addition of another measure to account for social support in this population can provide additional findings as to whether social support enhances or diminishes resilience or is a predictor for resilience in adolescent college students.

The adolescents in this study sample possessed moderate levels of resilience in spite of exposure to the stresses of daily hassles and major life events. Although most of the students in this homogeneous sample were young, they reported experiencing more stress, yet they also were less likely to participate in high risk behaviors than their older classmates. While this set of facts contradicts the finding of a positive relationship between high risk behaviors and stress, these younger students were more likely to be experiencing stress from making their transition to college life. Regardless nurses and health care providers should be challenged to develop interventions to enhance resilience and diminish stress in adolescent college students.

There are additional practice, education, and research implications for research related to stress and resilience that surpass the adolescent population. Resilience research is not just limited to examining adolescents. Research on resilience reflects new opportunities to evaluate responses to natural disasters such as Hurricane Katrina and Post Traumatic Stress Syndrome experienced by many veterans in the Iraq War. These findings have additional implications for other populations that have experienced a high risk situation and need resilience to cope with stress,

such as nurses, nursing students, especially those who are returning to school or those who are balancing school, work, and home responsibilities. Further study in these areas can offer additional knowledge about this construct. Teaching strategies and other interventions of health promotion and disease prevention can be beneficial to health care providers, educators, and policy makers as well. Resilience is a topic that deserves serious consideration as people continue to live in a high stressed world.

Stress

(daily hassles and major life events)

↕

Personal Characteristics

(internal and external factors, developed competencies, developmental stages)

↕

Continuum of Resilience

←——————————————————————————————————→

high risk behaviors   flexibility, adaptability,
                                       competence, trust,
                                       connectedness
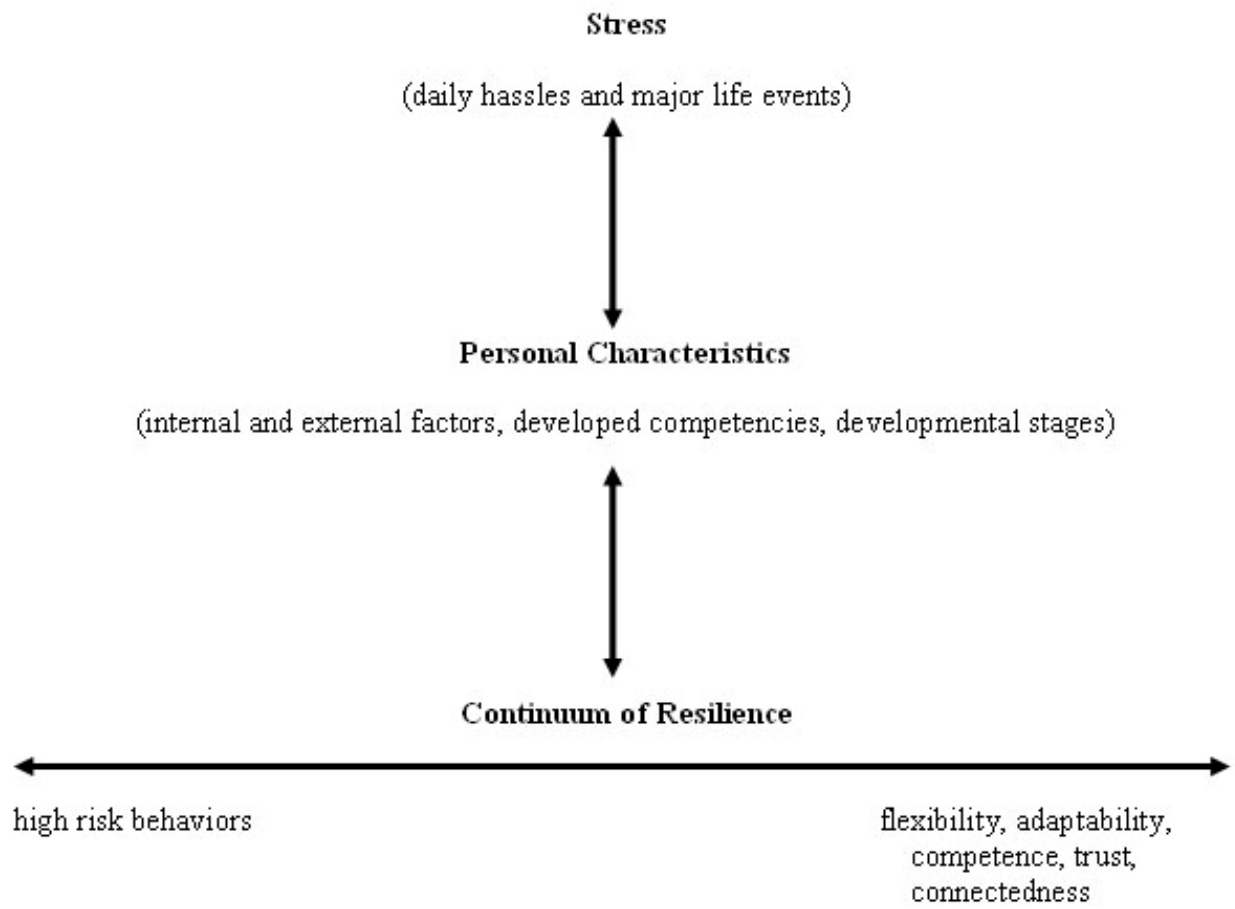
Revised, Hunter & Chandler, 1999

Figure 2
Continuum of Resilience in Adolescence
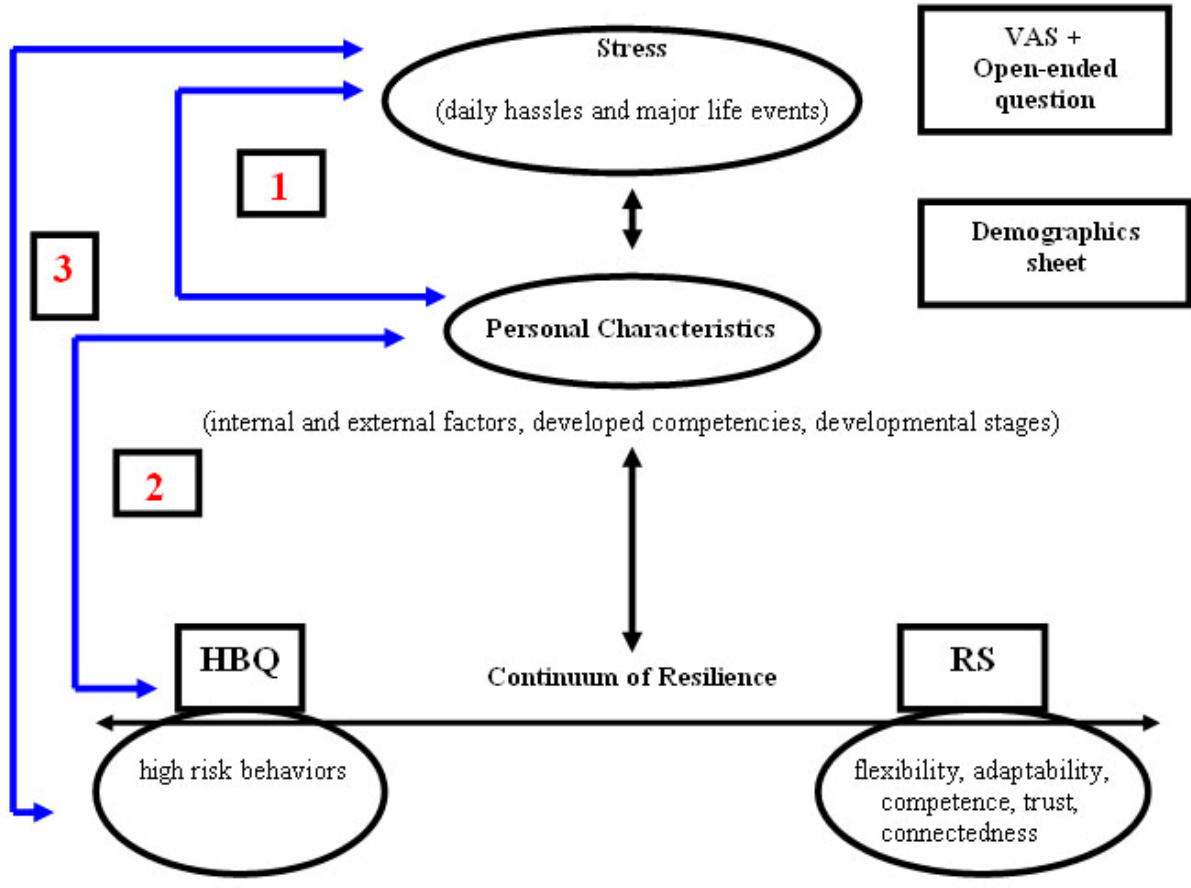
Figure 3
Schematic for Data Analysis

Stress

Personal
Characteristics

Continuum of Resilience

(+)   (-)

High Risk Behaviors   (-)   Resilience
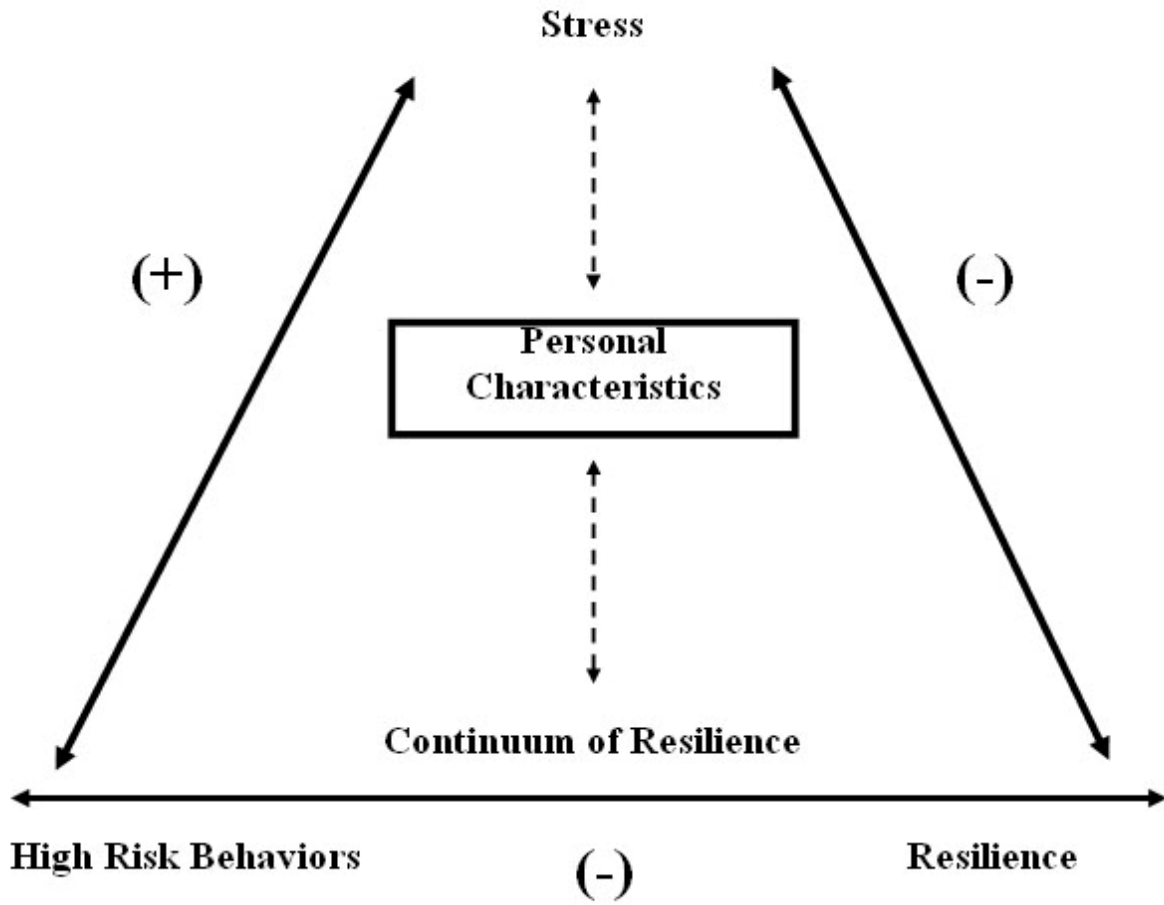
Revised, Hunter & Chandler, 1999

Figure 4
Relationships Among Study Variables
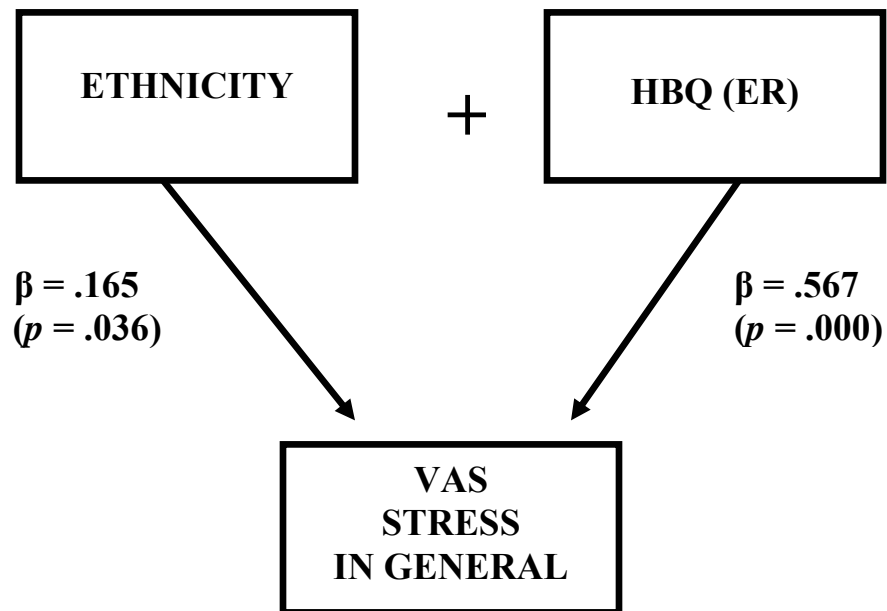
Figure 5
Summary of Path Analysis

Table 5

Definitions of Continuum of Resilience in Adolescence Model Variables

Model Variable	Conceptual Definition	Operational Definition
Personal characteristics	Internal and external factors, developed competencies, and developmental stages which can influence the individual (Hunter & Chandler, 1999)	Demographics selected by study participant on the Demographic Data Collection Tool
Adolescent	Late adolescence (ages approximately 18 to 20 years) is characterized by the transition of the individual into adult roles (Crockett & Petersen, 1994)	Age selected by study participant on the Demographic Data Collection Tool
Perceived stress	The cognitive and behavioral efforts that allow an individual to tolerate, escape, or minimize the effects of stress (Lazarus & Folkman, 1984)	Participant responses on the Perceived Stress Visual Analog Scales (right now and in general) and responses on an open-ended question on the Demographic Data Collection Tool as categorized as daily hassles or major life events
High risk behaviors	Those factors, particularly behaviors or processes, that increase an individual's chances of experiencing adverse health outcomes (Rew, 2005)	Participant scores on the Health Behaviors Questionnaire (HBQ) (Hibbard, Brack, Rauch, & Orr, 1988; Ingersoll & Orr, 1989)
Resilience	A dynamic process involving an interaction between both risk and protective processes, internal and external to the individual, that act to modify the effects of an adverse life event (Rutter, 1985)	Participant scores received on the Resilience Scale™ (Wagnild & Young, 1993)

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Table 6

Selected Participant Characteristics of Sample (*n* = 166)

Participant Characteristic	Frequency	Percent
Highest education completed		
• High school/GED	62	37.3
• College credits	104	62.6
High school type		
• Public	120	72.3
• Home	2	5.4
• Private	9	1.2
• Combination of other	35	21.1
Hours employed		
• None	23	13.9
• 1-20	70	42.1
• More than 20	73	44.0
Annual parental income		
• Less than $25K	13	7.8
• $25-50K	17	10.2
• Greater than $50K	79	47.6
• Don't know/choose to answer	57	34.3
Financial support*		
• Financial aid	114	68.7
• Parental support	103	62
• Work	49	29.5
School activities*		
• Sports/club	43	25.9
• Church	30	18.1
• Academic	9	5.4
	65	39.2

Participant Characteristic	Frequency	Percent
• Community • None	74	44.6
Weekly study hours • None • 1-20 • Greater than 20	 6 156 4	 3.6 93.9 2.4
Non-financial support • Family • Friend	 117 49	 70.4 29.5

*Multiple response questions

Table 7

Means, Medians, Standard Deviations, and Ranges for Study Instruments

Scale	Possible Range	Actual Range	Mean	Median	SD
Perceived Stress Visual Analog Scores					
Stress right now	0-100	0-100	48.8	56.5	27.7
Stress in general	0-100	0-99	48.9	50	24.3
Health Behaviors Questionnaire (HBQ)					
HBQ total scale	27-115	35-85	55.3	54	10.8
HBQ BR (behavioral risk)	10-50	11-39	18.6	17	6.3
HBQ ER (emotional risk)	10-50	10-46	23.5	22.5	7.5
Resilience Scale (RS)					
RS total scale	26-182	85-178	139.8	139	17.5
RS factor 1 (personal competence)	17-119	54-117	92.7	94	12.5
RS factor 2 (acceptance of self and life)	8-56	18-56	42.2	43	6.6

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Table 8
Independent *t* test Comparison of Scale/Subscale Means by Gender (*n* = 166)

Scale Scores	Females (*n* = 67)		Males (*n* = 99)		*t* tests (*df*)	*P*
	M	*SD*	*M*	*SD*		
Perceived Stress Right Now VAS	44.73	28.27	51.54	27.07	-1.561 (164)	.121
Perceived Stress in General VAS	45.81	25.05	51.05	23.68	-1.368 (164)	.173
HBQ total	55.43	11.31	55.17	25.05	.152 (164)	.879
HBQ BR (behavioral risk)	20.24	7.41	17.47	10.51	2.654 (109.13)	.009**
HBQ ER (emotional risk)	21.78	7.68	24.75	7.23	-2.503 (135.87)	.013*
RS total	140.52	17.38	139.39	5.20	.406 (143.67)	.684
RS factor 1 (personal competence)	92.3	12.31	92.93	17.72	-.319 (164)	.750
RS factor 2 (acceptance of self and life)	42.81	6.56	41.76	1.008	.315 (164)	.315

Levels of significance: *p* ;.05; **p < .01

Table 9
Descriptive Statistics Depicting HBQ Major Life Event Questions by Selected Demographics

	Arrested or Picked up by the Police	Ran Away from Home	Suspended or Expelled from School	Attempted Suicide	Been Pregnant or Gotten Someone Pregnant
Age					
18	18 51.4%	8 34.8%	21 52.5%	3 37.5%	6 54.5%
19	10 28.6%	8 34.8%	13 32.5%	4 50.0%	2 18.2%
20	7 20.0%	7 30.4%	6 15.0%	1 12.5%	3 27.3%
Gender					
Female	23 65.7%	7 30.4%	20 50.0%	3 37.5%	3 27.3%
Male	12 34.3%	16 69.6%	20 50.0%	5 62.5%	8 72.7%
Ethnicity					
Hispanic or Latino	3 8.6%	3 13.0%	3 7.9%	0 .0%	1 10.0%
Non-Hispanic or Latino	32 91.4%	20 87.0%	35 92.1%	8 100.0%	9 90.0%
Race					
American Indian or Alaska Native	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
Native Hawaiian or Pacific Islander	1 2.9%	0 .0%	0 .0%	1 12.5%	0 .0%
Black or African American	0 .0%	0 .0%	5 12.5%	0 .0%	2 18.2%
Asian	1 2.9%	1 4.5%	1 2.5%	1 12.5%	0 .0%
White	28 80.0%	18 81.8%	28 70.0%	6 75.0%	8 72.7%
More than one Race	5 14.3%	3 13.6%	6 15.0%	0 .0%	1 9.1%

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	Arrested or Picked up by the Police	Ran Away from Home	Suspended or Expelled from School	Attempted Suicide	Been Pregnant or Gotten Someone Pregnant
Current Class					
Freshman	24 68.6%	17 73.9%	31 77.5%	4 50.0%	9 81.8%
Sophomore	11 31.4%	6 26.1%	9 22.5%	3 37.5%	2 18.2%
Junior	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
Senior	0 .0%	0 .0%	0 .0%	1 12.5%	0 .0%

Note: Numbers indicate those participants who answer "At Lease Once" as opposed to "Never."
Percentages indicate within group total percentages.

