A STUDY OF HUMAN RESILIENCE: AFFECT VERSUS EFFECT

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Master of Science in Counseling

By

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8-20-96

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CHAPTER 1
INTRODUCTION

General Statement of the Problem

The purpose of the present study was to investigate the following questions:

Is it possible to define a profile of resilience via analysis of data collected from both a measure of personality traits and of stressors associated with some common life changes administered to a sample population of adults?

Is there a particular set of global personality factors that emerge from data analysis as a profile of resilience?

Background of the Problem

In the past several decades, psychological dissatisfactions have grown with the insufficiencies of the existing mental healthcare system. Among the key problems have been the following: (a) mental health rehabilitation resources were insufficient to meet the demand for help, much less the underlying need; (b) limited mental health resources were least available to those most in need; (c) the way in which mental health services were traditionally packaged were so hostile to major segments of the population that they were seen as irrelevant; (d) serious problems posed by "major mental disorder" were not resolved; and (e) the field's most
extensively developed and deeply invested repair strategies were limited because of the rooted, change-resistant nature of the conditions they were called upon to remediate (Cowen et al., 1990). The weight of these problems fueled serious efforts to develop more effective ways to deliver services to those in need. The early community, mental health movement, for example, without seriously questioning mental health's guiding premises sought to broaden the reach and improve the timing of effective restorative services (Anderson et al., 1966). Later community psychology approaches began to challenge mental health's basic medical model assumptions and in so doing, highlighted the impact of psychological environment interactions, policy and planning decisions, empowerment, and programs to prevent maladaptation (Cowen et al., 1990). This slow but perceptible shift has reoriented away from the past dominant question of "How can psychological malfunction best be undone?" toward new, potentially more fruitful questions, namely, "How does wellness come about in the first place and what can be done to promote it?" Thus, a need more widely perceived and accepted today than ever before is to identify forces that promote healthy outcomes. Resilience is one such force—one of major potential importance.
Significance of the Problem

One well established conclusion found in a study of the impact of stressful life events and circumstances (SLE-Cs) on children's adjustment is that stressful life events predispose many different kinds of adverse physical and psychological consequences in children during their formative years (Garmezy & Rutter, 1983). SLE-C's are not isolated; they often come in clusters. It has been argued that the adverse effects of such combined occurrences have more of a tendency to be increased rather than just additions. Rutter (1979) showed that although risk rates for psychiatric disturbance among 10-year-olds from families with zero or one stressor were equally low, the presence of two stressors multiplied risk fourfold, and four or more stressors increased risk tenfold. Because adversity in a child's life increases risk for behavior problems and maladjustment, it provides a very meaningful context in which to understand childhood resilience. "To understand and prevent maladaptation, we will do well to understand resilience in development; they are different parts of the same story," (Masten, 1989, p. 265).

A concurrent hypothesis would be that: resilient children mature into resilient adults who are better able to cope with the presence of stress across the lifespan.

Therefore, specific stressful events increase risk for maladjustment and this effect is heightened under
chronic exposure to major life stress. This challenging reality directs attention to a search for naturally occurring protectors that inoculate exposed children against the harmful effects of SLE-C's. As the search for which elements continues, there is the underlying idea that once discovered they will serve as building blocks in developing effective preventative interventions designed to enhance coping and adaptation among profoundly stressed children. Although a full understanding of the elements that comprise resilience is not yet known they are believed to include the following: (a) defining attributes of the child such as age, sex, IQ, and sociodemographic status; (b) personal qualities such as a child's sense of effectiveness and self-esteem, coping and problem-solving skills, and control attribution*; and external factors such as the child's family situation and sources of support (Masten, 1989).

Through continued study of resilient individuals we can further describe and define the protective elements therein ascribed. The same model used for children can be extrapolated to meet the needs of an adult population (e.g. helping professionals working with clients who did

*Note: control attribution— an individual's determination and interpretation, either consciously or subconsciously, that his words and deeds have an impact on and affect the behavior and attitudes of others.
not receive intervention as youth, might choose to identify the number and type of stressors impacting that person's life and additionally, administer a personality profile measure. The resulting data could be used to develop an effective approach to the reinforcement of the client's strengths and acknowledgment of areas of weakness.)
CHAPTER II

REVIEW OF THE LITERATURE

Methods of Research

Overtime resilience has been studied using different methods of research to review the various aspects comprising a resilient profile. In studies on childhood stress resistance, a commonly used approach to operationalizing stress is the life events method. This technique uses self-report measures to obtain a count of stressful life events encountered by respondents. Typically, such measures consist of a list of items judged to be experienced frequently by children and adolescents. Respondents are asked to indicate events experienced frequently in the recent past (Coddington, 1972; Johnson & McCutcheon, 1980; Swearingen & Cohen, 1985).

There is a large body of literature on the methodological issues associated with measures of life events. Many of the early life events measures contained a varied mix of events ranging from trivial to severe, desirable to undesirable, and subjectively judgmental to objectively descriptive. Scales developed in recent years have addressed some of these limitations. In measures such as the Life Events Checklist (Johnson & McCutcheon, 1980), the Junior High Life Experiences Survey (Swearingen & Cohen, 1985), and Adolescent Perceived Events Scale (Compas, Davis, Forythe, & Wagner, 1987), respondents are
asked not just whether they have experienced a particular event, but also whether they perceived that event as being desirable or undesirable, and the extent to which it has effected their lives.

The life events measures cited above have been found to have acceptable psychometric properties in terms of both reliability and validity (Cohen, 1988; Johnson & Bradlyn, 1988). Research employing measures such as these can be strictly empirical, controlled, and precise (Anthony, 1987).

A second method of the study of resilience is longitudinal studies. Some of these studies have been done on the development of normal middle-class children as a potentially useful way of illuminating a construct of childhood resilience. Emmy Werner, one of the primary contributors to the study of resilience, found associations between sound adjustment and the following: (a) indicators of children's autonomy, empathy, good peer relationships, and effective problem solving skills; (b) family contexts characterized by interested, caring competent mothers, and open lines of communication and expression of feelings; and (c) parent agreement on moral issues and values. The key body of research that was conducted by Emmy Werner (1982) over a period of several decades pertained to work with an at-risk population residing on the island of Kaua'i. Her findings lead to
the discovery of four central characteristics which were held in common by the resilient children she studied.

These characteristics included:

* an active, evocative approach toward solving life's problems, enabling them to negotiate successfully an abundance of emotionally hazardous experiences;
* a tendency to perceive their experiences constructively, even if they caused pain or suffering;
* the ability, from infancy on, to acquire other people's positive vision of a meaningful life (Werner, 1982);
* a strong ability to use faith in order to maintain a positive vision of a meaningful life.

Many studies expounded on Emmy Werner's work leading to further in-depth examination of the various categories of factors which are highly correlated with resilience.

**Protective Factors Within the Child**

Resilient children tend to have temperamental characteristics that elicit positive responses from family members as well as strangers (Garmezy, 1983; Rutter, 1978). Several investigators have noted both a pronounced autonomy and a strong social orientation in resilient preschool children (Block 1981; Murphy & Moriarty, 1976). They tend to play vigorously, seek out novel experiences, lack fear and are quite self-reliant yet, are able to ask for help from adults or peers when they need it.

Sociability coupled with a remarkable sense of independence are characteristics also found among the
resilient school-age children of psychotic parents (Anthony, 1974).

Resilient children often find a refuge and a source of self-esteem in hobbies and creative interests. The resilient children on the island of Kaua’i (Werner, 1983) were not unusually talented, but they displayed a healthy androgyny in their interests and engaged in hobbies that were not narrowly sex-typed.

In middle childhood and adolescence, resilient children are often engaged in acts of "required helpfulness*" (Garmezy, 1982). On Kaua’i, many adolescents took care of their younger siblings. Some managed their household when a parent was ill or hospitalized; others worked part-time after school to support their family (Werner, 1982).

**Protective Factors within the Family**

Despite chronic poverty, family discord, or parental mental illness, most resilient children have had the opportunity to establish a close bond with at least one caregiver from whom they received lots of attention during the first year of life. The stress-resistant children in the Kaua’i Longitudinal Study as well as the

*Note: "required helpfulness"—acts of helping which are expected within a family system (e.g. older children caring for younger).
Resilient offspring of psychotic parents studied by Anthony (1974) had enough good nurturing to establish a basic sense of trust (Werner, 1982). Some of the nurturing came from substitute caregivers within the family such as older siblings, grandparents, aunts, and uncles.