Table 10

Pearson Correlation Coefficients (*r*) among Scores on Study Instruments (*n* = 166)

	Stress Right Now	Stress in General	RS	RS Factor 1	RS Factor 2	HBQ	HBQ (BR)
Stress in General	.638**						
RS	-.214**	-.286**					
RS factor 1	-.142	-.201**	.933**				
RS factor 2	-.277**	-.342**	.791**	.537**			
HBQ	.326**	.418**	-.334**	-.262**	-.392**		
HBQ (BR)	.064	.055	-.084	-.095	-.064	.698**	
HBQ (ER)	.419**	.567**	-.366**	-.259**	-.459**	.736**	.062

RS = Resilience Scale, HBQ = Health Behaviors Questionnaire, BR = Behavioral Risk, ER = Emotional Risk

Levels of significance: *p ;.05; **p < .01

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Table 11
Correlations (Spearman Rho *r*) for Recoded (High-Low) Stress Right Now/Stress in General
with Study Instruments

	Stress Right Now High/Low Spearman Rho (*r*)	Stress in General High/Low Spearman Rho (*r*)
RS Total Scale	-.135 $p = .085$	-.188* $p = .015$
RS factor 1	-.135 $p = .084$	-.115 $p = .142$
RS factor 2	-.177* $p = .022$	-.257** $p < .01$
HBQ Total Scale	.273** $p < .01$	.369** $p < .01$
HBQ (BR)	.073 $p = .351$	.087 $p = .267$
HBQ (ER)	.363** $p < .01$	.436** $p < .01$

Levels of significance: *p ;.05; **$p < .01$

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Table 12

Significant Multiple Regression Predictive Models

Model	R^2	F	p
Personal Characteristics + Health Behaviors Questionnaire (total) ⟶ VAS Stress Right Now	.343	1.518	.043
Personal Characteristics + Health Behaviors Questionnaire (ER) ⟶ VAS Stress Right Now	.393	1.87	.005
Personal Characteristics + Health Behaviors Questionnaire (total) ⟶ VAS Stress in General	.441	2.293	.000
Personal Characteristics + Health Behaviors Questionnaire (ER) ⟶ VAS Stress in General	.519	3.13	.000
Personal Characteristics + Resilience Scale Factor 2 (acceptance of self and life) ⟶ VAS Stress in General	.360	1.63	.022

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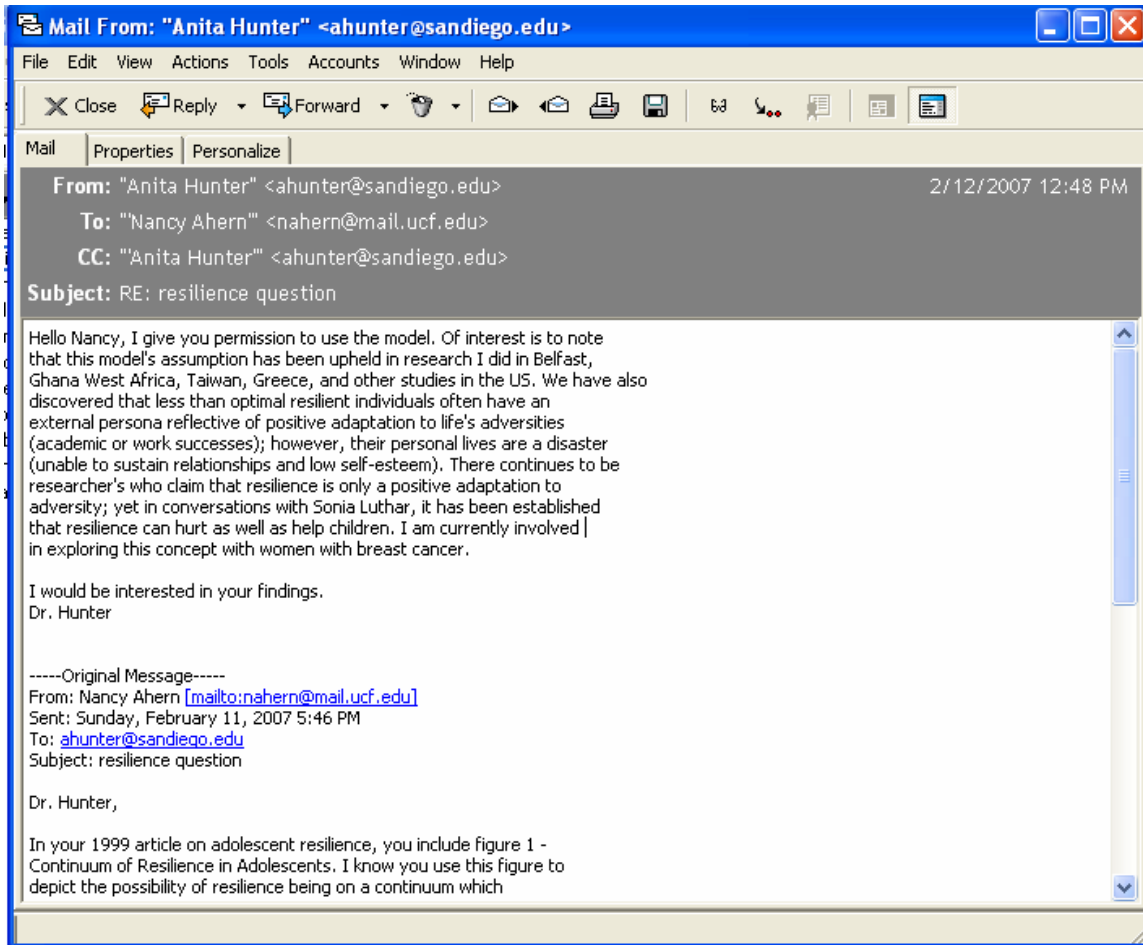
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APPENDIX A:
MODEL PERMISSION

File   Edit   View   Actions   Tools   Accounts   Window   Help

Close   Reply   Forward

Mail | Properties | Personalize

From: "Anita Hunter" <ahunter@sandiego.edu>   2/12/2007 12:48 PM
To: "Nancy Ahern'" <nahern@mail.ucf.edu>
CC: "'Anita Hunter'" <ahunter@sandiego.edu>
Subject: RE: resilience question

Hello Nancy, I give you permission to use the model. Of interest is to note
that this model's assumption has been upheld in research I did in Belfast,
Ghana West Africa, Taiwan, Greece, and other studies in the US. We have also
discovered that less than optimal resilient individuals often have an
external persona reflective of positive adaptation to life's adversities
(academic or work successes); however, their personal lives are a disaster
(unable to sustain relationships and low self-esteem). There continues to be
researcher's who claim that resilience is only a positive adaptation to
adversity; yet in conversations with Sonia Luthar, it has been established
that resilience can hurt as well as help children. I am currently involved |
in exploring this concept with women with breast cancer.

I would be interested in your findings.
Dr. Hunter

-----Original Message-----
From: Nancy Ahern [mailto:nahern@mail.ucf.edu]
Sent: Sunday, February 11, 2007 5:46 PM
To: ahunter@sandiego.edu
Subject: resilience question

Dr. Hunter,

In your 1999 article on adolescent resilience, you include figure 1 -
Continuum of Resilience in Adolescents. I know you use this figure to
depict the possibility of resilience being on a continuum which

APPENDIX B:
HEALTH BEHAVIORS QUESTIONNAIRE PERMISSION

From: "Ingersoll, Gary M." <ingersol@indiana.edu>
To: "Nancy Ahern" <nahern@mail.ucf.edu>
Date: 12/3/2004 10:52:25 AM
Subject: RE: The Health Behaviors Questionnaire

Dear Nancy

Attached is a copy of the Health Behaviors Questionnaire in its most recent format. The article that provides the original basis of the structure of Behavioral and Emotional Risk is

Ingersoll, G. M., & Orr, D. P. (1989). Behavioral and emotional risk in early adolescents. Journal of Early Adolescence, 9, 392-408.

While the factor structure remains fairly consistent across populations, I always suggest that, if you should use it, recreate the factor scores (let SPSS do it) using principal axis and verimax rotation. Then pursue your analyses using the standardized factor scores (I translate them into T-scores, i.e., $T = 10*z + 50$. The factor scores are standardized with a mean of 0 and sd=1).

I hope you find the instrument of use.

Where are you doing your dissertation?

Gary M. Ingersoll, Ph.D.
Professor, Department of Counseling & Educational Psychology
Professor, Department of Pediatrics

http://php.ucs.indiana.edu/~ingersol/home.html

-----Original Message-----
From: Nancy Ahern [mailto:nahern@mail.ucf.edu]
Sent: Thursday, December 02, 2004 8:09 PM
To: Ingersoll, Gary M.
Subject: The Health Behaviors Questionnaire

Dr. Ingersoll,

I am a doctoral student and am beginning my dissertation proposal on adolescent resilience. I am interested in possibly using the Health Behaviors Questionnaire and one of my measurement tools. Can you possibly direct me to where I can get a copy of and more information about this tool?

Thank you,
Nancy Ahern

Nancy R. Ahern, MSN, RN
Visiting Instructor and Coordinator
UCF at Cocoa
School of Nursing
University of Central Florida
1519 Clearlake Road

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APPENDIX C:
RESILIENCE SCALE^{TM} PERMISSION

Permission to Use the RS™

■ **There is no charge for using the Resilience Scale**

We provide it to you asking only that you abide by the terms and conditions below. However, if you find the RS valuable and would like to support this Web site, please send checks or money orders to:

Castle Butte Consulting, Inc.
Box 279
Worden, MT 59088 USA

■ **Please Report How You Used the RS**

It is particularly important for us (and other users) to know of any publications reporting use of the **RS** instrument so that we can maintain an accurate and complete listing.

We **require,** as one of the terms of use for the RS, that upon completion of your study you send us a detailed report of that study to us for our records (**please note** that this is a **requirement** and is not a request). Additionally, by sending the report you give us permission to publish that report on this Web site.

Please send all reports via e-mail to gwagnild@resiliencescale.com or by "snail" mail to the address above.

■ **Use in Dissertation Included**

The the **RS** may be reproduced in the appendix of your dissertation without further permission, as long as you use it according to our Terms of Use.

■ **Please read our Terms of Use** so that you understand what you legally can and can't do with the RS.

■ **Please fill out the following information** so that we can keep track of where the Resilience Scale is being used:

*Name	Nancy R. Ahern	*Required
*Title of Project	Resilience in Adolescent College Students (dissertation)	
*Population of Interest	College students 18-20 years old	
*Organization	University of Central Florida	
*E-mail	nahern@mail.ucf.edu	
Phone		
*Language version	English	

APPENDIX D:
DEMOGRAPHIC QUESTIONNAIRE

Demographic Questionnaire

This questionnaire includes the background information that best describes you. Please indicate the ONE (unless otherwise indicated) response which closely represents you.

1. Date of Birth: _____ _____ _____
                    month   day   year

2. Gender: ☐ Male   ☐ Female

3. Ethnicity: ☐ Hispanic or Latino   ☐ Not Hispanic or Latino

4. Race: ☐ American Indian/Alaska Native   ☐ Asian
             ☐ Native Hawaiian or Other Pacific Islander   ☐ White
             ☐ Black or African American   ☐ More than one
                                                        race

5. Highest Education Level Completed: ☐ High School or GED
                                          ☐ Some College Credits (no degree)
                                          ☐ Associate degree

6. High School Education Type: ☐ Public High School
                                   ☐ Private High School
                                   ☐ Home School
                                   ☐ Dual Enrollment
                                   ☐ Combination of above (please explain)

                                   _____
                                   _____

6. Current GPA: _____

    Check one of the following: ☐ Final High School GPA   ☐ Current University GPA

7. Current Class: ☐ Freshman ☐ Sophomore ☐ Junior ☐ Senior

8. Employment: ☐ None ☐ 1-10 Hours per Week ☐ 11-20 Hours per Week
                ☐ More than 20 Hours per Week

9. Parental Annual Income (estimate): ☐ less than $25,000   ☐ $25,000-$50,000
                                       ☐ $50,001-$75,000   ☐ $75,001-$100,000
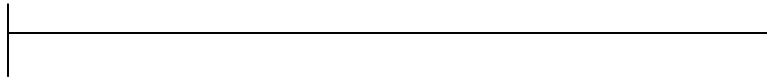   ☐ greater than $100,000 ☐ don't know

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10. Financial Support (check all that apply): □ Financial Aid – grants
□ Financial Aid – loans
□ Financial Aid – work study
□ Scholarships
□ Parental/family support
□ Employment

11. Living Situation: With whom do you live? □ Live alone
□ Live with family
□ Live with significant other
□ Live with friend(s)/roommate(s)

12. Housing: □ Home
□ Apartment/House away from Home

13. Activities (check all that apply): □ Sports Team
□ College Club
□ Church activities
□ Volunteer
□ Academic activities (e.g. Honors in the major)
□ Volunteer
□ Other Community Activities

14. Study habits (check the one that most closely represents your time spent studying):

□ None
□ 1-10 Hours per Week
□ 11-20 Hours per Week
□ More than 20 Hours per Week

15. Who provides you with the *most* support (choose one):

□ Parent(s) □ Sibling □ Other Family Member □ Other Adult □ Peer

16. Religion: (specify denomination)_____

17. What is the *most* stressful event you have experienced in the last six (6) months?

_____

_____

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APPENDIX E:
PERCEIVED STRESS SCALE 1 – STRESS RIGHT NOW

Perceived Stress Scale 1 - Stress Right Now

Instructions: Please put a vertical mark on the line at the point that best describes HOW MUCH STRESS YOU ARE HAVING RIGHT NOW.

None |————————————————————————————| Extreme

APPENDIX F:
PERCEIVED STRESS SCALE 2 – STRESS IN GENERAL

Perceived Stress Scale 2 - Stress in General

Instructions: Please put a vertical mark on the line at the point that best describes HOW
                 MUCH STRESS YOU HAVE IN GENERAL.

None ├──┤ Extreme

The Health Behaviors Questionnaire

Please indicate how often, if at all, you have done these activities in the past 12 months by checking the appropriate box.

	DURING PAST 12 MONTHS				
	Never	Less Than Monthly	Monthly	Weekly	Daily
1. I have difficulty sleeping	[ ]	[ ]	[ ]	[ ]	[ ]
2. I have difficulty making friends	[ ]	[ ]	[ ]	[ ]	[ ]
3. I smoke cigarettes	[ ]	[ ]	[ ]	[ ]	[ ]
4. I have though about dropping out of school.	[ ]	[ ]	[ ]	[ ]	[ ]
5. I have ridden with a driver who has used alcohol or drugs and then driven a car.	[ ]	[ ]	[ ]	[ ]	[ ]
6. I have driven a car or motorbike/cycle after I have used alcohol or drugs.	[ ]	[ ]	[ ]	[ ]	[ ]
7. I have driven a car or motorbike/cycle in a way that many adults would not like.	[ ]	[ ]	[ ]	[ ]	[ ]
8. I have played slot machines, poker machines, or other gambling machines	[ ]	[ ]	[ ]	[ ]	[ ]
9. I feel lonely.	[ ]	[ ]	[ ]	[ ]	[ ]
10. I feel sad	[ ]	[ ]	[ ]	[ ]	[ ]
11. I drink alcohol (wine, beer, booze).	[ ]	[ ]	[ ]	[ ]	[ ]
12. I have had sexual intercourse (gone all the way).	[ ]	[ ]	[ ]	[ ]	[ ]
13. I attend religious services	[ ]	[ ]	[ ]	[ ]	[ ]
14. I have smoked marijuana/pot.	[ ]	[ ]	[ ]	[ ]	[ ]
15. I consider harming myself physically.	[ ]	[ ]	[ ]	[ ]	[ ]
16. I have taken drugs other than alcohol or pot.	[ ]	[ ]	[ ]	[ ]	[ ]
17. I have headaches	[ ]	[ ]	[ ]	[ ]	[ ]
18. I have stomach aches.	[ ]	[ ]	[ ]	[ ]	[ ]
19. I feel tense.	[ ]	[ ]	[ ]	[ ]	[ ]
20. I feel nervous.	[ ]	[ ]	[ ]	[ ]	[ ]
21. I feel upset.	[ ]	[ ]	[ ]	[ ]	[ ]
22. I do volunteer work.	[ ]	[ ]	[ ]	[ ]	[ ]

Indicate if you have done these activities in your lifetime.

	LIFETIME	
	Never	At Least Once
23. I have been arrested or picked up by the police.	[ ]	[ ]
24. I have run away from home	[ ]	[ ]
25. I have been suspended/Expelled from school (kicked out)	[ ]	[ ]
26. I have attempted suicide.	[ ]	[ ]
27. (Female) I have been pregnant. (Male) I have gotten someone pregnant.	[ ]	[ ]

Used with permission of authors (Ingersoll and Orr, 1989).

APPENDIX H:
RESILIENCE SCALE™

The Resilience Scale™

Please read the following statements. To the right of each you will find seven numbers, ranging from "1" (Strongly Disagree) on the left to "7" (Strongly Agree) on the right. Circle the number which best indicates your feelings about that statement. For example, if you strongly disagree with a statement, circle "1". If you are neutral, circle "4", and if you strongly agree, circle "7", etc.

		Strongly Disagree				Strongly Agree		
1.	When I make plans, I follow through with them.	1	2	3	4	5	6	7
2.	I usually manage one way or another.	1	2	3	4	5	6	7
3.	I am able to depend on myself more than anyone else.	1	2	3	4	5	6	7
4.	Keeping interested in things is important to me.	1	2	3	4	5	6	7
5.	I can be on my own if I have to.	1	2	3	4	5	6	7
6.	I feel proud that I have accomplished things in life.	1	2	3	4	5	6	7
7.	I usually take things in stride.	1	2	3	4	5	6	7
8.	I am friends with myself.	1	2	3	4	5	6	7
9.	I feel that I can handle many things at a time.	1	2	3	4	5	6	7
10.	I am determined.	1	2	3	4	5	6	7
11.	I seldom wonder what the point of it all is.	1	2	3	4	5	6	7
12.	I take things one day at a time.	1	2	3	4	5	6	7
13.	I can get through difficult times because I've experienced difficulty before.	1	2	3	4	5	6	7
14.	I have self-discipline.	1	2	3	4	5	6	7
15.	I keep interested in things.	1	2	3	4	5	6	7
16.	I can usually find something to laugh about.	1	2	3	4	5	6	7
17.	My belief in myself gets me through hard times.	1	2	3	4	5	6	7
18.	In an emergency, I'm someone people can generally rely on.	1	2	3	4	5	6	7
19.	I can usually look at a situation in a number of ways.	1	2	3	4	5	6	7
20.	Sometimes I make myself do things whether I want to or not.	1	2	3	4	5	6	7
21.	My life has meaning.	1	2	3	4	5	6	7

		Strongly Disagree						Strongly Agree
2.	I do not dwell on things that I can't do anything about.	1	2	3	4	5	6	7
23.	When I'm in a difficult situation, I can usually find my way out of it.	1	2	3	4	5	6	7
24.	I have enough energy to do what I have to do.	1	2	3	4	5	6	7
25.	It's okay if there are people who don't like me.	1	2	3	4	5	6	7
26.	I am resilient.	1	2	3	4	5	6	7

APPENDIX I:
INSTITUTIONAL REVIEW BOARD APPROVAL

University of
**Central
Florida**

Office of Research & Commercialization

July 19, 2006

Mrs. Nancy R. Ahern
University of Central Florida
College of Health & Public Affairs
BC 333
Orlando, FL 32816-2200

Dear Mrs. Ahern:

With reference to your protocol #06-3622 entitled, "**Resiliency in Adolescent College
Students**" I am enclosing for your records the approved, expedited document of the
UCFIRB Form you had submitted to our office. **This study was approved on
7/17/2006. The expiration date for this study will be 7/16/2007.** Should there be a
need to extend this study, a Continuing Review form must be submitted to the IRB Office
for review by the Chairman or full IRB at least one month prior to the expiration date.
This is the responsibility of the investigator.

Please be advised that this approval is given for one year. Should there be any
addendums or administrative changes to the already approved protocol, they must also be
submitted to the Board through use of the Addendum/Modification Request form.
Changes should not be initiated until written IRB approval is received. Adverse events
should be reported to the IRB as they occur.

Should you have any questions, please do not hesitate to call me at 407-823-2901.

Please accept our best wishes for the success of your endeavors.

Cordially,

Joanne Muratori

Joanne Muratori
UCF IRB Coordinator
(FWA00000351 Exp. 5/13/07, IRB00001138)

Copies: IRB File
         Jacqueline Byers, Ph.D.

12201 Research Parkway • Suite 501 • Orlando, FL 32826-3246 • 407-823-3778 • Fax 407-823-3299
An Equal Opportunity and Affirmative Action Institution

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APPENDIX J:
APPROVED INFORMED CONSENT FORM

University of Central Florida

Informed Consent

Resiliency in Adolescent College Students

I am at least 18 years of age and completing this survey constitutes my informed consent.

Dear Brevard Community College Student:

You are invited to participate in a research study. Your participation and honest answers are critical for assessing resilience (being able to cope and adapt) in Brevard Community College students in Cocoa, Florida.

Project Title:
Resiliency in Adolescent College Students

Purpose of the research study:
The purpose of this research study is to explore the relationships among stress, risk behaviors, and resilience in college adolescents.

What you will be asked to do in this study: Following a brief explanation of the study, I will ask for your verbal consent then I will then give you instructions as to how to complete two short surveys, two stress scales, and a demographic sheet. I will remain nearby to answer any questions. It is important that you answer the questions as honestly and completely as possible. Once you are done, I will collect your completed packet of surveys.

Time required: Approximately 10-15 minutes.

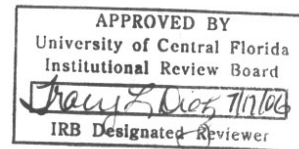**Risks:** There are no risks for participating in this study.

Benefits/compensation: There is no direct benefit to you from participation in this study. There is also no compensation for your participation.

Anonymity: You will remain anonymous. Your research records will be kept private to the extent of the law. Authorized research personnel, the UCF Institutional Review Board and its staff, and other individuals, acting on behalf of UCF, may inspect the records from this research project. The results of this study may be published. However, the data obtained from you will be combined with data from others in the publication. There will be no way to identify you personally in any way in published results of this research.

Voluntary participation: Your participation in this study is voluntary. You may choose not to answer any question(s) that you do not wish to answer. You have the right to withdraw from this study at any time without consequence.

More information: For more information or if you have questions about this study, contact
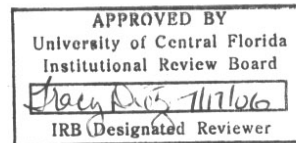
Ms. Nancy Ahern
School of Nursing
College of Health and Public Affairs
(321) 433-7921
nahern@mail.ucf.edu

APPROVED BY
University of Central Florida
Institutional Review Board

Tracy L. Dietz 7/7/06

IRB Designated Reviewer

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Jacquie Byers, PhD, RN, CNAA, CPHQ
Professor
School of Nursing
University of Central Florida
P. O. Box 162210
4000 Central Florida Blvd.
Orlando, FL 32816-2210
(407) 823-6311 (office)
(407) 823-5675 (fax)
jbyers@mail.ucf.edu

Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board. The office is open from 8:00 am to 5:00 pm Monday through Friday except on UCF official holidays. **Information regarding your rights as a research volunteer may be obtained from:**

Institutional Review Board (IRB)
University of Central Florida (UCF)
Office of Research and Commercialization
12201 Research Parkway, Suite 501
Orlando, FL 32826-3246
Telephone: (407) 823-2901 and (407) 882-2276

APPROVED BY
University of Central Florida
Institutional Review Board
7/17/06
IRB Designated Reviewer

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APPENDIX K:
PROTECTION OF HUMAN PARTICIPANTS IN RESEARCH
CONTINUING EDUCATION CERTIFICATE

CERTIFICATE OF COMPLETION

THIS IS TO CERTIFY THAT

NANCY AHERN

HAS SUCCESSFULLY COMPLETED

THE CITI CORE COURSE FOR HUMAN SUBJECTS PROTECTIONS

VERIFIIED BY

TAMMY J. WATTS, RN

JANUARY 18, 2006

DATE

Health First

APPENDIX L:
CURRICULUM VITAE

NANCY R. AHERN, MEd, MSN, RN

University of Central Florida School of Nursing:

1519 Clearlake Road
Cocoa, Florida 32922
(321) 433-7921 - Office
(321) 433 7863 - Fax

I.   EDUCATION

Year	Degree	Institution	Clinical Major	Role Preparation
2003-present 2006	Doctoral Student Doctoral Candidate	University of Central Florida	Nursing	Research
2000-2003	Doctoral Student (18 cr.)	Hampton University	Nursing	Family Research
1996	MSN	University of Delaware	Nursing	Maternal-Child Nursing CNS
1977	MEd	Salisbury University	Education	Practice
1972	BSN	University of Delaware	Nursing	Practice

II.   LICENSURE/CERTIFICATION

1972	**RN License – Florida 1996-present**
2006	**CITI Course in The Protection of Human Research Subjects**
2006	**IDL 6543 Completion**
2004	**NIH Human Participant Protection Education for Research Teams Certificate**
1989-2005	**BCLS Instructor**

III.   EMPLOYMENT

ACADEMIC APPOINTMENTS:

2004-present	**University of Central Florida** – Instructor and Program Coordinator, School of Nursing Southern Regional Brevard Campus
1999-2004	**Bethune-Cookman College, Daytona Beach, FL** – Instructor
1992-1999	**Wilmington College, Wilmington, DE** – Adjunct Faculty

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| 1973-1984 | **Beebe Medical Center School of Nursing, Lewes, DE** - Nursing Instructor |

CLINICAL APPOINTMENTS:

1998-1999	**Atlantic General Hospital, Berlin, MD** - Director, Risk Management/Education/Customer Service
1997-1998	**Nanticoke Health Systems, Seaford, DE** - Maternal-Child Education Coordinator
1993-1997	**Atlantic General Hospital, Berlin, MD** – Director of Education
1984-1993	**Beebe Medical Center, Lewes, DE** - Manager of Education and Employee Development

IV. PUBLICATIONS

REFEREED NATIONAL/INTERNATIONAL JOURNALS:

Ruland, J. P., & **Ahern, N. R**. (in press). Reflective writing: A tool for perspective transformation for nursing students. *Nurse Educator, 32*(2), 81-88.

Ahern, N. R., & Kiehl, E. (2006). Adolescent sexual health & practice - A review of the literature:
Implications for healthcare providers, educators, and policy makers. *Journal of Family and Community Health, 29*(4), 299-313.

Ahern, N. R., & Malvey, D. (2006). Decisions regarding infant resuscitation: A case study applying an ethical decision-making model. *Journal of Health Administration Ethics, 1*(1), 16-25.

Ahern, N. R. (2006). A review of instruments measuring resilience. *Issues in Comprehensive Pediatric Nursing, 29*, 103-125.

Ahern, N. R. (2006). Adolescent resilience: An evolutionary concept analysis. *Journal of Pediatric Nursing, 21*(3), 175-185.

Ahern, N. R. (2005). Using the internet to conduct research. *Nurse Researcher, 13*(2), 55-70.

Ahern, N. R. (2003). Maternal-fetal attachment in African-American and Hispanic-American women. *Journal of Perinatal Education, 12*(4): 27-35.

Ahern, N. R. (2003). Promoting cultural competence in baccalaureate nursing students. *Bethune-Cookman College Faculty Research Journal, 2*(1), 1-25.

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Ahern, N. R. (2002). Maternal-Fetal Attachment in African-American and Hispanic-American women. *Bethune-Cookman College Faculty Research Journal, 1*(1), 1-23.

Ahern, N. R. (1996). *A Comparison of Maternal-Fetal Attachment Behaviors in Gravidas from Two Different Cultures.* Newark, DE: University of Delaware (masters thesis).

NON-REFEREED NATIONAL/INTERNATIONAL:

Ahern, N. R. (2007). Book of the year awards: Nursing education and continuing education reviews. *American Journal of Nursing, 107*(1), 33-38.

Contemporary Forums "Listen, Learn, and Earn CE" CD-Rom on Obstetric Nursing Presentation – "Non Traditional Families." (May 2004)

NON-REFEREED REGIONAL/STATE:

Ahern, N. R. (2000). *Preventing the dangers of second hand smoke: Train-the-trainer workshop manual*. Daytona Beach, FL: Volusia County Health Department, Bethune Cookman College, & the American Lung Association (State of Florida grant).

Ahern, N. R. (1999). *Guest relations for registration staff: A self learning packet.* Berlin, MD: Atlantic General Hospital.

Ahern, N. R. (1999). *Preventing patient falls (SLP).* Berlin, MD: Atlantic General Hospital.

Ahern, N. R. (1999). *Communicating effectively with the elderly (SLP).* Berlin, MD: Atlantic General Hospital.

Justice, K., & **Ahern, N. R**. (1998). *Venipuncture certification booklet.* Berlin, MD: Atlantic General Hospital.

Ahern, N. R. (1998). *Assessment and care of infants: A self learning packet.* Seaford, DE: Nanticoke Health Systems.

Emche, K., & **Ahern, N. R.** (1998). *Infection control self learning packet.* Berlin, MD: Atlantic General Hospital.

Emche, K., & **Ahern, N. R**. (1997). *HIV & AIDS self learning packet*. Berlin, MD: Atlantic General Hospital.

Stipe, V., & **Ahern, N. R.** (1997). *Conscious sedation certification.* Berlin, MD: Atlantic General Hospital.

Ahern, N. R. (1997). *Preventing medication errors.* Berlin, MD: Atlantic General Hospital.

Ahern, N. R. (1996) *Customer relations review (SLP).* Berlin, MD: Atlantic General Hospital.

Ahern, N. R. (1995). *Delegation for managers: A self-learning packet.* Berlin, MD: Atlantic General Hospital.

Stipe, V., & **Ahern, N. R.** (1995). *Dysrhythmia interpretation for nurses (SLP).* Berlin, MD: Atlantic General Hospital.

Stipe, V., & **Ahern, N. R.** (1995). *Dysrhythmia interpretation for monitor techs (SLP).* Berlin, MD: Atlantic General Hospital.

Ahern, N. R. (1994). *Dosage calculation review for nurses.* Berlin, MD: Atlantic General Hospital.

Emche, K., & **Ahern, N. R.** (1994). *Venous access devices (SLP).* Berlin, MD: Atlantic General Hospital.

Ahern, N. R., & Emche, K. (1993). *Intravenous certification education packet for nurses.* Berlin, MD: Atlantic General Hospital.

Ahern, N. R. (1993). *Diabetes and you: A patient education booklet.* Berlin, MD: Atlantic General Hospital.

Ahern, N. R. (1993). *Pediatric growth and development: A guide for healthcare staff (SLP).* Lewes, DE: Beebe Medical Center.

Ahern, N. R. (1993). *Adulthood: Developmental stages and age specific care (SLP).* Lewes, DE: Beebe Medical Center.

Ahern, N. R. (1993). *Geriatric care: A review for the healthcare team (SLP).* Lewes, DE: Beebe Medical Center.

Ahern, N. R. (1992). *Preceptor workshop manual.* Lewes, DE: Beebe Medical Center.

Ahern, N. R. (1992). *Presentation techniques for the educator.* Lewes, DE: Beebe Medical Center.

GUEST EDITOR, NATIONAL/INTERNATIONAL JOURNALS:

*TEXTBOOKS***:**

*BOOK CHAPTERS***:**

Ahern, N. R. (2007). Cultural influences on nursing care. In L. Williams and P. Hopper (Eds.), *Understanding medical surgical nursing* (pp. 31-50). Philadelphis: FA Davis.

Ahern, N. R. (2007). Culture and ethnicity. In J. Wilkinson and K. Van Leuven (Eds.), *Fundamentals of nursing:Full spectrum nursing, Volume I: Theory, concepts and applications* (pp. 221-244). Philadelphia: FA Davis.

Ahern, N. R. (2007). Culture and ethnicity. In J. Wilkinson and K. Van Leuven (Eds.), *Fundamentals of nursing: Full spectrum nursing, Volume II: Thinking and doing* (pp. 130-146). Philadelphia: FA Davis.

Ruland, J. P., & Ahern, N. R. (2007). Ethics and values. In J. Wilkinson and K. Van Leuven (Eds.), *Fundamentals of nursing: Full spectrum nursing, Volume I: Theory, concepts and application* (1044-1069). Philadelphia: FA Davis.

Ruland, J. P., & Ahern, N. R. (2007). Ethics and values. In J. Wilkinson and K. Van Leuven (Eds.), *Fundamentals of nursing: Full spectrum nursing, Volume II: Thinking and doing* (pp. 1005-1015). Philadelphia: FA Davis.

ABSTRACTS:

Resiliency in Adolescent College Students: Issues and Challenges of Data Collection in the program of the *Sigma Theta Tau Theta Epsilon Chapter Fall General Meeting* (November 15, 2006).

Resiliency of Adolescent College Students: Results of a Pilot Study in the proceedings of the Sigma Theta Tau Theta Epsilon Chapter and UCF School of Nursing Alumni Cultivating Nursing Scholarship Conference (October 13, 2006).

Adaptation and Resiliency in American Families in the proceedings of *Fourteenth Annual Research Day: Walking the Path of a Nurse Scholar* by Sigma Theta Tau, Theta Epsilon Chapter (April 4, 2006)

Adaptation and Resilience of American Families in the proceedings of the *UCF Third Annual Graduate Student Association Research Forum* (March 29, 2006).

Adaptation and Resilience of American Families, poster presented in the proceedings of the *20th Anniversary Conference of the Southern Nursing Research Society*, Memphis, Tennessee (February 2-4, 2006)

Comparison of Outcomes of Community-based Versus Traditional Basic Baccalaureate Programs: Report of
Findings of Year Two in the proceedings the *NLN Education Summit 2005 - Nursing Education: Navigating Toward New Horizons* (September 29 – October 1, 2005).

Comparison of Outcomes of Community-based Versus Traditional Basic Baccalaureate

programs: A Pilot Study in the proceedings of the *Thirteenth Annual Research Day: Charting the Course, New Directions in Nursing Research* by Sigma Theta Tau, Theta Epsilon Chapter (March 29, 2005).

Adolescent Resilience: An Evolutionary Concept Analysis in the proceedings of the *Thirteenth Annual Research Day: Charting the Course, New Directions in Nursing Research* by Sigma Theta Tau, Theta Epsilon Chapter (March 29, 2005).

Adolescent Resilience: An Evolutionary Concept Analysis in the proceedings of the *UCF Second Annual Graduate Student Associate Research Forum* (March 22, 2005).

Comparison of Outcomes of Community-based Versus Traditional Basic Baccalaureate programs: A Pilot Study in the *19th Annual Southern Nursing Research Society Conference Proceedings* (February 3-5, 2005).