Resilient children seem to be especially adept at actively recruiting surrogate parents. The latter can come from the ranks of babysitters, nannies, or student roomers (Kauffman et al., 1979); and they can be friends (Werner & Smith, 1982), or even a housemother in an orphanage. One would speculate that a child who is extraverted and socially adept would fit the description of one who is able to easily recruit surrogate parents rather than a more introverted and socially inhibited child.

The example of a mother who is gainfully and steadily employed appears to be an especially powerful model of identification for resilient girls reared in poverty. They are Black, Chicana, or Asian American (Werner & Smith, 1982). Maternal employment and the need for sibling caregiving seems to contribute to the pronounced autonomy and sense of responsibility noted among these girls, especially in households where the father is permanently absent. In addition, structure and rules in the household and assigned chores enable many
resilient children to cope well in spite of poverty and discrimination, whether they lived on the rural island of Kaua'i, in the inner cities of the American Midwest, or in a London borough (Clark, 1983; Garmezy, 1983; Rutter; 1979). Therefore, children who demonstrate a higher degree of self-reliance and rule-following behavior could be said to be among the more resilient.

Resilient children also seem to have been imbued by their families with a sense of coherence (Antonovksy, 1979). They manage to believe that life makes sense, that they have some control over their fate and God helps those who help themselves (Murphy & Moriarty, 1976). This sense of meaning persists among resilient children even if they are uprooted by wars or scattered as refugees to the four corners of the earth. It enables them to love despite hate, and to maintain the ability to behave compassionately toward other people (Ayala-Canales, 1984). Expounding on this line of thought, we could speculate that a resilient individual might display a tendency to score lower on a measure of personality traits such as tough-mindedness while, at the same time scoring higher on self-control.

**Protective Factors Outside the Family**

Resilient children find a great deal of emotional support outside their immediate family. They tend to be well liked by their classmates and have at least one, and
usually several, close friends and confidants (Garmezy, 1983). In addition they tend to rely on informal networks of neighbors, peers, and elders for counsel and advice in times of crisis and life transitions.

In contrast to ideas previously presented, one might postulate that people who are more accommodating, agreeable and selfless would be more likely to establish close relationships more readily than those individuals who display characteristics related to independence and wilfulness.

Resilient children are apt to like school and do well in school, not exclusively in academics, but also in sports, drama, or music. Even if they are not unusually talented, they put to good use whatever abilities they have. Often they make school a home away from home, a refuge from a disordered household. A favorite teacher can become an important model of identification for a resilient child whose own home is beset by family conflict or dissolution (Wallerstein, 1983). Good experiences in school can mitigate the effects of considerable stress at home (Rutter et al, 1979).

Participation in extracurricular activities or clubs can be another important informal source of support for resiliency. Self-esteem can be enhanced through group membership as the feeling of belonging to a group reinforces sociability.
Summary: The Shifting Balance Between Vulnerability and Resiliency

For many children the experiences they have seem to result in a steeling rather than a scarring effect (Anthony, 1974). There is a shifting balance between life events which heighten children’s vulnerability and the protective factors in their lives which enhance their resiliency. This balance can change with each stage of life cycle and also with the sex of the child. Most studies in the United States and in Europe, for example, have shown that boys appear to be more vulnerable than girls when exposed to chronic and intense family discord in childhood, but this trend appears to be reversed by the end of adolescence.

As long as the balance between stressful life events and protective factors is manageable for children they can cope. But when the stressful life events outweigh the protective factors, even the most resilient child can develop problems. Just as would be found at any stage of development. Those who work in the helping professions can help restore this balance by promoting the idea that one can make choices which decrease exposure to intense or chronic life stresses. Also, by guiding individuals in ways which will assist them in increasing the number of protective factors in their lives those individuals reinforce their competencies and solicit
strong sources of support (Werner & Smith, 1982).

Some of the implications of the still tentative findings of resilient children provide a more hopeful perspective than can be derived from reading extensive literature on problem children. Research on resilient children provides us with a focus on the self-righting tendencies that appear to move some children toward normal development under all but the most persistent adverse circumstances.