Non-Traditional Families: Strategies for Sensitive Care presentation in *The Contemporary Forums Obstetric Nursing Conference Syllabus* (May 14, 2004)

Transforming an Undergraduate Nursing Research Course to a Web-based Course Using the Seven Principles: Study Findings Abstract in the *15th International Conference on College Teaching and Learning Proceedings* by Florida Community College at Jacksonville and The Center for the Advancement of Teaching and Learning Conference (March 31, through April 2, 2004)

Transforming an Undergraduate Nursing Research Course to a Web-based Course Using the Seven Principles: Study Findings Abstract in the *Spinning the Web: Nursing Theory, Research and Practice 12th Annual Research Day Proceedings* by Sigma Theta Tau International, Theta Epsilon Chapter (March 30, 2004)

Relationship of Classroom Environment to Growth in Critical Thinking Abstract in the *Spinning the Web: Nursing Theory, Research and Practice 12th Annual Research Day Proceedings* by Sigma Theta Tau International, Theta Epsilon Chapter (March 30, 2004)

Transforming an Undergraduate Nursing Research Course to a Web-based Course Using the Seven Principles: Study Findings Abstract in the *18th Annual Southern Nursing Research Society Conference Proceedings* (February 22, 2004)

Relationship of Classroom Environment to Growth in Critical Thinking Abstract in the *18th Annual Southern Nursing Research Society Conference Proceedings* (February 22, 2004)

Transforming to a Web-based Course Using the Seven Principles, in *The 14th International Conference on College Teaching and Learning Conference Proceedings* (April 1-5, 2003)

Adult Learner Perspective Transformation Through Electronic Reflective Writing Abstract, in *The 14th International Conference on College Teaching and Learning Conference Proceedings*

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(April 1-5, 2003)

Maternal-Fetal Attachment in African-American and Hispanic-American Women Abstract in the *Southern Nursing Research Society 17th Annual Conference Proceedings* (February 13-15, 2003)

Promoting Cultural Competence in the Baccalaureate Nursing Student Abstract in the *3rd Annual Southern University School of Nursing Research Symposium Proceedings* (January 2003)

Maternal-Fetal Attachment in African-American and Hispanic-American Women Abstract in the *2nd Annual Southern University School of Nursing Research Symposium Proceedings* (February 2002)

A Comparison of Maternal-Fetal Attachment Behaviors in Gravidas from Two Different Cultures Abstract in the *Delaware Nurses' Association Research Conference Proceedings* (March 1998)

V.   **RESEARCH AND GRANTS**

2006	Co Dissertation research in progress – Resiliency in Adolescent College Students
2005	Co-PI Adaptation and Resilience of American Families: Phase Four (doctoral research with Dr. Ermalynn Kiehl)
2005	CoC Community-based Versus Traditional Basic Baccalaureate Programs: Year Two (research with Dr. Judith Ruland)
2003-2004	Transforming a Nurse Research Course to a Web-based Course: A Two Year Pilot Study
2003-2004	Mini-Grant Research: Transforming a Nursing Research Course to a Web-based Course Using The Seven Principles of Good Practice in Undergraduate Education ($1000 grant)
2000	Participant in state of Florida grant through the collaboration of the Volusia County Health Department, Bethune-Cookman College, and the American Lung Association *Preventing the Dangers of Second Hand Smoke* ($5,000 total grant)
1998	Grant from March of Dimes for Maternal-Child Health Community Education Program ($500 grant)
1996	Maternal-Fetal Attachment: A Comparison of Two Cultures (masters thesis research)

VI.   **PRESENTATIONS**

REFEREED NATIONAL/INTERNATIONAL:

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Adaptation and Resilience of American Families, poster presentation at the 20th Anniversary Conference of the Southern Nursing Research Society, Memphis, Tennessee (February 2-4, 2006)

Comparison of Outcomes of Community-based Versus Traditional Basic Baccalaureate Programs: Report of
Findings of Year Two at the NLN Education Summit 2005 - Nursing Education: Navigating Toward New Horizons, paper presentation, Baltimore, MD (September 29 – October 1, 2005).

Comparison of Outcomes of Community-based Versus Traditional Basic Baccalaureate Programs: A Pilot Study poster presentation at the 19th Annual Southern Nursing Research Society Conference, Atlanta, Georgia (February 3-5, 2005)

Transforming an Undergraduate Nursing Research Course to a Web-based Course Using the Seven Principles: Study Findings paper presentation at the 15th International Conference on College Teaching and Learning by Florida Community College at Jacksonville and The Center for the Advancement of Teaching and Learning, Jacksonville, Florida (April 2, 2004)

Transforming an Undergraduate Nursing Research Course to a Web-based Course Using the Seven Principles: Study Findings poster presentation at the 18th Annual Southern Nursing Research Society Conference, Louisville, Kentucky (February 22, 2004)

Relationship of Classroom Environment to Growth in Critical Thinking poster presentation at the 18th Annual Southern Nursing Research Society Conference, Louisville, Kentucky (February 22, 2004)

Transforming to a Web-based Course Using the Seven Principles, paper presentation at The 14th International Conference on College Teaching and Learning, Jacksonville, Florida (April 1-5, 2003)

Adult Learner Perspective Transformation Through Electronic Reflective Writing, paper presentation at The 14th International Conference on College Teaching and Learning, Jacksonville, Florida (April 1-5, 2003)

Maternal-Fetal Attachment in African-American and Hispanic-American Women poster presentation at the Southern Nursing Research Society 17th Annual Conference, Orlando, Florida (February 13-15, 2003)

Promoting Cultural Competence in the Baccalaureate Nursing Student paper presentation at the 3rd Annual Southern University School of Nursing Research Symposium, Baton Rouge, Louisiana (January 2003)

***INVITED NATIONAL/INTERNATIONAL PRESENTATIONS*:**

Non-Traditional Families: Strategies for Sensitive Care invited paper presentation for Contemporary Forums Obstetric Nursing Conference, Orlando, Florida (May 14, 2004)

*REFEREED REGIONAL/STATE***:**

Resiliency of Adolescent College Students: Results of a Pilot Study poster presentation at the Sigma Theta Tau Theta Epsilon Chapter and UCF School of Nursing Alumni Cultivating Nursing Scholarship Conference (October 13, 2006).

Adaptation and Resiliency in American Families, paper presentation at the Fourteenth Annual Research Day: Walking the Path of a Nurse Scholar by Sigma Theta Tau, Theta Epsilon Chapter, Orlando, Florida (April 4, 2006).

Adaptation and Resilience of American Families, poster presentation at the UCF Third Annual Graduate Student Association Research Forum, Orlando, Florida (March 29, 2006).

Adaptation and Resilience of American Families, poster presentation at Research, Renewal & Roses Faculty Scholarship Showcase sponsored by Theta Epsilon Chapter of Sigma Theta Tau and the UCF Alumni Chapter, Orlando, Florida (October 7, 2005).

Comparison of Outcomes of Community-based Versus Traditional Basic Baccalaureate programs: A Pilot Study paper and poster presentations at the Thirteenth Annual Research Day: Charting the Course, New Directions in Nursing Research by Sigma Theta Tau, Theta Epsilon Chapter, Orlando, Florida (March 29, 2005).

Adolescent Resilience: An Evolutionary Concept Analysis paper and poster presentations at the Thirteenth Annual Research Day: Charting the Course, New Directions in Nursing Research by Sigma Theta Tau, Theta Epsilon Chapter (March 29, 2005).

Adolescent Resilience: An Evolutionary Concept Analysis poster presentation at the UCF Second Annual Graduate Student Association Research Forum, Orlando, Florida (March 22, 2005).

Transforming an Undergraduate Nursing Research Course to a Web-based Course Using the Seven Principles: Study Findings paper presentation at the Spinning the Web: Nursing Theory, Research and Practice 12th Annual Research Day by Sigma Theta Tau International, Theta Epsilon Chapter, Orlando, Florida (March 30, 2004)

Relationship of Classroom Environment to Growth in Critical Thinking paper presentation at the Spinning the Web: Nursing Theory, Research and Practice 12th Annual Research Day by Sigma Theta Tau International, Theta Epsilon Chapter, Orlando, Florida (March 30, 2004)

Transforming an Undergraduate Nursing Research Course to a Web-based Course Using the Seven Principles for Good Practice in Undergraduate Education, paper presentation at the University of Central Florida's First Annual Faculty Scholarship Day, Orlando, Florida (August 8, 2003)

RN-BSN Perspective Transformation through Reflective Writing, paper presentation at the University of Central Florida's First Annual Faculty Scholarship Day, Orlando, Florida (August 8, 2003)

Maternal-Fetal Attachment in African-American and Hispanic-American Women paper presentation at the 2nd Annual Southern University School of Nursing Research Symposium, Baton Rouge, Louisiana (February 2002)

A Comparison of Maternal-Fetal Attachment Behaviors in Gravidas from Two Different Cultures paper presentation at the Delaware Nurses' Association Research Conference, Dover, Delaware (March 1998)

INVITED REGIONAL/STATE/LOCAL PAPERS:

Resiliency of Adolescent College Students: Preliminary Findings at the UCF-Cocoa Brown Bag Luncheon Series (January, 25, 2007)

IDL 6543 Module Presentation at the 10th Annual IDL 6543 Faculty Showcase for UCF (November 17, 2006)

Resiliency of Adolescent College Students: Issues and Challenges of Data Collection paper presentation at the Sigma Theta Tau Theta Epsilon Chapter fall general meeting (November 15, 2006).

Cultural Competence: A Fad or a Necessity? Presented for Halifax Health Systems 2006 Nurses' Week Celebration (May 3, 2006)

Cultural Competence: A Fad or a Necessity? Presented for Halifax Health Systems 2005 Nurses' Week Celebration (May 4, 2005)

Comparison of Outcomes of Community-based Versus Traditional Basic Baccalaureate programs: A Pilot Study poster presentations at the UCF SoTL Faculty Showcase (April 20, 2005)

Relationship of Classroom Environment to Growth in Critical Thinking poster presentation at the UCF SoTL Faculty Showcase (April 20, 2005)

Transforming an Undergraduate Nursing Research Course to a Web-based Course Using the Seven Principles: Study Findings poster presentation at the UCF SoTL Faculty Showcase (April 20, 2005)

Promoting Cultural Competence in Baccalaureate Students paper presentation at the Bethune-Cookman College Faculty Lyceum, Daytona beach, Florida (September 29, 2003)

Transforming to a Web-based Course Using the Seven Principles, paper presentation at the Bethune- Cookman College Teaching and Learning Technology Group, Daytona Beach, Florida (June 6, 2003)

Preventing the Dangers of Second Hand Smoke – Train-the-Trainer Workshop at the Bethune-Cookman College Faculty Lyceum, Daytona Beach, Florida (February 2001)

Preventing the Dangers of Second Hand Smoke – Train-the-Trainer Workshops (state grant initiative through collaborative effort of Bethune-Cookman College, Volusia County Health Department, and the American Lung Association, multiple sites in Volusia and Flagler Counties, Florida (November 2000 – February 2001)

Numerous professional and community public speaking engagements

VII.	**AWARDS**

2006	Manchester Who's Who Among Executive and Professional Women in Nurisng and Healthcare (invitation to join)
2006	Advanced Education Nursing Traineeship Award
2006	Who's Who Among Top University of Central Florida Students
2006	Who's Who Among Students in American Universities and Colleges
2005	Academic Keys' Who's Who in Health Services Education
2005	First Place Poster Award (Comparison of Outcomes of Community-based Versus Traditional
	Basic Baccalaureate programs: A Pilot Study) from the Thirteenth Annual Research Day:
	Charting the Course, New Directions in Nursing Research by Sigma Theta Tau, Theta Epsilon
	Chapter.
2005	Graduate Student Poster Honorable Mention (Comparison of Outcomes of Community-based Versus Traditional Basic Baccalaureate programs: A Pilot Study) from the 19th Annual Southern Nursing Research Society Annual Conference
2004	Graduate Student Fellowship (Summer Tuition Awarded for Academic Achievement)
2004	The George Washington Carver Research Award for Outstanding Research from the Office of Sponsored Programs, Bethune-Cookman College President's Annual Research and Proposal Writing Luncheon
2004	Excellence in Research Award from Bethune-Cookman College 27th Annual Faculty Honors and Awards Ceremony
2004	Award winner for Innovative Excellence in Teaching, Learning and Technology at the 15th International Conference on College Teaching and

	Learning from Florida Community College at Jacksonville and The Center for the Advancement of Teaching and Learning
2003	Mini Grant Recipient for Creative Teaching – Transforming a Nursing Research Course to a Web-based Course Using The Seven Principles of Good Practice in Undergraduate Education from the Bethune-Cookman College Faculty Development
2002	Professional Activities Award for the Bethune-Cookman College Division of Nursing from the 4th Annual President's Research Recognition Luncheon
2001	Faculty Community Service Award from Bethune-Cookman College 24th Annual Faculty Honors and Awards Ceremony
1996	Maternal-Child Nursing Achievement Award from Kent General Hospital, Dover, Delaware
1996	University of Delaware Nursing Alumni Association Award for Superior Achievement and Professional Accomplishments
1995	University of Delaware Nursing Alumni Association Award for Superior Achievement and Professional Accomplishments

VIII.   PROFESSIONAL ACTIVITIES & COMMUNITY SERVICE

PROFESSIONAL ORGANIZATIONS:

Phi Kappa Phi Honor Society
Sigma Theta Tau International Nursing Honor Society – Theta Epsilon Chapter
American Nurses Association/Florida Nurses Association
Southern Nursing Research Society
National League for Nursing

JOURNAL EDITOR & EDITORIAL REVIEW BOARDS:

2006	Guest reviewer for the *Journal of Emotional and Behaviour Difficulties* special edition (June 2007) on Resilience
2006	Judge, *American Journal of Nursing* books of the year – Nursing education and continuing education category
2005-present	Reviewer, *American Journal of Nursing*

COMMUNITY SERVICE:

2006-present	Nurse Council Space Coast Chapter of the American Red Cross, Cocoa, FL
2006-present	Astronaut High School Health Sciences Academy Advisory Board, Titusville, FL
2006-present	Health-First Inc. Institutional Review Board (IRB), Brevard County, FL

2006-present	Brevard County Florida School Health Advisory Board
2004-present	Brevard Community College Nursing Advisory Board, Cocoa, FL
2005-present	Re-elected to New Smyrna Beach High School School Advisory Council
1989-2005	BCLS/AED Instructor (American Heart Association)
2001-2005	New Smyrna Beach High School School Advisory Council, Co-chair, New Smyrna Beach, FL
2004	Healthy Volusia Low Birth Weight/Infant Mortality Sub-committee healthy Start Coalition of Volusia and Flagler Counties, FL
2002-2004	Volunteer Evaluator for Senior Student Projects, New Smyrna Beach High School, New Smyrna Beach, FL
2002-2004	Volusia County Florida Chapter, American Lung Association Board
2002-2003	African American Men's Task Force, Volusia County, FL
1996-1998	Worcester County Maryland American Heart Association Board of Directors
1993-1998	Safe Sitter Instructor, Safe Sitter Inc.
1993-1998	Worcester County Maryland American Cancer Society Board of Directors
1993-1999	BCLS Instructor-Trainer (American Heart Association)
1990-1996	Community CPR & First Aid Instructor (American Red Cross)
1990-1993	BCLS Instructor Trainer/Affiliate Faculty (American Heart Association)

CONSULTATION:

2004-present	HIV/AIDS 501 Prevent, testing, and Referral Coounselor (Florida Department of Health)
1998-present	Resolve Through Sharing (RTS) Bereavement Counselor

UNIVERSITY SERVICE: (Last 4 years)

Committee
Member

2006-2007:

School of Nursing:

Faculty Association, Cocoa CNC Coordinator, CNC Committee, Leadership Council, Brevard Campus Advisory Board, Undergraduate APG Committee, Faculty Search Committee, Scheduler Search Committee

Southern Regional Campus:

Southern Regional Campus Faculty Association, Start-up Committee for Southern Regional Campus Phi Kappa Phi Honor Society, Publicity Committee

2005-2006:

School of Nursing:

Undergraduate Curriculum Committee, Faculty Association, Cocoa CNC Coordinator, New Faculty CNC Committee, Leadership Team, Brevard Campus Advisory Board, Undergraduate APG Committee, Faculty Search Committees, Undergraduate Curriculum Task Force, Mission and Philosophy Task Force

Southern Regional Campus:

Southern Regional Campus Faculty Association, Start-up Committee for Southern Regional Campus Phi Kappa Phi Honor Society

2004-2005:

School of Nursing:

Undergraduate Curriculum Committee, Faculty Association, Cocoa CNC Coordinator, New CNC Faculty Committee, Leadership Team, Brevard Campus Advisory Board, Undergraduate Curriculum Task Force, Mission and Philosophy Task Force

Southern Regional Campus:

Southern Regional Campus Faculty Association

University:

Graduate Students Association – Graduate Research Forum Volunteer

Faculty Co-Advisor	Student Nurses' Association (2005-2006)
Volunteer	Graduate Student Association Research Forum ITV Classroom facilitator (2004-2005)
2003-2004	Alternate Student Member, Doctoral Committee

DISSERTATION / THESIS / RESEARCH PROJECT ADVISING (UCF):

DISSERTATION / THESIS / RESEARCH PROJECT ADVISING (Other Institutions):

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APPENDIX M:
APPROVED DISSERTATION PROPOSAL

RESILIENCY IN ADOLESCENT COLLEGE STUDENTS

by

NANCY R. AHERN
M.S.N. University of Delaware, 1996

A dissertation proposal submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the School of Nursing
in the College of Health and Public Affairs
at the University of Central Florida
Orlando, Florida

Summer Term
2006

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ABSTRACT

As adolescents search for their identity, they often participate in risk-taking behaviors. The latest National Youth Risk Behavior Survey (2004a, 2004b) reported that adolescents were the most likely to report risky behavior. Although little is known about how risk-taking and health-promoting resilient behaviors develop and manifest in the adolescent, researchers have documented that protective resources can interact with risks to influence health promoting behaviors. Research has been conducted on the resiliency of those who have experienced adversity, yet little is known about resilience in well-adjusted healthy adolescent college students who are dealing with developmental stressors. The specific aim of this research is to add to the body of knowledge about adolescents and resilience. The purpose of this research study is to explore the relationships among a set of correlates, including stress, high risk behaviors, and resilience in what should be a healthy, well-adjusted population. The proposed research study will assist in filling a gap of knowledge that exists regarding resilience in adolescent college students who are not experiencing increased psychological vulnerability. An exploratory correlational design will be used to answer the research questions: (1) What are the personal characteristics, high risk behaviors, levels of stress, and levels of resilience of college students who are 18 to 20 years old? (2) What are the relationships among the correlates of high risk behaviors, levels of stress, and levels of resilience of college students who are 18 to 20 years old? Adolescent college students will be surveyed on one college campus using two perceived stress visual analog scales, a demographic questionnaire and two self-report instruments: Resilience Scale™ (RS) and the Health Behaviors Questionnaire (HBQ). The results of this study will generate important data about the resilience of adolescent college students with low, moderate, and high levels of stress. An understanding of resilient characteristics and the processes that enhance resilience in adolescents can enable nurses to promote such behaviors. Interventions enhancing protective factors in adolescents can potentially minimize stress and vulnerabilities and promote healthy outcomes.

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SPECIFIC AIMS

The specific aim of this research is to add to the body of knowledge about adolescents and resilience. Although there is an abundance of literature regarding resilience and adolescent resilience, there is little known about this process in the healthy well-adjusted adolescent college student. Much has been written about adolescents with learning problems, those who are homeless, delinquent, or who are otherwise experiencing extreme vulnerabilities, but there is a paucity of empirical evidence regarding resilience in the healthy adolescent who attends college. In addition there are some inconsistencies in reported findings about whether resilience is a healthy state. Although most researchers have assumed that resilience is a healthy state, others have theorized that this may not be so. Additionally, there are contradictions regarding the effect of social support on this process.

The purpose of this research study is to explore the relationships among a set of correlates, including stress, high risk behaviors, and resilience in what should be a well-adjusted population. The proposed research study will assist in providing a better understanding of resilience and its effects on stress in adolescent college students who are not at extreme vulnerability.

As a result of the gaps and contradictions in the literature, this researcher plans to study high risk behavior, levels of stress, and resilience in undergraduate community college students. The long-term objectives and goal of the proposed research are to attempt to answer two research questions about adolescent resilience. The proposed research questions include: (1) What are the personal characteristics, high risk behaviors, levels of stress, and levels of resilience of college students who are 18 to 20 years old? (2) What are the relationships among the correlates of high

risk behaviors, levels of stress, and levels of resilience of college students who are 18 to 20 years old?

The results of this research may be able to provide a better understanding regarding the process of resilience in what should be a healthy, well-adjusted population. The results of this research will add to the body of knowledge related to adolescent resilience and will guide nurses and other health care and social services providers in the development of programs aimed at enhancing the quality of adolescent life. Evidence-based practice recommendations can be made for practice, education, and research.

BACKGROUND AND SIGNIFICANCE

Background

The background of this research proposal will consider adolescent high risk behavior, vulnerability in adolescents, current literature, and the planned research conceptual model. The current literature review focuses on developmental and resiliency theories, stress and coping, conceptual and measurement factors, resiliency research in other disciplines and in nursing, and the literature gaps and inconsistencies.

Adolescent Risky Behavior

Throughout time adults have expressed apprehensions regarding the behaviors of adolescents. Such concerns are reinforced by the latest national Youth Risk Behavior Surveillance Survey (YRBSS) which reports student behavior statistics related to practices of high risk behavior (e.g. use of tobacco, alcohol intake, weapons, sexual behavior, etc.) (CDC, 2004a, 2004b). Although the YRBS includes health-risk behavior data which may lead to higher morbidity and mortality outcomes in middle and high-school youth, adolescents ranging in age from 12 to 17 years were the most likely to report risky behavior (CDC, 2004b; Rew & Horner, 2003). Some of the survey findings (N = 15,214) indicated that 18.2% rarely wore seatbelts; 12.1% drove while drinking alcohol; 17.1% have carried a weapon to school; 8.9% have been physically harmed by a date during the previous year; 16.9% have seriously considered suicide during the last year; 21.9% currently smoke; 44.9% reported they currently drink alcohol; 25% admitted to poor nutritional habits; and 13.5% were overweight (CDC, 2004a, 2004b).

Similar to the school-based YRBSS survey, the National College Health Risk Behavior Survey (NCHRBS) is conducted among undergraduate college students. This survey monitors priority health risk behaviors contributing to leading causes of death, illness and social problems

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among young adults in the United States (e.g. tobacco use, unhealthy dietary habits, inadequate physical activity, alcohol and drug use, sexual behaviors, and behaviors risky for unintentional injuries and violence) (CDC, 1997). Although findings from the survey are fairly congruent with the YRBSS data, the latest NCHRBS was conducted in 1995. Unfortunately there are nor further plans to repeat the NCHRBS at this time.

A recent report from the 2002 National Survey of Family Growth (NSFG) conducted by the National Center for Health Statistics (NCHS) under the auspices of the CDC have revealed some rather disturbing facts regarding the sexual health behaviors of teens. These data indicate that more than half of American teenagers ranging in age from 15 to 19 years (55.2% of males and 54.3% of females) have engaged in oral sex with a significantly higher number of those who have also engaged in intercourse (CDC, 2005). The results for the next age group (20 to 24 years) were similar. Interview findings completed for this study revealed that teens who engaged only in oral sex consider themselves to be "virgins" and not exposed to risks associated with that sexual behavior. In reality, these teens present a particular public health concern associated with risks for sexually transmitted diseases.

Additionally, Healthy People 2010 (USDHHS, 2005) has identified adolescents as one of the population that is exposed to greatest risk. Eight of the ten of the leading health indicators identified by Healthy People 2010 include areas that pose risks to adolescents (USDHHS) including twenty-one critical adolescent objectives (e.g. unintentional injury, violence, substance abuse, etc.).

Vulnerability in Adolescents

According to Aday (2001) vulnerable populations are those at risk for poor physical, psychological, or social health. Any individual could potentially be vulnerable at a given time

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due to life circumstances, yet some groups are more at risk by virtue of their status in a given group (e.g. children, chronically ill, etc.). De Chesnay (2005) posits that vulnerable populations can include children and other groups who may be susceptible to illness and health problems, often developmental in nature. Flaskerud et al. (2002) further contend that such groups are more likely to "experience health disparities as a result of a lack of resources and/or and increased exposure to risk" (p. 75). Additionally health disparities can be exaggerated with individuals and aggregates that have additional risks, such as those of minority status or with chronic or mental illness (Institute of Medicine, 2001, 2003; Sebastian, 1999). Regardless there are many factors which can increase a person's vulnerability for risky outcomes.

Countless individuals have written about adolescent risk and vulnerability. Erikson (1968) theorized that the developmental stage of identity often resulted in risky behaviors for the adolescent. Risk, according to Erikson, was an essential tool in the formation of identity as the adolescent "tries on" different identities. Perhaps because of their developmental stage, adolescents do not always act in a way that serves their best interest or they underestimate the risks of their own behaviors. Fischhoff , Nightingale, and Iannotta (2001) theorize that adolescents engage in such behavior because of a perception of invulnerability. In turn, they may make poor life choices leaving them vulnerable to physical and/or psychological harm. Because of such widespread concerns, the Institute of Medicine report on adolescent risk and vulnerability has encouraged the conceptualization and measurement of perceptions of risk and vulnerability, demographic differences, risk identification, risk judgments, relationships of beliefs and behaviors of adolescents (2001).

In spite of their vulnerabilities, some adolescents appear to be protected from negative outcomes and invulnerable to stress, and perhaps resilient. Still little is really known about how

risk-taking and health-promoting behaviors develop during childhood or how these are related to the health-risk behaviors manifested in adolescence (Rew & Horner, 2003). What is known is that protective resources and resilience do appear to interact with risks, including stressors to influence health promoting behaviors (Born, Chevalier, & Humblet, 1997; Cosden, 2001; Davey, Eaker, Wlaters, 2003; Haase, 1997; Hunter, 2001; Oman et al., 2004; Resnick, 2000; Rew & Horner, 2003; Rew, Taylor-Sheehafter, Thomas, & Yockey, 2001; and Rouse, 2001, among others). Rutter (1993) maintains that the approach of protecting youth from harm through a combination of risk reduction and the promotion of protective factors has sparked great interest in resiliency-based research.

Current Literature

The concept of resilience has been studied chiefly in relation to times of transition that are accompanied by stress (Luthar, Cicchetti, & Becker, 2000; Olsson, et al., 2003; Tusaie & Dyer, 2004). Transitions include stress and/or adaptation experienced by populations at risk including adolescents. There is an extensive volume of theoretical and empirical literature on resiliency. As the roots of the concept of resilience are found in the psychological aspects of coping and the physiological aspects of stress, the majority of this research has been conducted in the psychosocial and education disciplines. Researchers and scholars in these fields have studied a variety of problems and developed resilience frameworks and measurement instruments. More recently, nurses have been involved with research on adult, adolescent, family, and community resiliency topics. Because of the extant nature of this body of knowledge, a review of current literature focuses on theory, concepts, measurement, models and frameworks, the significant empirical studies (especially in nursing), and the presence of gaps and contradictions as they relate to adolescent resilience.

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Developmental and Resiliency Theories

Though there is an abundance of literature regarding adolescent health and resiliency, much of what is known about adolescent high risk behavior is based on atheoretical studies of middle and high school students (Rew, 2005). The data that drive these studies have predominantly been collected from the Youth Risk Behavior Surveillance System (YRBSS), a national school-based survey conducted by the CDC. Research on these subjects is further complicated by the fact that adolescent health and behavior are not restricted to one scientific field, therefore there are a variety of theories and conceptual models chosen by researchers. Thus there are criticisms abound in the literature questioning the appropriate definitions, theories, frameworks, or models to use for adolescent resilience research. As a result, finding the specific theories to guide a study can be difficult for the researcher. The study of adolescent resilience necessitates the use of a conceptual model or framework which is supported by developmental and resiliency theories. Both of these bodies of literature are discussed here.

Developmental Theories. Adolescence is a time of rapid development and change with important consequences. Any discussion regarding the presence of high risk behaviors manifested by the adolescent must begin with the acknowledgement that adolescence is a distinct period of human development. Although there are a number of developmental theories appropriate for exploration, psychosocial and moral development theories are especially important to adolescence.

Erikson (1968, 1980) proposed his theory of human development (i.e., ego development) that focused on the psychosocial crises (or conflicts) of developmental stages. He theorized that individuals work through the developmental crises in a positive direction in order to reach the next stage, never to completely resolve each "crisis" entirely. In adolescence, the individual

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needed to resolve the crisis of identity versus identity diffusion. Marcia (1966, 1980) has further expanded Erikson's work on identity achievement of the adolescent. As a result of this conflict, the adolescent must have achieved his/her identity which is necessary for transition to adulthood (Marcia).

Kohlberg (1981, 1984) and Gilligan (1993) have studied how adolescents think morally about their own behavior. Kohlberg theorized a reciprocal interaction between the person and environment with the development of four stages of moral reasoning. Criticizing Kohlberg for not including females in his classic research, Gilligan further expanded the original research with the inclusion of females. During adolescence the individual must not only adhere to social and institutional norms, but must also be concerned with one's own conscience within the legal framework (Gilligan; Kohlberg). These developmental milestones are also necessary for the adolescent to assume a positive role in the adult world. In addition to the developmental and moral development, theories related to resilience needed to be explored.

Resiliency Theories. Resilience is a concept that can be viewed as a categorical construct or as a continuum of adaptation or success (Hunter & Chandler, 1999; Tusaie & Dyer, 2004). Resilience, as a construct, changes over time. Its roots can be found in two bodies of literature: the psychological aspects of coping and the physiological aspects of stress (Tusaie & Dyer). The early studies of resilience focused on the factors or characteristics that help individuals succeed from adversity (Garmezy, 1991; Rutter, 1985). As knowledge of the concept developed, it became obvious that individual and environmental factors may be necessary but not sufficient to fully understand resilience. The dynamic processes among the factors mediate between the person and the environment and the person and the outcome (Tusaie & Dyer). Thus, empirical

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evidence led to the development of models of resilience and instruments that operationalized the concept.

Resilience has also been shown to vary with the individual's stage of development and can be expressed in behaviors at each stage that can be interpreted as positive [e.g. promote health] or negative [e.g. impair health] (Hunter & Chandler, 1999). Resilience has been considered to be multidimensional having both moderating (e.g. positive peer relationships) and mediating factors (e.g. competencies and expectancies) (Criss, Pettit, Bates, Dodge, & Lapp, 2002; Freitas & Downey, 1998). In essence, the phenomenon of resilience is a reflection of the relationship between personal characteristics and factors in the environment that result in one's (i.e. individual or group) ability to meet the stress and adversity with coping and adaptation. Researchers contend that the concept may be a set of traits (Jacelon, 1997), an outcome (Olsson et al.; Vinson, 2002), or a process (Olsson et al).

Much has been written regarding the developmental perspective of resilience (Blum, n.d.; Compas, Hinden, & Gerhardt, 1995; Rutter, 1993). Rutter (1993) also noted that resilience was developmental in nature, originating from biology and early life experiences. Protective factors of individuals have been found to be different during subsequent stages of development. According to Rutter (1993), parental caring during the infant period is very protective, but in contrast such parental behavior may hinder healthy development during adolescence. Greenspan (1982) contends that resilience is the capacity to successfully undertake the work of each successive developmental stage. The link between resilience and development appears to result from the fact that the processes are interactive and endure over time with supportive environments. Rouse (2001) further argued that different types of resilience during different developmental periods are possible.

Stress and Coping

Adolescence can be a turbulent time of normative developmental stress, but for those individuals who are in their early college years, the developmental challenges of this life phase can be complicated by numerous stressors. Most research on stress and coping has been conducted in adults, although recent attention to adolescents has suggested that developmental stress and coping changes may occur during adolescence. For years, researchers in the social sciences, education, and health care fields have found a significant association between life stress and adjustment problems (Chang, 2001; Williams & Lisi, 2000) and illness (Li & Lin, 2003) in both populations.

Definitions. Concepts related to stress and coping need to be defined for this study. Stress and coping have frequently been defined in the psychosocial literature. Stress can be defined as a "particular relationship between the person and the environment that is appraised by a person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus & Folkman, 1991, p. 19. Coping is defined as the cognitive and behavioral efforts that allow an individual to tolerate, escape, or minimize the effects of stress (Lazarus & Folkman, 1984). An adolescent who is exposed to stressors may be a psychologically healthy and well-adjusted individual or be one who experiences psychological vulnerability. A psychological healthy person is one who sustains a close contact with reality (Taylor & Brown, 1988). Such a person has a view of self that includes an awareness and acceptance of both the positive and the negative aspects of self. In contrast psychological vulnerability refers to an individual's lack of resources for response to demands from the environment and "by the relationship between the individual's pattern of commitments. Indeed vulnerability can be thought of as potential threat that is transformed into active threat when that which is valued is actually put in jeopardy in a

particular transaction" (Lazarus & Cohen, 1977, p. 51). One who is vulnerable to stress is most likely to participate in high risk behaviors.

Empirical Studies. Stress is a common theme among college students thus better coping skills are associated with decreased anxiety and increased academic success (Murff, 2005). Based on this premise Pritchard and Wilson (2006) surveyed freshmen students at the beginning and end of their first college semester to examine whether the coping styles of such students change over the course of the first semester. Contrary to the authors' expectations they found few differences in the coping styles of these freshmen.

Researchers contend that the response to two types of stressors (daily hassles and major life events) may be developmental (Donaldson, Prinstein, Danovsky, & Spirito, 2000; Williams & Lisi, 2000). Daily hassles can be defined as frustrations or irritants resulting from transactions with the environment (homework, quarrels with friends, etc.) (Kanner, Coyne, Schaefer, & Lazarus, 1981; Kanner, Feldman, Weinberger, & Ford, 1987) while major life events are seen as critical or traumatic events that are often normative in nature. For adolescents, major life events may include parental divorce, death of a loved one, changing schools, etc. (Williams & Lisi, 2000). Although both types of stressors may affect coping processes in adolescents, researchers have determined that the smaller daily hassles may cause more stress in this population (Dumont & Provost, 1999; Kanner, Feldman, Weinberger, & Ford, 1987).

Postulating that there are developmental changes in coping during adolescence and that specific strategies may vary with gender and the type of stressors Williams and Lisi (2000) examined coping strategies used by adolescent students with daily hassles and major life events. Finding differences in coping strategies in the age groups of the adolescents, their findings suggest that significant changes during a short period during adolescence may affect adaptive

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process and have implications for interventions aimed at decreasing the negative effects of stress during this period of development. Similarly Donaldson, Prinstein, Danovsky, and Spirito (2000) found that patterns of coping were similar across the various stressors, determining that older adolescents, when compared to younger children, tended to use a wider range of coping strategies, regardless of the stressor.

Although the constructs of resilience and coping may be interrelated, they have been used interchangeably in some of the literature. Resilience for some is synonymous with coping and adaptation (Markstrom, Marshall, & Tryon, 2000). These researchers posit that those who cope in direct, problem-solving modes enhance the possibility that life's difficulties will be resolved successfully, i.e. the negative styles of coping were negatively associated with resilience. In a similar study of high school students, Dumont and Provost (1999) determined that well-adjusted adolescents had higher self-esteem, problem-solving and coping skills and were more resilient. Researchers have thus determined that resilience may serve as a mediator of the relation between risk and outcome (i.e. stress) (Compas, Champion, & Reeslund, 2005; Davey, Eaker, & Walters, 2003; Eisneberg, Fabes, & Guthjrie, 1997). A mediator variable is one that explains how or why another variable affects the outcome (Baron & Kenny, 1986).

Conceptual and Measurement Factors

Concept Analyses. Scholars have attempted to determine the characteristics of resilience by completing conceptual analyses. Olsson, et al (2003) performed a concept analysis of adolescent resilience focusing on the core elements of the concept. They concluded their review with the finding that resilience is currently viewed differently within varying risk settings. More recently, Ahern (2006) conducted an evolutionary concept analysis on adolescent resilience in search of a definition of the concept that could be used in research. She determined the concept

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to be a composite of attributes that include the characteristics of the adolescent, sources of social support, and available resources. Polk's (1997) synthesis of the concept suggests that resilience is a middle range theory. According to Polk, this synthesis exercise was undertaken as a means to further delineate the concept. In contrast, Mandleco and Peery (2000) posit that if resilience is a middle range theory that should cross phenomena, there generally seems to be a lack of agreement regarding (a) the age domain covered by the construct, (b) the circumstances where it occurs, (c) its definition, (d) its boundaries, or (e) the adaptive behaviors described. According to Mandleco and Peery the importance of specific factors promoting resilience, however, remains in disarray, as one does not know which influencing factors are the most significant for a particular individual or an individual's subsequent responses to stress.

Theoretical Models and Frameworks. Although there are numerous and divergent depictions of resilience, empirical evidence has led to the development of models and instruments that operationalize the concept. In an effort to choose a conceptual model or framework to guide this author's research, a number of such were considered. Researchers and scholars in a variety of fields, including nursing, have developed resilience frameworks and models. Rew (2005) and Fergus and Zimmerman (2005) posit three major models of resilience: compensatory (e.g. a compensatory mechanism neutralizes an individual's risk), challenge (e.g. stress or adjustment may enhance or reduce competence in the individual), and protective-vulnerability (e.g. stress versus vulnerability reflects a relationship between stress and personal attributes). The major models described in the literature exemplify these model types. A number of existing models were considered for use with three seriously considered.

The Adolescent Resilience Model has been proposed by Haase and colleagues (Haase, 2004; Haase, Heiney, Ruccione, & Stutzer, 1999). This model was developed through

triangulation research of ill adolescents predominantly ones with cancer. The components of this model include individual protective factors (courageous coping, hope and spiritual perspective), family protective factors (family atmosphere and family support and resources), and social protective factors (health resources and social integration). According to the researchers, the outcome factors depicted by the model include resilience (self-esteem, self-transcendence, and confidence/mastery) and quality of life (sense of well-being) (Haase; Haase et al.). This model is more appropriately suited for the study of resilience in ill children.