**Implications**

Professional application of the research findings discussed thus far, can help tilt the balance from vulnerability to resiliency if we:

* accept children’s temperamental idiosyncrasies and allow them some experiences that challenge, but do not overwhelm their coping abilities;
* convey to children a sense of responsibility and caring, and in turn, reward them for helpfulness and cooperation;
* encourage a child to develop a special interest, hobby, or activity that can serve as a source of gratification and self-esteem;
* model, by example, a conviction that makes sense despite the inevitable adversities that each of us encounters;
* encourage children to reach out beyond their nuclear family to a beloved relative or friend.

When we are looking at an adult population, the key to dealing with life stress is to change some aspect of life or to change the way that situations are perceived. The best way to deal with stress is to replace stressful ways of living with beliefs, attitudes, and behaviors that
promote peace, joy, and mind-body harmony. People need a certain degree of tension to overcome challenges in order to be creative and grow psychologically. It may mean, however, that it would be wise to change some habitual ways of thinking that are self-destructive (Holmes & Rahe, 1967).
CHAPTER III
DESIGN AND METHODOLOGY

Specific Statement of Problem

The purpose of the present correlational study was to determine if a particular personality profile emerged from an analysis of data collected from a sample population of adults who completed a classic personality test (16 PF, R. Cattell, K. Cattell, and H. Cattell, 1994) and a measure of stress units associated with some common life changes.

Hypotheses*

1. There will be no significant correlations between/among the five 16 PF Global Factors defined in this study.

2. There will be no significant correlations between the degree of anxiety and level of stress as measured by the formula developed for the statistical analysis of each subject's responses.

3. There will be no significant correlations between/among independent variables in this study.

*Note: Hypotheses were tested in null form and were rejected if the .05 level of significance was exceeded.
**Population and Sample**

Data for this investigation were collected from subjects who were randomly selected to receive packets containing both a personality measure and a measure of some common life changes which equate to various amounts of stress. A qualifying condition for participation in this study was that the subject should either currently be in or have been a student in an undergraduate or graduate degree program. Items listed on the stress measure of stress were to be selected if they had occurred within the last three years of each individual's life. There were 30 subjects total; 9 males and 21 females. The ethnic distribution of the population sample was as follows: 86% Caucasian, 7% Asian, 3% African American, 3% Filipino, and 3% Hispanic. The age range was from 19 and 54 years. The definition of resilience as constructed by Norman Garmezy (1982) is as follows:

... the ability to cope and adapt well in the presence of major, enduring life stress.

Other terminology which has been used to refer to resilient individuals includes: vulnerable but invincible (Werner & Smith, 1982) or invulnerable (Anthony & Kohler, 1987; Garmezy & Neuchterlein, 1972), also stress-resistant (Garmezy and Tellegen, 1984).
Data Collection Methodology

In a study of finite duration such as this, it is very difficult to derive a measure of resilience, however, based on the literature discussed above, a characteristic that the author expects to be associated with resilience is the ability to control anxiety in the face of stress. For the purposes of the present study the author has constructed a measure of the relationship between stress and anxiety and attempted to relate it to other personality traits.

Instruments

The primary psychometric device used to gather data in the present study was based on the work of Raymond B. Cattell, Ph.D., D.Sc., A. Karen Cattell, And Heather E.P. Cattell, Ph.D. The 16 PF, 5th Edition, their most recent contribution to the area of measuring the enduring dimension of personality, was given in order to determine a personality profile for each subject (See Appendix A). A profile consists of 16 Personality Factors which can be further factored into five Global Factors (Extraversion, Anxiety, Tough-Mindedness, Independence, and Self-Control. Response style is measured on three scales--Impression Management, Infrequency, and Acquiescence, none of which were used for the purposes of the present study.
Designed for individuals 16 years of age and older

the questionnaire contains 185 items on the following scales:

<table>
<thead>
<tr>
<th>Warmth</th>
<th>Reasoning</th>
<th>Emotional Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominance</td>
<td>Liveliness</td>
<td>Rule-Consciousness</td>
</tr>
<tr>
<td>Social Boldness</td>
<td>Sensitivity</td>
<td>Vigilance</td>
</tr>
<tr>
<td>Abstractedness</td>
<td>Privateness</td>
<td>Apprehension</td>
</tr>
<tr>
<td>Tension</td>
<td>Self-Reliance</td>
<td>Perfectionism</td>
</tr>
<tr>
<td>Openness to Change</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The answers to the items on the questionnaire were recorded on a separate scantron completed by each subject. The subjects used only a single or two-digit number to identify themselves. All answer sheets were later checked for completeness (Appendix B-Sample Scantron). The raw scores were calculated and converted to standard scores which were plotted on a profile sheet for each subject (See Appendix C-Sample Profile Sheet).

After the conversion of raw scores to standard scores for the 16 personality factors was completed each resulting numeric value equated to a number on a scale ranging from 1 to 10. The Average Range is defined as a score which falls between 4 and 7. Scores from 1 to 5 are plotted on the left side of the profile sheet and scores from 6 to 10 are plotted on the right side of the profile sheet. There are corresponding characteristics or factors ascribed to numeric values on either side of the scale (e.g. Factor A: Warmth, Std. Score = 5, Left Meaning characteristics: Reserved, Impersonal, Distant, or if applicable, Right Meaning characteristics: Warm, Outgoing,
On the reverse side of each Profile Sheet (See Appendix D), the examiner, hand-calculated the scores for the five Global Factors (e.g. Extraversion, Anxiety, etc.). Each score was rounded up to the nearest whole number. The global factors were then plotted in the same manner as were the personality factors on the section designated for all of these scores at the bottom on the front of each profile sheet. Global factors also have related characteristics that they correspond to within a range of 1 to 10 (e.g. Global Factor: Extraversion, Std. Score = 1, Left Meaning Characteristics: Introverted, Socially Inhibited, or if applicable Right Meaning Characteristics: Extraverted, Socially Participating.

The corresponding instrument used in the study is referred to as a measure of Stress "Units" Associated with Some Common Life Changing Experiences. There are 31 items which are weighted in increments of between 100 and 20 life change units (LCUs) (See Appendix D). Although peoples' responses to various life situations vary, it appears that certain life events are common to almost everyone, and the adjustments required to deal with them can produce varying degrees of stress.

Not all life events need engender unpleasant emotions in order to act as stressors, although that usually is the case. Anything that requires an adaptation, even
married, can trigger physiological responses characteristic of stress. "It is immaterial whether the agent or situation we face is pleasant or unpleasant; all that counts is the intensity of the demand for readjustment or adaptation (Selye, 1983).

The idea that life changes are stressors has been investigated by Thomas Holmes and Richard Rahe (1967). Holmes and Rahe devised the Social Readjustment Rating Scale (SRRS) to help quantify the degree of stress that is associated with a number of common life changes experienced by most people. The SRRS lists common life events and for each a corresponding number of life change units (LCUs) that measure relative stressfulness of the life change. For example, the SRRS lists death of a spouse as requiring the most adjustment, which carries an arbitrary numerical LCU of 100. Marriage carries a value of 50 LCUs. Individual's who accumulate more than 300 LCUs in a year have a higher than average health risk. A modified and shorter version of the SRRS that is also considered to be particularly meaningful as a measure of stress has been used for the purposes of this study. The list of events includes items which contain both positive and negative life events, as discussed earlier, emphasizing that any emotional change—even extreme joy—can produce stress-related symptoms. People differ considerably in how they respond to stressful life events.
considerably in how they respond to stressful life events. Some people are highly vulnerable to stressful situations, while others are more resistant. Hence, the examiner considered the shortened version of the SRRS to be an important gauge of stress for the purposes of the present study in regard to formulating an idea of a stress-resistant personality profile versus a non-resilient personality profile. A specific group labelled Non-resilient individuals was not included in this study; their existence is implied.

**Data Analysis**

Although it is difficult to measure something as intangible as resilience, the examiner has developed a rudimentary study employing simple multiple regression as an endeavor to begin quantification of this quality. Correlation coefficients between independent variables were calculated based upon the responses of all 30 subjects. When a significant correlation coefficient was discerned, then, a formula was developed based upon those factors which were most highly correlated to each other. Tough-Mindedness and Self-Control were the two primary global factors which were found to be significantly correlated. Therefore, the examiner, for the purposes of this study, considers them to be representative of a resilient personality profile. Those individuals who scored high on Tough-Mindedness and Self-Control were
grouped together as the resilient subjects.

When measuring the strength of the relationships among the 5 global factors on the 16 PF, the following equation for a simple linear regression was employed:

\[ t = \frac{r}{\sqrt{\frac{1 - r}{n - 2}}} \]

\[ r = .30 \] indicative of a significant relationship between any 2 variables (global factors on the 16 PF).