Rew and Horner (2003) developed the Youth Resilience Framework to address individual and sociocultural risk factors and protective resources that could enhance or hamper the positive and negative health outcomes in adolescence. The sociocultural context in this model incorporates the individual with accompanying risk and protective factors, the family, community, as well as resilience. Resilience is represented by the interaction between risk factors (vulnerability) and protective resources (protection). The authors acknowledge that each of these factors is present throughout an individual's life. Using this framework, interventions to improve health outcomes enhance resiliency in efforts to decrease high risk behaviors.

Using the conceptual domains of resilience as identified by Jessor (1992), Blum, McNeely, & Nonnemaker (2002) elaborate to develop their Ecological Framework of Resilience as it Relates to Childhood and Adolescence. The complex model includes risk and protective factors in multiple levels of the environment, school, family, peers, and the individual as they determine health-risk behaviors and youth health outcomes. In this model resilience is implied as a buffer between risk and protection, in fact resilience is depicted as intertwined with protection. According to these researchers, the link among vulnerability [risk], resilience [incorporating

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protection] and development rests in their all being interactive processes that endure over time and in a variety of settings (Blum, McNeely, & Nonnemaker).

Hunter and Chandler (1999) describe the Continuum of Resilience in Adolescents. The authors suggest that resilience in adolescents is adaptive and must therefore exist along a continuum of risk and healthy adaptation. Ultimately this model was chosen for the framework for the proposed research as it depicts resilience on a continuum. Additionally resilience can be visualized as a variable that mediates the outcome of stress. Figure 1 in Appendix A displays this model. The model variables include stress, resilience, and risky behavior. See table 1 in Appendix B for the conceptual and operational definitions of the model variables. For the current research, resilience mediates the relationship of risk and the outcome of stress.

Instruments Measuring Resilience. An assortment of measurement instruments have been developed and used by nurse researchers in the study of adolescent resilience, risk-taking, and health promotion behaviors. Wagnild and Young (1993) developed and tested the Resilience Scale to measure resilience in adults. Although initially used with adults, this instrument has been used in a variety of adult populations (Aroian & Norris, 2000; Christopher, 2000; Heilemann, Lee, & Kury, 2002; Humphreys, 2003, among others) and with adolescents (Black & Ford-Gilboe, 2004; Hunter & Chandler, 1999; Neill & Dias, 2001; Rew, Taylor-Sheefer, Thomas, & Yockey, 2001). Other scales developed by nurses included the Adolescent Resilience Scale (Oshio, Kaneko, Nagamine, & Nakaya, 2003) and the Brief Resilient Coping Scale (Sinclair & Wallston, 2004). Neither of these scales has been widely used, therefore little validity and reliability is yet available. Ahern, Kiehl, Sole, and Byers (2006) recently completed a literature review of six major instruments measuring resilience and determined that the Resilience Scale (Wagnild & Young, 1993) is currently the most credible instrument to study

resiliency in adolescents due to its documented reliability and validity and applicability in a variety of ages and settings. Additional measurement approaches have been developed in other disciplines, especially for the analysis and treatment of disadvantaged youth.

Resilience Research in Other Disciplines

The empirical research related to the topic of interest has focused on the areas of risk and vulnerability, protection and positive health practices, resilience, and stress. The major studies will be briefly highlighted.

Risk and Protection. Numerous researchers have attempted to determine the risks related to the attitudes and behaviors of adolescents. Many of the high risk behaviors demonstrated by this population have included sexual risk-taking behaviors, sedentary lifestyles, obesity, smoking, drug use, and other high risk behaviors, More recently researchers have studied the effects of youth maladjustment on personal attributes (Gerard & Buehler, 2004). The influences of risk and protection on such individuals have been reviewed. Pollard, Hawkins, and Arthur (1999) studied such influences on high school students. The researchers wanted to determine if both risk and protection were necessary to understand the diverse behavioral outcomes of adolescents (e.g. substance use, smoking, crime, and violence). Their results indicated that the promotion of protective influences were necessary to reduce such risks. Blum and Ireland (2004) concluded similarly in their study of Caribbean youth. Such empirical evidence has led to further studies on positive health practices and resilience.

Researchers have attempted to delineate the importance and indicators of positive health practices. Their interest in such an outcome and use of the Revised Personal Lifestyle Questionnaire (Mahon, Yarcheski, & Yarcheski, 2002a, 2002b), has led the researchers to study positive health practices in adolescents. They have found that there are a number of predictors of

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such a lifestyle that can be enhanced in this population. These include social support and self-esteem (Yarcheski, Mahon, & Yarcheski, 2003; Yarcheski, Mahon, Yarcheski, & Cannella, 2004).

The interests of another group of researchers in behavior risks led them to study the relationship between such behavior and resilience. Their study with adolescents allowed them to conclude that the resilience youth were less likely to participate in new risk behaviors, but that they were not free from the troublesome behaviors and emotions of their non-resilient peers (Rouse, Ingersoll, & Orr, 1998).

More recently the Search Institute (2004) has taken an interest in finding ways to maximize protection and minimize risks in high school youth. They have developed a formal plan, called the "Forty Assets" which provides guidelines for ways that youth can be assessed for their protective factors so that they can be enhanced by those that interact with them.

Resilience. Resilience has chiefly been studied in adolescents during times of great risk or among groups that are partaking in risky behaviors. These studies can be found in education and the psychosocial domains. The researchers in the educational settings have attempted to find ways to minimize risks and foster resilience, which is not atypical from those in other fields of study. The psychosocial literature has predominantly focused on significant adverse life events and resilience. These events predominantly involve youth who are depressed, suicidal, or are dysfunctional in a variety of other ways. Researchers have studied the effects of coping (Davey, Eaker, & Walters, 2003; Kenny, Gallagher, Alvarez-Salvat, & Silsby, 2002), social support (Carbonell, Reinherz, & Giaconia, 1998; Dumont & Provost, 1999; Hess, Papas, & Black, 2002; Kenny, Gallagher, Alvarez-Salvat, & Silsby; Nettles, Mucherah, & Jones, 2000; Rouse, 2001; Tiet, Bird, Davies, Hoven, Cohen, Jensen, & Goodman, 1998), environmental risks (Born,

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Chevalier, & Humblet, 1997; O'Donnell, Schwab-Stone, & Muyeed, 2002), and culture (Arrington, & Wilson, 2000; Cook, 2000; Miller & MacIntosh, 1999), among others. Although contradictory findings are evident (namely the influence of social support), the majority of the researchers have concluded that protective factors and resilience need to be enhanced in order to minimize stress and risk behaviors.

Additional scholars in other disciplines (e.g. social work, psychology, and education) have developed conceptual models and frameworks to study resilience in youth, most notably Blum, McNeely, and Nonnemaker (2002). Using the conceptual domains of resilience as identified by Jessor (1992), Blum et al. developed their Ecological Framework of Resilience as it Relates to Childhood and Adolescence. This complex model includes risk and protective factors in multiple levels of the environment, school, family, peers, and the individual as they determine health-risk behaviors and youth health outcomes. In this model resilience is implied as a buffer between risk and protection.

Resilience Research in the Discipline of Nursing

The bulk of the empirical literature in nursing focuses on characteristics and the process of the concept, relationships between resilience and other study variables, and the development of theories, models and measurement instruments. Nurses have conducted quantitative and qualitative studies on adolescents predominantly in high risk situations.

Rew and colleagues have actively written about and studied adolescent resilience, especially homeless youths (Rew, 2005; Rew, 2001; Rew & Horner, 2003; Rew, Taylor-Sheehafer, Thomas, & Yockey, 2001). In regards to resilience, Rew (2001) found that homeless youth are vulnerable to a number of physical, social, and emotional risks related to cultural and

sexual health practices. Their research developed a framework for intervention for this vulnerable population.

In a subsequent study Rew, Taylor-Sheefar, Thomas and Yockey (2001) considered resilience in homeless adolescents. Using a convenience sample of 59 homeless youth, age 15-22 years they found that approximately half of the sample (47%) reported a history of sexual abuse while more than a third (36%) self-identify as gay, lesbian, or bisexual orientation. The majority (51%) of these adolescents were thrown out of their homes, and approximately a third left because their parents disapproved of their drug or alcohol use or because parents sexually abused them (Rew, Taylor-Sheehafer, Thomas, & Yockey). Lack of resilience was significantly related to loneliness, hopelessness, life-threatening behaviors, and connectedness, but not to sexual orientation or gender with approximately half of the variance in resilience explained by hopelessness and connectedness. The researchers concluded that participants who perceived themselves as resilient were less lonely and less hopeless and engaged in less life-threatening behaviors than those who were not self identified as resilient (Rew, Taylor-Sheehafer, Thomas, & Yockey). On the basis of their findings, the researchers recommended that interventions should be planned to enhance health in this population (e.g. minimizing risks and maximizing the protective factors of resilience).

Aronowitz and Morrison-Beedy (2004) used a secondary analysis to investigate relationships among connectedness to mother, time perspective, and resilience to risk-taking behaviors in poor African American girls ages 11-15 years. Using the data from the National Longitudinal Survey of Youth (add health) data set of 443 young girls, they found, that despite identified measurement issues, there was no direct relationship between maternal connectedness

and resilience. Instead, they determined that future time perspective was the key mediator between connectedness and resilience (Aronowitz et al).

Using a focus group of 40 adolescents, Hunter (2001) determined that irrespective of age, gender, cultural, and socioeconomic status, adolescents believe they are resilient. While those adolescents who identified the presence of social support in the form as a caring, loving, and mentoring adult showed a connected form of resilience, those who did not have such social support in their lives showed survival and self-protective forms of resilience.

Two nurse researchers have explored the process by which adolescents develop resilience through grounded theory qualitative research. With her work again with homeless youth, Rew (2003) developed a theory of "Taking Care of Oneself." She determined that survival on the streets is a major demonstration of this population's ability to be resilient. Similarly Aronowitz's (2005) theory of "Envisioning the Future" allowed the researcher to speculate that at-risk youth become resilient despite environmental stressors by setting higher expectations of themselves and feeling self-confident.

Rew and Horner (2003) completed a secondary analysis of qualitative data to identify the strengths that protect homeless youth in a high risk environment. This analysis contained focus group interviews and a grounded study from three previous studies. Identification of strengths, resources, and risks from this analysis assisted with the development of their framework. The Youth Resilience Framework was developed to address individual and sociocultural risk factors and protective resources that could enhance or hamper the positive and negative health outcomes in adolescence. In this model, (described later) resilience represents the interaction between risk factors (vulnerability) and protective resources (protection) (Rew & Horner). Using this

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framework, interventions to improve health outcomes enhance resiliency in efforts to decrease high risk behaviors.

In an attempt to formulate an organizing framework for conceptualizing resilience in children [and adolescents], Mandleco and Peery (2000) have emphasized the inclusion of internal factors (biological; psychological) and external factors (within the family; outside the family) affecting resilience in these populations. The authors recommend the use of their basic framework in a variety of settings.

Haase, Heiney, Ruccione, and Stutzer (1999) proposed the Adolescent Resilience Model (ARM). This model was developed through triangulation research of adolescents with chronic illness, especially cancer. The components of this model include individual, family, and social protective factors (Haase et al.). According to the researchers, the outcome factors depicted by the model include resilience and quality of life (Haase, 2004; Haase et al.).

Literature Gaps and Inconsistencies

There are gaps and inconsistent findings regarding adolescent resilience in the empirical literature. There is an obvious disparity with regard to understanding resilience in the "healthy, well-adjusted" adolescent. Empirical studies have primarily focused on the physically and mentally ill, maladjusted, abused, and educationally dysfunctional youth and those who are at increased psychological vulnerability, while little is known about the individual who possesses none of these problems. In addition there are no documented studies measuring high risk behaviors, stress, and resilience in the typical (e.g. healthy, well-adjusted) undergraduate college student.

There are also some contradictory findings documented in the literature regarding resilience among adolescents. In most cases, resilience in this population is positive, although

some researchers have questioned whether resilience is actually a "healthy" state (Hunter, 2001; Hunter & Chandler, 1999). Similarly, while studying resilience in adolescents with cancer Haase (1997) determined that these individuals developed defensive coping to deal with the adversities of their diagnosis. According to Haase, if such practices were left unchecked, defensive coping had the possibility of adversely affecting the physical health of these adolescents. Additional researchers have questioned the positive influence of resilience on stress in children or young adolescents (Higgins, 1994; Valliant, 1993). Resilience has usually been described as positive, therefore there is little known about states of maladaptive resilience.

Another contradiction in the empirical literature involves the relationship of social support to resilience. Despite study results in the literature that have indicated the protective factor of social support in resilient youth, there are contradictory findings reported by researchers. Consistent with earlier research findings Carbonell, Reinherz, and Giaconia (1998) determined that there was a strong relationship between resilience among youth at risk for emotional problems but who also had the presence of family and social support. Tiet et al. (1998) in their study with samples of youth seeking mental health services also determined that resilient youth received more guidance and support from family members. Similarly with a sample of African American adolescent mothers, Hess, Papas, and Black (2002) found that supportive relationships with the young mothers appeared to be resiliency factors that enabled a satisfying relationship with their own children. Hunter (2001) came to similar conclusions with her sample of adolescents as did Kenny, Gallagher, Alvarez-Salvat, and Silsby (2002) and Printz, Shermis, and Webb (1999).

In contrast other researchers have found that social support was not predictive of resiliency (Aronowitz & Morrison-Beedy, 2004; Dumont & Provost, 1999; Markstrom, Marshall

& Tryon, 2000; O'Donnell, Schwab-Stone, & Muyeed, 2002; Rouse, 2001). While social support is not a variable for this proposed study, these inconsistent findings may be important to consider when interpreting the demographics of the sample.

Planned Research Conceptual Model

The Continuum of Resilience in Adolescents (Hunter & Chandler, 1999) has been revised for the proposed research. This is a parsimonious model including stress (perceptions of stress and selected demographics), the mediating factors of resilience (demographics), resilience (higher end of the resilience continuum), and high risk behaviors (lower end of the resilience continuum). The model assumes that individuals may be influenced by the internal and external factors, including developmental and moral processes. Behavioral risks, which are negative, can be manifested by their behavior (behavioral risk and emotional risk). Resilience is seen as a mediator of the relationship of risks and the outcome of stress. Although the model is portrayed in a linear fashion, resilience is viewed as a dynamic process. High risk behaviors (health behaviors) and resilience may function in alternative ways for different age groups and at different periods, therefore these variables may potentially be view as bidirectional (Windle, 1999). This model is well-suited for this study as resilience is viewed as an interaction of risks and protective resources which can be affected by resilience (see table 1 in Appendix B for conceptual and operational definitions of the model variables).

Significance

As a concept, resilience is significant in the study of individuals who are exposed to stressors. It is well known that adolescents, not only are vulnerable due to their developmental tasks, but are exposed to the stressors of daily hassles and, in some cases, life events. Thus, it is

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of great importance to study resilience in college students who are adding the possibilities of additional stressors as they make a more formal transition into adulthood. Resilience has enormous utility for nursing as it has been demonstrated that resilient adolescents are individuals who have positive outcomes in the face of adversity (Rew & Horner, 2003).

There is a plethora of resiliency literature and research studies on children, adolescents, adults, families, and communities who have experienced adversity, and therefore stress. Research trends regarding the resilient adolescent have shifted from identifying characteristics to identifying the processes that encourage resilience under unfavorable conditions. However, minimal research has been conducted with well-adjusted healthy adolescents who are confronted with daily hassles rather than major life events and psychological vulnerability. An understanding of resilient characteristics and the processes that enhance resilience in adolescents can enable nurses to promote such behaviors during life transitions and periods of adversity. Researchers have also determined that it is not just enough to reduce risk in adolescent behavior, but it is becoming more important to strengthen the protective factors in the lives of vulnerable adolescents (Blum & Ireland, 2004). Thus interventions enhancing protective factors in adolescents, such as in college students, can potentially minimize vulnerabilities and promote healthy outcomes. Therefore, adolescents who are resilient are more likely of remaining invincible and developing into competent adults who can cope and adapt to adverse conditions. Investment in measures to enhance the positive health and behavioral outcomes of adolescents is well worth the effort (Burt, 2002; Shi & Stevens, 2005).

Once the research questions in this study are answered, attempts can be made to better understand stress, high risk behaviors and resilience in adolescent college students. This body of knowledge will be enhanced and the scientific knowledge about adolescent resilience will be

advanced. Recommendations can be made for the development of strategies to enhance

resilience and protective factors in order to minimize high risk behaviors and vulnerabilities in

this population of interest.

PRELIMINARY STUDIES

Pilot Work Plan

Pilot work for this research study will be completed for a number of reasons. Primarily such work will be done to refine the research methodology. More specifically, the pilot study will assist the researcher to determine if the proposed study is feasible and to give the researcher experience with the subjects, setting, sample recruitment, data collection methods, and measurement instruments. The pilot work can also allow the researcher to determine the selection of data analysis techniques. By refining the research methodology, the research can alter the research plan, if necessary.

The researcher plans to evaluate each of the measurement instruments for validity and readability. Content validity will be evaluated by a panel of three to five researchers and by the calculation of a content validity index (CVI) (Lynn, 1986). The CVI includes the proportion of instrument items given a rating of agreement (e.g. quite/very) by the raters. This index should be as close to 1.0 as possible to be acceptable (Lynn, 2006; Waltz, Stricklamd, & Lenz, 2005). Readability will be calculated by using one of the currently accepted readability formulas (Lynn, 1989). Reading level can acceptably be at the level of the participants when this is readily known (Streiner & Norman, 2003), in this case at the college level (grade levels 13 and above). Knowing that some of these study participants may be new college freshmen, the readability level will be set at 10 which is the grade level requirement set by the state of Florida for high school graduation (Florida Department of Education, 2005).

After the University of Central Florida Institutional Review Board (IRB) and the Brevard Community College administrative approvals, the researcher plans to conduct pilot work by selecting three to five participants from the same setting that meet sample selection criteria.

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These participants will be selected from the same setting as planned in the research proposal. After giving an explanation of the study and acquiring verbal consent, these adolescents will be allotted fifteen minutes to complete the two visual analog scales, the demographic sheet, and the two short self-report surveys. Face validity will be determined by interviewing the participants about their perceptions of the instruments. This process will be reviewed for any potential measurement issues and/or potential threats to reliability and validity.

The collected data will be entered into SPSS program (most current version) according to pre-established code book design. Statistical analyses will be conducted to answer each of the two research questions as outlined by data management and data analyses plans. Reliability of each of the instruments will be determined. In addition, the standard deviations acquired from the analyses can be used to recalculate a power analysis for the number of participants needed to determine sufficient power needed to detect differences or relationships that exist in the population of interest. Exploratory analysis and tests of differences may additionally be done based on data findings.

Once the pilot work is completed, the researcher can make any necessary revisions to the methodology. It is expected that once this occurs, the actual research plan can be finalized and the data collection process can begin.