Further examination of the inter-relatedness between the independent variable and the dependent variables were determined by creating a formula which enabled the examiner to quantify total stress units and their impact on anxiety for each subject in the sample population.

The researcher tallied all the numeric values for each stressor circled by the respondent and used the total number of LCUs as one of the important variables in calculating the relationship between stress and anxiety for each subject. The formula was as follows:

\[ \text{Resilience} = \frac{\text{Anxiety}}{\text{Stress}} \]

Numeric values for individual scales representing both anxiety and levels of stress were created. For the different ranges of stress, a dependent variable, values from 1 to 10 were assigned as shown in Table 1 on page 24.
Levels of anxiety were assigned values in accordance with representativeness of either high or low anxiety as indicated in Table 2 on page 24. Lower numeric levels equated to a higher value of anxiety and vice versa.

Table 1
**Scaled Values of Stress Units**

<table>
<thead>
<tr>
<th>Total Stress Units</th>
<th>Scaled Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 60</td>
<td>1</td>
</tr>
<tr>
<td>61 - 120</td>
<td>2</td>
</tr>
<tr>
<td>121 - 180</td>
<td>3</td>
</tr>
<tr>
<td>181 - 240</td>
<td>4</td>
</tr>
<tr>
<td>241 - 300</td>
<td>5</td>
</tr>
<tr>
<td>301 - 360</td>
<td>6</td>
</tr>
<tr>
<td>361 - 420</td>
<td>7</td>
</tr>
<tr>
<td>421 - 480</td>
<td>8</td>
</tr>
<tr>
<td>481 - 540</td>
<td>9</td>
</tr>
<tr>
<td>541 - 600</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 2
**Scaled Values of Anxiety Levels**

<table>
<thead>
<tr>
<th>Low Anxiety</th>
<th>Scaled Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 3</td>
<td>10</td>
</tr>
<tr>
<td>4 - 6</td>
<td>9</td>
</tr>
<tr>
<td>7 - 9</td>
<td>8</td>
</tr>
<tr>
<td>10 - 12</td>
<td>7</td>
</tr>
<tr>
<td>13 - 15</td>
<td>6</td>
</tr>
<tr>
<td>16 - 18</td>
<td>5</td>
</tr>
<tr>
<td>19 - 21</td>
<td>4</td>
</tr>
<tr>
<td>22 - 24</td>
<td>3</td>
</tr>
<tr>
<td>25 - 27</td>
<td>2</td>
</tr>
<tr>
<td>28 - 30</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High Anxiety</th>
</tr>
</thead>
</table>

Because in the context of the current study the author expects that as stress increases so will anxiety it was necessary to scale one to the other in order to perform calculations in the measurement of resilience.
The scaled values were set up in a reversed order because the author wanted the highly resilient individual to equate to someone who has the lowest anxiety in relationship to the lowest amount of stress. Due to the manner in which the data were gathered, it was necessary to generate the tables of equivalent values in reversed order.
CHAPTER IV
RESULTS

In this section, the results are first presented from the statistical tests used to select the variables that were most promising for inclusion in this correlation analysis. Multiple regression was used to test for significant correlations between variables. Following the results of the preliminary tests, the results of the multiple regression itself are presented in Tables 3, 4, and 5.

Hypothesis 1

There will be no significant correlations between/among the five 16 PF Global Factors defined in this study. The results of the regression analysis indicated that the two most strongly related global factors, were Tough-Mindedness and Self-Control, using \( r = .30 \) and \( p < .05 \) as the predetermined level of significance. So, we can reject the null hypothesis.

Table 3 presents the results of the multiple regression analyses.

Table 3.

<table>
<thead>
<tr>
<th>Variable</th>
<th>EX</th>
<th>AX</th>
<th>TM</th>
<th>IN</th>
<th>SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extroversion</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>-0.1889</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tough-Mindedness</td>
<td>-0.40931</td>
<td>-0.12851</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independence</td>
<td>0.443177</td>
<td>-0.14902</td>
<td>-0.41868</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Self-Control</td>
<td>-0.20203</td>
<td>-0.14304</td>
<td>0.532883</td>
<td>-0.17463</td>
<td>1</td>
</tr>
</tbody>
</table>
Although it is apparent that there is a strong correlation between the 16 PF Global Factors of Independence and Extroversion, it is apparent that the strongest relationship exists between Self-Control and Tough-Mindedness.

**Hypothesis 2**

There will be no significant correlations between the degree of anxiety and level of stress as measured by the formula developed for the statistical analysis of each subject's responses. The results of the regression analysis indicated that there was a strong correlation between scaled values of stress and the calculated values of resilience* used for this study. So, we can reject the null hypothesis.

Table 4 presents the results of the multiple regression analyses.

**Table 4.**

**Results of Multiple Regression Analyses: Scaled of Values of Stress and Calculated Values of Resilience*.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>EX</th>
<th>AX</th>
<th>TM</th>
<th>IN</th>
<th>SC</th>
<th>ST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex.</td>
<td>1</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anx.</td>
<td>-0.1869</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TM</td>
<td>-0.40931</td>
<td>-0.12851</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ind.</td>
<td>0.443177</td>
<td>-0.14902</td>
<td>-0.41866</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC</td>
<td>-0.20203</td>
<td>-0.14304</td>
<td>0.532883</td>
<td>-0.17483</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>St.</td>
<td>0.107387</td>
<td>0.128315</td>
<td>-0.1912</td>
<td>0.415189</td>
<td>-0.13186</td>
<td>1</td>
</tr>
<tr>
<td>Res*</td>
<td>-0.12956</td>
<td>0.23059</td>
<td>0.263431</td>
<td>-0.32786</td>
<td>0.211947</td>
<td>-0.66745</td>
</tr>
</tbody>
</table>

At the .05 level of significance, there is a strong relationship demonstrated between the scaled values of stress and the calculated values of resilience.

*Note: Refer to formula used for defining resilience Tables 1 & 2 p. 24: \[ \text{Resilience} = \frac{\text{Anxiety}}{\text{Stress}} \]
**Hypothesis 3**

There will be no significant correlations between/among independent variables measured in this study. The strong linear relationships demonstrated between Extroversion and Independence and between Independence and Tough-Mindedness can be said to be a contradiction of the null hypothesis. So, we can reject the null hypothesis.

Table 5 presents the results of multiple regression analyses.

**Table 5.**

*Results of Multiple Regression Analyses: Comparison of Independent Variable Relationships.*

<table>
<thead>
<tr>
<th>Variable</th>
<th>EX</th>
<th>AX</th>
<th>TM</th>
<th>IN</th>
<th>SC</th>
<th>ST</th>
<th>AG</th>
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<tbody>
<tr>
<td>Ex.</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ax.</td>
<td>-0.1869</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TM.</td>
<td>-0.40931</td>
<td>-0.12851</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In.</td>
<td>0.443177</td>
<td>-0.14902</td>
<td>-0.41866</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC</td>
<td>-0.20203</td>
<td>-0.14304</td>
<td>0.532883</td>
<td>-0.17463</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>St.</td>
<td>0.107387</td>
<td>0.128315</td>
<td>-0.1912</td>
<td>0.415169</td>
<td>-0.13188</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Ag.</td>
<td>-0.20406</td>
<td>-0.31253</td>
<td>-0.10545</td>
<td>0.187822</td>
<td>-0.00107</td>
<td>0.05888</td>
<td>1</td>
</tr>
<tr>
<td>Res*</td>
<td>-0.12956</td>
<td>0.23059</td>
<td>0.263431</td>
<td>-0.32766</td>
<td>0.211947</td>
<td>-0.66745</td>
<td>0.0</td>
</tr>
</tbody>
</table>

*Note: Refer to formula used for defining resilience Tables 1 & 2 p. 24: Resilience = Anxiety Stress*
CHAPTER V
SUMMARY

Conclusions

Significant differences were found between two global factors, defined for the purposes of this study as components of a resilient profile. The predictive power of these variables was investigated utilizing the statistical procedure of multiple linear regression. The main conclusion of the analysis was that there is a relationship between the postulated measure of resilience and a particular subject's response to stress. One would intuitively think that as stress increases anxiety would also increase. When the response of the resilient individual (as defined by the inter-relatedness of the two 16 PF Global Factors: Tough-Mindedness and Self Control) is examined, anxiety decreases as a reaction to multiple stressors because the subject appears to cope well with adversity, according to this model.