Preliminary Experience with Adolescents

Adolescents in this study will be 18 to 20 years old who are enrolled and present in one of the class sessions selected by the researcher. Although these participants are legally old enough to give their written consent to participate in the research, there are possibilities that they may be developmentally immature. Some of the questions present on one of the questionnaires are sensitive in nature. The researcher is aware of potential measurement errors (and threats to

validity and reliability) related to the use of adolescents as participants. As previously noted, adolescents are vulnerable but can be doubly so as research participants. Questions arise that relate to developmental maturity, competency to complete the self-report questionnaires, response bias, social desirability, and the use of incentives, among others. Many of these concerns will be addressed as potential problems and limitations later on in this proposal.

The researcher has personal and professional experience with working with adolescents. The proposed research has been discussed with a number of adolescents in the planned study setting and in the community. Adolescents have shared their positive perceptions of participating in similar research. When the ethical rights of adolescents are protected, the literature has indicated that college students understand the importance of social science research (Peterson, 2001), receive satisfaction in volunteering in research (Bowman & Waite, 2003) and are willing to be involved as participants (Prescott, 2002). Because such students have been found to understand and appreciate the importance of advancing knowledge, they are likely to participate.

The researcher will make every effort to include as diverse an ethnic and racial population as possible. Although a random sample, or at least a quota sampling strategy, is more ideal, there are no proposed plans in this current study for such sampling plans.

RESEARCH DESIGN AND METHODS

Design

An exploratory correlational design will be used to answer the two research questions. The purpose of this research study is to explore the relationships among a set of correlates, including stress, high risk behaviors, and resilience in what should be a healthy, well-adjusted population. This design will be best for this study as the aim of this research is to explore the relationships among variables to add to the body of knowledge about adolescents and resilience. Although this is design is well suited to answer the proposed research questions, a possible issue with a correlations design is that it limits the ability to make casual inferences. In other words, the researcher must contend with the possibility of competing explanations for obtained results (Brink & Wood, 1998; Polit & Beck, 2004). This poses a potential threat to internal validity. Some of the most important potential issues relate to sampling which includes the sampling method used and the participants themselves.

Sample

The population to be studied in this research includes adolescent college students who are 18 to 20 years old, who attend Brevard Community College and meet the sample selection criteria. A convenience sampling plan will be used. Sample selection criteria include: (a) matriculating Brevard Community College student taking at least three credits in the current semester; (b) enrolled in or present in an orientation or general education class on day of data collection; (c) 18 to 20 years old; (d) able to read and write in English; and (e) can physically complete the surveys. Recruitment of participants will follow university protocol for contacting college professors teaching general education classes during the planned data collection time.

A preliminary power analysis was performed to determine the desired sample size. For the results to have 50% power, a medium effect size of 0.3 and an alpha of 0.05, 170 participants are required. Allowing for a possible 20% attrition rate, 204 participants will be enrolled in the study. The power analysis will be recalculated after pilot work has been completed.

Variables/Instruments

Study Variables

The study will include demographic variables (age, gender, race/ethnicity, education, grade point average [GPA], class, employment, parental income, financial support, living arrangement, housing, activities, study habits, social support, and religion). Research variables include mediating factors of resilience, adolescence, resilience, stress, and high risk behaviors. Refer to Table 1 Appendix B for the conceptual and operational definitions of these variables.

Measurement Instruments

Resilience Scale™.

The 25-item Resilience Scale (RS) (see Table 2 in Appendix C) measures the degree of individual resilience, considered a positive personality characteristic that increases individual adaptation. The authors report that the potential use of the RS is as a measure of internal resources and of the positive contribution of what one brings to a difficult life event (Wagnild & Young, 1993). The items are scored on a 7-point scale from 1 (disagree), to 7 (agree). The items are worded positively and reflect accurately the verbatim statements made by participants in the initial study on resilience conducted by Wagnild and Young. Possible scores range from 25 to 175 with higher scores reflecting higher resilience. Question 26 is an optional measure of the concurrent validity of the RS and can be included at the researcher's discretion. The authors developed the items reflecting five themes of resilience that they selected from a review of the

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literature. They then validated these items by interviewing 24 American women who were judged to have successfully adapted to major life events (Wagnild & Young). Psychometric evaluation of the initial tool was conducted with a sample of 810 community-dwelling adults. Factor analysis was performed to determine internal consistency of the instrument. The authors report that factor analysis of the RS in initial studies has validated that resilience is multidimensional. Identified subscales of the instrument include personal competence and acceptance of self and life. Wagnild and Young report high reliability with a coefficient alpha of .91, item-to-item correlation ranges from .37 to .75 at $p \leq .001$. Concurrent validity of the RS was supported by the researchers with their psychometric findings indicating positive correlations with adaptation and negative correlations with depression. The researchers further reported test-retest correlations from other studies ranging from .67 to .84 ($p<.01$). Although the RS was developed using adult participants, the authors state that the scale has utility for other populations including children and adolescents.

Multiple applications of the scale in both sexes, multiple ages and ethnic groups with good reliability and validity are available. Although initially used with adults, this instrument has subsequently been used in a variety of adult populations including Russian immigrants (Aroian & Norris, 2000); Irish immigrants (Christopher, 2000); depressed women (Heilemann, Lee, & Kury, 2002; Miller & Chandler, 2002); battered women (Humphreys, 2003); mothers (Monteith & Ford-Gilboe, 2002; Schachman, Lee, & Lederman, 2004); older women (Felton & Hall, 2001; Wagnild, 2003); and Alzheimer caregivers (Garity, 1997). There are published studies indicating that the RS has been used specifically with adolescent populations including mothers (Black & Ford-Gilboe, 2004); adolescents at risk (Hunter & Chandler, 1999); Neill & Dias, 2001; and homeless adolescents (Rew, Taylor-Sheefer, Thomas, & Yockey, 2001). The instrument has

been translated and psychometrically tested in two languages including Spanish (Heilemann, Lee, & Kury) and Russian (Aroian, Schappler-Morris, Neary, Spitzer, & Tran, 1997). A literature review of instruments measuring resilience determined that the RS was the most appropriate instrument to study resilience in the adolescent population due to its psychometric properties and application in a variety of populations (Ahern, Kiehl, Sole, & Byers, in press).

Health Behaviors Questionnaire

The original Health Behaviors Questionnaire (HBQ) (see Table 3 Appendix D) (Hibbard, Brack, Rauch, Orr, 1988; Orr, Wilbrandt, Brack, Rauch, & Ingersoll, 1989) consisted of a set of 32 items asking participants to indicate the degree to which they participated in health-related behaviors or experienced certain feelings. Most of the items assess behaviors and feelings during the past 12 months on a 4-point Likert scale ranging from 1 (never) to 4 (always), although 5 items ask the respondent to choose "never" or "at least once" to lifetime questions. The instrument scores are standardized to have a mean of 50 and a standard deviation of 10 (Ingersoll and Orr, 1989). Factor analysis yielded two subscales, behavior risk and emotional risk. In the initial HBQ, behavior risk was indicated by a willingness to engage in health risk behaviors (e.g. smoking cigarettes, using marijuana, using alcohol and drugs, being sexually active, arrested, gotten someone pregnant, ran away, rode with a drunk driver, and was suspended from school) while emotional risk was indicated by reporting of aversive emotions (e.g. upset, lonely, nervous, tense, sad, having trouble sleeping, having difficulty making friends, and considering hurting oneself (Ingersoll & Orr).

The current form contains 8 demographic questions and 27 Likert scale questions. Ingersoll and Orr reported the initial reliability scores for the behavior risk scale as a Chronbach alpha of .84 and .81 for the emotional risk scale with a four-month test-retest reliability of .75

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and .56 respectively. Other researchers have used the HBQ for the study of adolescent risk

factors (Hibbard, Ingersoll, & Orr, 1990; McCarthy, & Brack, 1996; and Rouse, Ingersoll, & Orr,

1998). The demographic questions are not being used for the proposed research.

The Perceived Stress Scale

The Perceived Stress Scale (see Figures 2 and 3 in Appendix E) is a self-report visual

analog scale (VAS) global measure of perceived stress (Hill, Aldag, Chatterton, & Zinaman,

2005). This VAS is a unidimensional instrument quantifying intensity of stress. A horizontal line

100 millimeters long with anchors at either end (none, extreme) is used where scores are

recorded to the nearest millimeter.

In the proposed research two of these visual analog scales (VAS) will be used to measure

perceptions of stress, one for perceived stress "right now" and another for perceived stress "in

general." It is necessary to use two separate scales as the VAS is unidimensional. Visual analog

scales have often been used by researchers "to measure the intensity, strength, or magnitude of

individuals' sensations and subjective feelings and the relative strength of their attitudes and

opinions about specific stimuli" (Waltz, Strickland, & Lenz, 2005, p. 281). The popularity of the

VAS as a measurement instrument in research and practice is largely attributed to its ease of use

(Wewers & Lowe, 1990). While this measurement scale has the advantages of being easy to use

by the researcher and research participant, researchers warn that care must be taken in their

development and use to minimize measurement bias (Torrance & Feeny, 2001).

This measurement device consists of a drawn or printed line, usually 100 millimeters

long, with right angle stops and anchor phrases depicting extreme subjective states or stimuli

(Streiner & Norman, 2003). The left anchor will be labeled as "none" and the right anchor with

be labeled as "extreme." The study participant will be instructed to place vertical marks on the

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horizontal line of each of the two scales to report the amounts of stress he or she perceives. The scales will be scored by the researcher by measuring the distance in millimeters from the left side (low end) to the mark made by the participant. These data will be considered as interval data for this research.

Although fairly simplistic in their use, VAS scores have been found to correlate positively with scores on other numerical rating scales. In their research on pain Good, Stiller and Zauszniewski, Anderson, Stanton-Hicks, & Grass (2001) have also determined that pain VAS can be more sensitive than other numerical scales. Reliability of visual analog scales is usually determined by using the test-retest method with correlations computed on the two scores. Waltz, Strickland, and Lenz (2005) report that such correlations tend to be strong, although Wewers and Lowe (1990) caution that phenomena are often dynamic and likely to change with repeated measurement. Although this may exist, the currently accepted reliability measurement of the VAS is the test-retest method. Revill, Robinson, Rosen, and Hogg (1976) have reported test-retest reliability ranges from .95 to .99 for most visual analog scales. The most common method to determine validity of this scale is to correlate the VAS scores with other measures of the phenomenon. When assessing for validity of the Perceived Stress Scale Hill et al (2005) found a positive correlation ($r = .283$, $p < .01$) between their VAS scores and those on the Multiple Affect Adjective Checklist – Revised. For this research study, the test-retest method will be used to measure reliability. Content and face validity will be measured for the two Perceived Stress visual analog scales.

Demographic Data Collection Tool

Demographic variables will be collected to describe the sample and to attempt to control for extraneous variables. They are collected on the Demographic Data Collection Tool (refer to

Table 4 in Appendix F) and include the variables of age, gender, race/ethnicity, education level, GPA, class, employment, parental income, financial support, living arrangement, housing, activities, study habits, social support, and religion.

Permissions have been acquired to use all study instruments. Refer to Appendices G and H for permission letters.

Data Collection Procedures

Participants will be recruited by gaining entry into an orientation or a general education classroom setting which will provide larger access to the ages of the adolescent participants needed for an acceptable sample size. This will be accomplished by following the correct protocol to locate college administrators or professors who will allow the researcher to take approximately 10 to 15 minutes of class time to explain the study and administer the two visual analog scales, the two short self-report surveys, and demographic questionnaire. The sample selection criteria will include: (a) matriculating Brevard Community College student taking at least three credits in the current semester; (b) enrolled in or present in an orientation or general education class on day of data collection; (c) 18 to 20 years old; (d) able to read and write in English; and (e) can physically complete the surveys.

After the explanation is given, the study participants will be told that participation in the study is completely voluntary and that there are no risks or benefits for their participation and that they can withdraw at anytime. Students will also be instructed to not complete the study instruments if they have previously completed them in another data collection session. They will be informed that their answers are completely anonymous and any reporting of data will be done in an aggregate form. Those who volunteer to participate will be given a packet containing the IRB research study explanation (see Appendix I) and the surveys to complete. The participants

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will understand that if they agree to complete the packet, they have given their consent to participate in the research. Pencils will be provided for those who need them. Once they have consented (see Appendix J), they will be instructed to begin completion of the surveys. The researcher will remain in the classroom to answer any questions. Once the participants have completed the surveys, the researcher will collect them and transport them to her office where they will be locked in an office file cabinet.

Data Analysis Procedures

Prior to data collection reliability and validity calculations on the instruments and a recalculation of a power analysis will be completed as part of a small pilot test. Descriptive statistics will be used to answer the first research question by describing the sample (sample characteristics) and determining differences between the main study variables (high risk behaviors, stress, and resilience). Depending on the measurement level, Chi-Square (nominal), crosstabs (nominal), Mann-Whitney (ordinal) or t-test (interval) will be selected. Means, standard deviations, and t-tests will be used to determine significance of resiliency, risk factors, and stress in the sample population and to make comparisons within the group for this study. Pearson's Product-Moment Correlation Coefficients will be calculated to answer the second research question. This statistical technique is one of the most commonly one used to determine relationships between study variables.

The visual analog scale scores will be interpreted by measuring from the "none" side to the mark made by the participant to the nearest millimeter. Low-, moderate-, and high-stress categories will be determined based on frequency distributions of the data.

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Potential Problems and Limitations

There are several potential issues and problems which the researcher can face when conducting research with adolescents, some of which can cause threats to internal and external validity and data reliability. The primary issues the researcher must address relate to the fact that the research participants are adolescents. As has been noted previously, adolescents are vulnerable but can be double so as research participants. Questions arise that relate to developmental maturity, competency to complete the self-report questionnaires, response bias, social desirability, and use of incentives, among others. Many of these concerns are addressed in this discussion.

A variety of potential issues and problems with this population relate to the research design, sampling, and data collection procedures. The planned design for this research is exploratory correlational. Although this is design is well suited to answer the proposed research questions, a major flaw with a correlations design is that it limits the ability to make casual inferences. In other words, the researcher must contend with the possibility of competing explanations for obtained results (Brink & Wood, 1998; Polit & Beck, 2004). This poses a potential threat to internal validity. Some of the most important potential issues relate to sampling which includes the sampling method used and the participants themselves.

Sampling and recruitment issues can include the subject characteristics and the process for subject selection. Adolescent participants can be developmental immature which may cause the researcher concern as to whether they will take the research process seriously or not. The effects of life stressors (i.e. college, national turmoil, individual family economics, or natural disasters [hurricane season]) (Pinquart & Silbereisen, 2005) may critically influence their abilities to participate. These events can cause threats to internal validity (e.g. history).

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Participants' vulnerabilities to such stressors, and to rapid changes that can occur during this period of their lives, may lead to a number of ethical issues (e.g. informed consent, fear of coercion, and use of incentives). Additionally, adolescents often have concerns about participating in research that deals with sensitive topics (e.g. alcohol and drug use, sexual behavior, etc), because they fear that they will be judged for not conforming to normative standards (Brener, Billy, & Grady, 2003; Brener, Grunbaum, Kann, McManus, & Ross, 2004; Caskey & Rosenthal, 2005; Hern, Miller, Sommers, & Dyehouse, 1998). A variety of such issues may influence study validity. Although the participants are able to consent for themselves (i.e. they are 18 to 20 years old), they need to receive explanations, risk and benefits, etc. as well as confidentiality assurances from the researcher (Byers, 2004). Potential participants should not feel coerced to participate as they can be considered a captive audience in a student setting. Voluntary participation will be stressed by the researcher.

Lastly, but perhaps more importantly, is the sampling design. If the population is not representative of the target population, there are potential threats to external and internal validity. A lack of randomization and no control group can cause such threats. This practice can result in a smaller sample size, a more homogeneous sample, and possibly selection bias, some of which can also result in reliability issues (Polit & Beck, 2004). Students have been found to enjoy volunteering for social science research (Bowman & Waite, 2003; Peterson. 2001), yet the researcher needs to plan recruitment strategies to minimize potential problems (e.g. homogeneous sample).

There are addition issues with the data collection procedure that may challenge the researcher. Some of these issues can be magnified by the fact that the participants are adolescents. Possible threats to external validity which related to data collection include:

expectancy effects of participants (i.e. Hawthorne effect), novelty effects, experimenter effects, and measurement effects. Other potential threats to internal validity could include instrumentation (e.g. subject boredom or fatigue), exclusive use of self-report measures, and social desirability (Waltz, Strickland, & Lenz, 2005). The choice and appropriate use of the measurement tools pose additional reliability and validity concerns. Examples of these include: reliability and validity of questionnaires, readability of instruments (Lynn, 1989), and time needed to complete questionnaires.

The researcher will make every effort to minimize the study reliability and validity threats. This will be accomplished through the conducting of a pilot study and by anticipating potential problems and developing appropriate strategies to minimize these threats.

POTENTIAL SIGNIFICANCE

The potential benefits of the current research are vast. Galambos and Leadbeater (2000) have reported on the promising trends in research on adolescence. They stress the importance of research endeavors that focus on the transition to young adulthood (e.g. college students) and emphasize the need to understand resilience in this age group. These research findings can add to the body of knowledge in nursing science in a number of ways. Based on the study results, recommendations can be made for research, education, and practice.

Research recommendations are considerable. An insight into the influence of resilience on the risk and protective factors of adolescent college students can pave to way for subsequent research. Although the setting for this study is in a community college, research in other settings and in different populations can provide additional data. Some of these could include exploration of resilience and its impact on stress in high school students, nursing students, and in various cultural and ethic groups.

Findings can pave the way for educational opportunities, not only for curricular concerns, but for faculty, and the students themselves. What is learned about the relationships among the characteristics, stress, risky behavior, and resilience of this population group can enhance the knowledge of others. Policy and program recommendations could be made for a variety of educational settings.

Opportunities for practice recommendations are just as vast. Improved knowledge of the correlates of resilience in college students can foster the development of strategies to promote resilience in this population. The overwhelming majority of the aforementioned empirical research has been conducted with populations of youth who for the most part are at great risk or vulnerability. Therefore it is of the utmost importance to fill a knowledge gap in the literature by

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studying resilience in what should be a fairly healthy and well-adjusted population group. Only then can researchers, and those involved with adolescents, have a clearer understanding of whether resilience is a healthy or unhealthy state, and if this potentially vulnerable population benefits from the mediator influences of resilience to minimize stress and risks and promote positive health practices.

MEASURES FOR PROTECTION OF HUMAN PARTICIPANTS

Approval for the study will be obtained from the Institutional Review Board (IRB) at the

University of Central Florida and the appropriate administrative permission to access students

secured from Brevard Community College Department of Institutional Effectiveness. Students

who agree to participate in the study and complete the measurement instruments will understand

that by doing so they are giving their informed consent to participate. No written informed

consents will be necessary and waiver of documentation is requested. All data collection tools

will be secured to maintain confidentiality of the study participants. Participants will be informed

that participation in the study is completely voluntary and that there are no risks or benefits of

participating in the study, that they may refuse to participate, and they may withdraw at any time

without consequence. Anonymity will be maintained with all data securely maintained in the

researcher's office file cabinet (locked) and password protected computer for the designated time

required by the University of Central Florida IRB.

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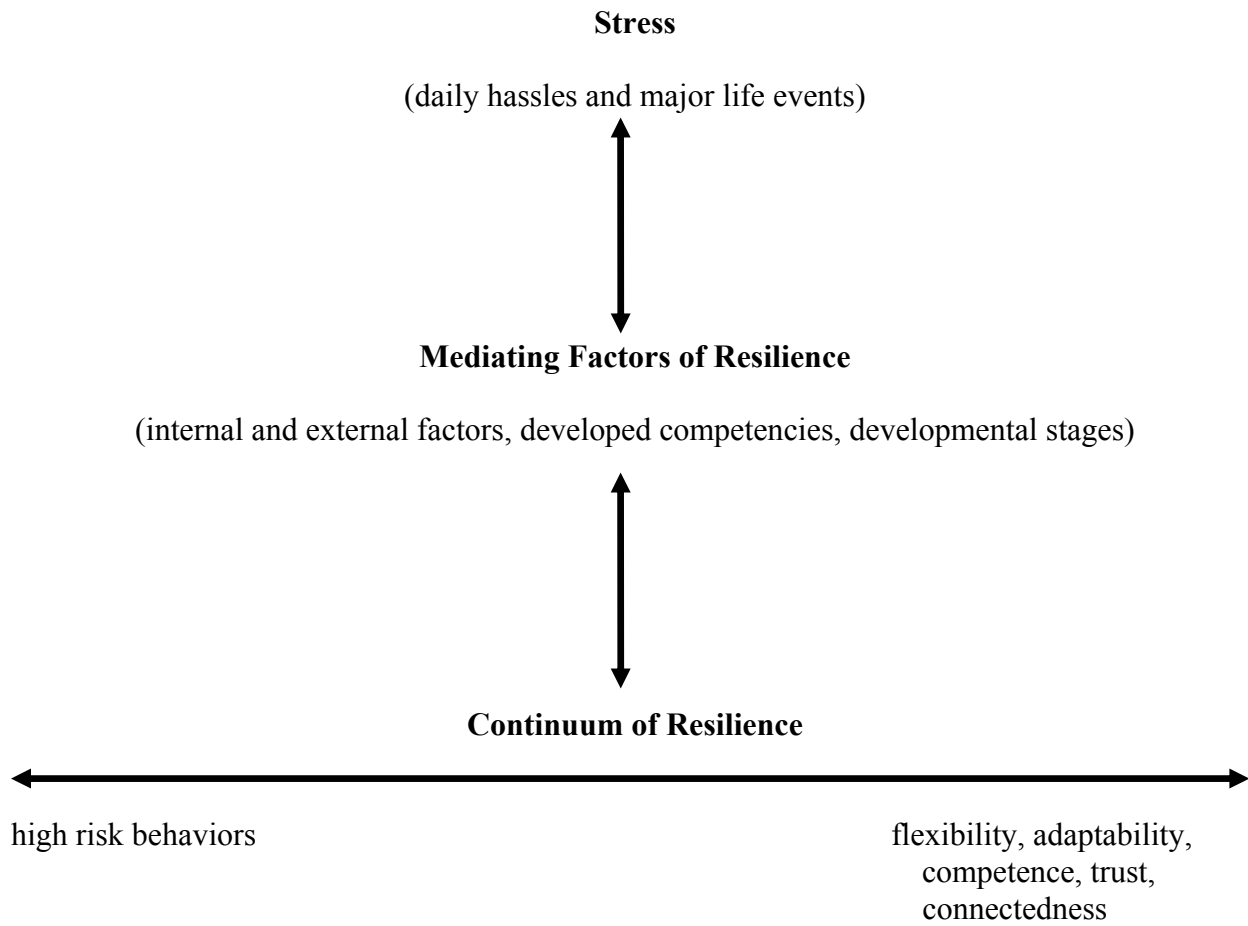(pp. 161-176). New York: Kluwer Academic/Plenum Publishers.

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Appendix A

Figure 1.

Continuum of Resilience in Adolescents

Stress

(daily hassles and major life events)

$\updownarrow$

Mediating Factors of Resilience

(internal and external factors, developed competencies, developmental stages)

$\updownarrow$

Continuum of Resilience

$\longleftrightarrow$

high risk behaviors   flexibility, adaptability,
                                                                        competence, trust,
                                                                        connectedness

Revised, Hunter & Chandler, 1999

Appendix B

Table 1.

Definitions of Continuum of Resilience in Adolescents Model Variables

Model Variable	Conceptual Definition	Operational Definition
Mediating factors of resilience	Internal and external factors influencing the individual (Rew & Horner, 2003)	Demographics selected by study subject on the Demographic Data Collection Tool
Adolescent	Late adolescence (ages approximately 18 to 20 years) is characterized by the transition of the individual into adult roles (Crockett & Petersen, 1994)	Age selected by study subject on the Demographic Data Collection Tool
Resilience	A dynamic process involving an interaction between both risk and protective processes, internal and external to the individual, that act to modify the effects of an adverse life event (Rutter, 1985)	Subject scores received on the Resilience Scale™ (Wagnild & Young, 1993)
Stress	The cognitive and behavioral efforts that allow an individual to tolerate, escape, or minimize the effects of stress (Lazarus & Folkman, 1984)	Participant responses on the Perceived Stress Visual Analog Scales (current and in general)
High risk behaviors	Those factors, particularly behaviors or processes, that increase an individual's chances of experiencing adverse health outcomes (Rew, 2005)	Subject scores on the Health Behaviors Questionnaire (HBQ)(Hibbard, Brack, Rauch, & Orr, 1988; Ingersoll & Orr, 1989)

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The Resilience Scale™

Please read the following statements. To the right of each you will find seven numbers, ranging from "1" (Strongly Disagree) on the left to "7" (Strongly Agree) on the right. Circle the number which best indicates your feelings about that statement. For example, if you strongly disagree with a statement, circle "1". If you are neutral, circle "4", and if you strongly agree, circle "7", etc.

		Strongly Disagree						Strongly Agree
1.	When I make plans, I follow through with them.	1	2	3	4	5	6	7
2.	I usually manage one way or another.	1	2	3	4	5	6	7
3.	I am able to depend on myself more than anyone else.	1	2	3	4	5	6	7
4.	Keeping interested in things is important to me.	1	2	3	4	5	6	7
5.	I can be on my own if I have to.	1	2	3	4	5	6	7
6.	I feel proud that I have accomplished things in life.	1	2	3	4	5	6	7
7.	I usually take things in stride.	1	2	3	4	5	6	7
8.	I am friends with myself.	1	2	3	4	5	6	7
9.	I feel that I can handle many things at a time.	1	2	3	4	5	6	7
10.	I am determined.	1	2	3	4	5	6	7
11.	I seldom wonder what the point of it all is.	1	2	3	4	5	6	7
12.	I take things one day at a time.	1	2	3	4	5	6	7
13.	I can get through difficult times because I've experienced difficulty before.	1	2	3	4	5	6	7
14.	I have self-discipline.	1	2	3	4	5	6	7
15.	I keep interested in things.	1	2	3	4	5	6	7
16.	I can usually find something to laugh about.	1	2	3	4	5	6	7
17.	My belief in myself gets me through hard times.	1	2	3	4	5	6	7
18.	In an emergency, I'm someone people can generally rely on.	1	2	3	4	5	6	7
19.	I can usually look at a situation in a number of ways.	1	2	3	4	5	6	7
20.	Sometimes I make myself do things whether I want to or not.	1	2	3	4	5	6	7
21.	My life has meaning.	1	2	3	4	5	6	7
22.	I do not dwell on things that I can't do anything about.	1	2	3	4	5	6	7

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		Strongly Disagree						Strongly Agree
23.	When I'm in a difficult situation, I can usually find my way out of it.	1	2	3	4	5	6	7
24.	I have enough energy to do what I have to do.	1	2	3	4	5	6	7
25.	It's okay if there are people who don't like me.	1	2	3	4	5	6	7
26.	I am resilient.	1	2	3	4	5	6	7

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The Health Behaviors Questionnaire

Please indicate how often, if at all, you have done these activities in the past 12 months by checking the appropriate box.

	Never	Less Than Monthly	Monthly	Weekly	Daily
		DURING PAST 12 MONTHS			
23. I have difficulty sleeping	[ ]	[ ]	[ ]	[ ]	[ ]
24. I have difficulty making friends	[ ]	[ ]	[ ]	[ ]	[ ]
25. I smoke cigarettes	[ ]	[ ]	[ ]	[ ]	[ ]
26. I have though about dropping out of school.	[ ]	[ ]	[ ]	[ ]	[ ]
27. I have ridden with a driver who has used alcohol or drugs and then driven a car.	[ ]	[ ]	[ ]	[ ]	[ ]
28. I have driven a car or motorbike/cycle after I have used alcohol or drugs.	[ ]	[ ]	[ ]	[ ]	[ ]
29. I have driven a car or motorbike/cycle in a way that many adults would not like.	[ ]	[ ]	[ ]	[ ]	[ ]
30. I have played slot machines, poker machines, or other gambling machines	[ ]	[ ]	[ ]	[ ]	[ ]
31. I feel lonely.	[ ]	[ ]	[ ]	[ ]	[ ]
32. I feel sad	[ ]	[ ]	[ ]	[ ]	[ ]
33. I drink alcohol (wine, beer, booze).	[ ]	[ ]	[ ]	[ ]	[ ]
34. I have had sexual intercourse (gone all the way).	[ ]	[ ]	[ ]	[ ]	[ ]
35. I attend religious services	[ ]	[ ]	[ ]	[ ]	[ ]
36. I have smoked marijuana/pot.	[ ]	[ ]	[ ]	[ ]	[ ]
37. I consider harming myself physically.	[ ]	[ ]	[ ]	[ ]	[ ]
38. I have taken drugs other than alcohol or pot.	[ ]	[ ]	[ ]	[ ]	[ ]
39. I have headaches	[ ]	[ ]	[ ]	[ ]	[ ]
40. I have stomach aches.	[ ]	[ ]	[ ]	[ ]	[ ]
41. I feel tense.	[ ]	[ ]	[ ]	[ ]	[ ]
42. I feel nervous.	[ ]	[ ]	[ ]	[ ]	[ ]
43. I feel upset.	[ ]	[ ]	[ ]	[ ]	[ ]
44. I do volunteer work.	[ ]	[ ]	[ ]	[ ]	[ ]

Indicate if you have done these activities in your lifetime.

	LIFETIME	
	Never	At Least Once
23. I have been arrested or picked up by the police.	[ ]	[ ]
24. I have run away from home	[ ]	[ ]
25. I have been suspended/Expelled from school (kicked out)	[ ]	[ ]
26. I have attempted suicide.	[ ]	[ ]
27. (Female) I have been pregnant. (Male) I have gotten someone pregnant.	[ ]	[ ]

Used with permission of authors (Ingersoll and Orr, 1989).

Stress Scale 1

Stress Right Now

Instructions: Please put a vertical mark on the line at the point that best describes HOW
                 MUCH STRESS YOU ARE HAVING RIGHT NOW.

None |————————————————————————————| Extreme

Stress Scale 2

Stress in General

Instructions: Please put a vertical mark on the line at the point that best describes HOW
MUCH STRESS YOU HAVE IN GENERAL.

None |————————————————————————————| Extreme

Background Information that best Describes You

Please indicate the ONE (unless otherwise indicated) response which closely represents you.

1.   Date of Birth: _____ _____ _____
                          month   day   year

2.   Gender: ☐ Male   ☐ Female

3.   Ethnicity: ☐ Hispanic or Latino   ☐ Not Hispanic or Latino

4.   Race: ☐ American Indian/Alaska Native   ☐ Asian
                 ☐ Native Hawaiian or Other Pacific Islander   ☐ White
                 ☐ Black or African American   ☐ More than one
                                                              race
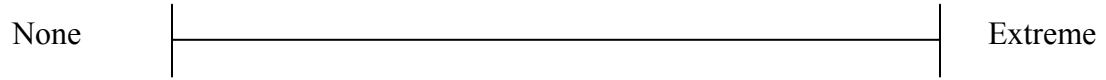
5.   Highest Education Level Completed: ☐ High School or GED
                                           ☐ Some College Credits (no degree)
                                           ☐ Associate degree

6.   High School Education Type: ☐ Public High School
                                           ☐ Private High School
                                           ☐ Home School
                                           ☐ Dual Enrollment
                                           ☐ Combination of above (please explain)

                                           _____
                                           _____

7.   Current GPA: _____

     Check one of the following: ☐ Final High School GPA ☐ Current University GPA

7.   Current Class: ☐ Freshman ☐ Sophomore   ☐ Junior   ☐ Senior

8.   Employment: ☐ None   ☐ 1-10 Hours per Week ☐ 11-20 Hours per Week
                 ☐ More than 20 Hours per Week

9.   Parental Annual Income (estimate): ☐ less than $25,000   ☐ $25,000-$50,000
                                        ☐ $50,001-$75,000   ☐ $75,001-$100,000
                                        ☐ greater than $100,000 ☐ don't know

10. Financial Support (check all that apply):
- ☐ Financial Aid – grants
- ☐ Financial Aid – loans
- ☐ Financial Aid – work study
- ☐ Scholarships
- ☐ Parental/family support
- ☐ Employment

11. Living Situation: With whom do you live?
- ☐ Live alone
- ☐ Live with family
- ☐ Live with significant other
- ☐ Live with friend(s)/roommate(s)

12. Housing:
- ☐ Home
- ☐ Apartment/House away from Home

13. Activities (check all that apply):
- ☐ Sports Team
- ☐ College Club
- ☐ Church activities
- ☐ Volunteer
- ☐ Academic activities (e.g. Honors in the major)
- ☐ Volunteer
- ☐ Other Community Activities

14. Study habits (check the one that most closely represents your time spent studying):

- ☐ None
- ☐ 1-10 Hours per Week
- ☐ 11-20 Hours per Week
- ☐ More than 20 Hours per Week

15. Who provides you with the *most* support (choose one):

☐ Parent(s) ☐ Sibling ☐ Other Family Member ☐ Other Adult ☐ Peer

16. Religion: (specify denomination)_____

17. What is the *most* stressful event you have experienced in the last six (6) months?

_____

_____

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■ **There is no charge for using the Resilience Scale**

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■ **Please fill out the following information** so that we can keep track of where the Resilience Scale is being used:

*Name	Nancy R. Ahern	*Required
*Title of Project	Resilience in Adolescent College Students (dissertation)	
*Population of Interest	College students 18-20 years old	
*Organization	University of Central Florida	
*E-mail	nahern@mail.ucf.edu	
Phone		
*Language version	English	

Appendix H
Health Behaviors Questionnaire (HBQ) Permission

From:	"Ingersoll, Gary M." <ingersol@indiana.edu>
To:	"Nancy Ahern" <nahern@mail.ucf.edu>
Date:	12/3/2004 10:52:25 AM
Subject:	RE: The Health Behaviors Questionnaire

Dear Nancy

Attached is a copy of the Health Behaviors Questionnaire in its most recent format. The article that provides the original basis of the structure of Behavioral and Emotional Risk is

Ingersoll, G. M., & Orr, D. P. (1989). Behavioral and emotional risk in early adolescents. Journal of Early Adolescence, 9, 392-408.

While the factor structure remains fairly consistent across populations, I always suggest that, if you should use it, recreate the factor scores (let SPSS do it) using principal axis and verimax rotation. Then pursue your analyses using the standardized factor scores (I translate them into T-scores, i.e., $T = 10*z + 50$. The factor scores are standardized with a mean of 0 and sd=1).

I hope you find the instrument of use.

Where are you doing your dissertation?

Gary M. Ingersoll, Ph.D.
Professor, Department of Counseling & Educational Psychology
Professor, Department of Pediatrics

http://php.ucs.indiana.edu/~ingersol/home.html

-----Original Message-----
From: Nancy Ahern [mailto:nahern@mail.ucf.edu]
Sent: Thursday, December 02, 2004 8:09 PM
To: Ingersoll, Gary M.
Subject: The Health Behaviors Questionnaire

Dr. Ingersoll,

I am a doctoral student and am beginning my dissertation proposal on adolescent resilience. I am interested in possibly using the Health Behaviors Questionnaire and one of my measurement tools. Can you possibly direct me to where I can get a copy of and more information about this tool?

Thank you,
Nancy Ahern

Nancy R. Ahern, MSN, RN
Visiting Instructor and Coordinator
UCF at Cocoa
School of Nursing
University of Central Florida
1519 Clearlake Road

Appendix I

University of Central Florida

Waiver of Documentation of Consent

Resilience in Adolescent College Students

I am at least 18 years of age and completing this survey constitutes my informed consent.

Dear Brevard Community College Student:

You are invited to participate in a research study. Your participation and honest answers are critical for assessing resilience (being able to cope and adapt) in Brevard Community College students in Cocoa, Florida.

Project Title:
Resiliency in Adolescent College Students

Purpose of the research study:
The purpose of this research study are to explore the relationships among stress, risk behaviors, and resilience in college adolescents.

What you will be asked to do in this study: Following a brief explanation of the study, I will ask for your verbal consent then I will then give you instructions as to how to complete two short surveys, two stress scales, and a demographic sheet. I will remain nearby to answer any questions. It is important that you answer the questions as honestly and completely as possible. Once you are done, I will collect your completed packet of surveys.

Time required: Approximately 10-15 minutes.

Risks: There are no risks for participating in this study.

Benefits/compensation: There is no direct benefit to you from participation in this study.

Anonymity: You will remain anonymous. Your research records will be kept private to the extent of the law. Authorized research personnel, the UCF Institutional Review Board and its staff, and other individuals, acting on behalf of UCF, may inspect the records from this research project. The results of this study may be published. However, the data obtained from you will be combined with data from others in the publication. There will be no way to identify you personally in any way in published results of this research.

Voluntary participation: Your participation in this study is voluntary. You have the right to withdraw from this study at any time without consequence.

More information: For more information or if you have questions about this study, contact

Ms. Nancy Ahern
School of Nursing
College of Health and Public Affairs
(321) 433-7921
naharn@mail.ucf.edu

Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board. The office is open from 8:00 am to 5:00 pm Monday through Friday except on UCF official holidays. **Information regarding your rights as a research volunteer may be obtained from:**

Institutional Review Board (IRB)
University of Central Florida (UCF)
Office of Research and Commercialization
12201 Research Parkway, Suite 501
Orlando, FL 32826-3246
Telephone: (407) 823-2901 and (407) 882-2276