Discussion

Results of the present study indicate that the profile of a resilient subject is best described by that individual's ability to be both Tough-Minded and able to exert Self-Control in the presence of multiple stressors. The fact that individuals respond differently to varying degrees of stress was explored.
Degrees of stress compared with predominant personality traits yielded the aforementioned profile. The expectation that their would be increased or decreased amounts of anxiety associated with varying amounts of stress for those participating in the study was borne out.

During the past decade resilience has become the zeitgeist in the field of both clinical and school psychology. The idea held by researchers, clinicians, and practitioners alike is one which contains much hope for the future. If helping professionals assist their clients in building upon innate human traits, then, this could improve that individual's sense of well-being. Fortification against the threat of severe odds is at the core of mental health (Bernard, 1994).

Implications

The results indicate that it is possible to glean relevant information about subjects from a comparison of 16 PF Global Personality Traits and a postulated formula for resilience. The speculation that a profile of resilience would emerge from data collection and analysis was validated in the research. Through the use of multiple regression, the author found that there were two specific Global Personality Traits, Tough-Mindedness and Self-Control, which strongly correlated to the degree of stress and associated level of anxiety for a given subject.
The findings supported the hypothesis that the individuals who cope best with increased amounts of stress are generally those who seem to be less aggressive in the presence of adversity (e.g. high on Self-Control).

Additionally, endurance emerges as a quality included under the global trait of Self-Control as does the need for order and structure. Tough-Mindedness implies a preference for stability and Openness to Change on the 16 PF scales (Cattell et al, 1994). Subjects are, therefore, more likely to adapt to the situation at hand and less apt to succumb to the pressure of multiple stressors. Anxiety correlates most strongly with the Tension Factor from among the 16 primary personality factors; subjects in this study appeared to demonstrate lower levels of anxiety with increased levels of stress.

**Limitations of the Present Study**

Several limitations existed in the design of this study, which may have influenced the outcome. These include, the sample size, the selection of subjects, the instruments used, and inclusion of other relevant data. The generalizability of the results are affected by these factors.

One significant limitation of this study was the size of the sample, as a larger sample may have yielded more significant differences in the overall responses of the subjects. The 16 PF Global Factors representing a
resilient profile may have been quite different.

The subjects were selected from a fairly homogeneous segment of the population-at-large. The subject pool consisted of primarily white females between the ages of 19 and 54. Therefore, the outcome of the study may have been influenced by subject selection.

The two instruments used for gathering data were vastly different in construct. The 16 PF, (Cattell et al. 1994), an acutely accurate measure of personality traits, has been revised several times and the 5th edition was used for the present study. The reliability and validity of the 16 PF have been well established over time. The corresponding instrument referred to as a measure of Stress "Units" associated with Some Common Life Changing Experiences, is a modified and shortened version of the Social Readjustment Rating Scale (SRRS) developed by Thomas Holmes and Richard Rahe (1967). The latter of the two devices is not comparable, in its overall degree of efficacy, to the 16 PF.

The ability to cope has much to do with an individual's perception. The evaluator did not include a measure of the subject's perception of stress. The number of stressors and degree of stress experienced by each individual can be viewed quite differently. One individual could have a tremendous amount of stress and cope quite well. Another individual could have a minimal
amount of stress and perceive it as overwhelming. Therefore, it is important to note that any comparisons of stress/anxiety and coping ability are relative.

**Recommendations for Further Research**

The following areas may provide useful additional information:

1. When measuring the affect of multiple stressors upon an individual's ability to cope, a longitudinal study would better address the complicacy included therein. A follow-up study could provide more insight into the personality profile of a resilient individual.

2. The use of a paradigm which includes a more in-depth approach to the measurement and understanding of a subject's perception of stress/stressors would add to the accuracy of future research.

3. A different approach to the study of resiliency would be to include information pertaining to attachment theory (Bowlby, 1982). Gathering data about the early development of subjects might provide some interesting and helpful insight into possible correlations between secure attachment and resilience also referred to as invulnerability (Anthony, & Kohler, 1987).
An understanding of how to reinforce or enhance resilience can be used to effect successful change at both the individual and community levels. The belief that one can change evolves from a belief in one's human potential for resilience, not from a focus on deficits, risks, and problems. Ultimately, a resiliency paradigm is also a process of community-building facilitated by the belief that how we think is our common human denominator--connecting us at a level deeper than our respective cultures, ethnicities, genders, or ages (Bernard, 1994).
BIBLIOGRAPHY


APPENDIX A
16 PF QUESTIONNAIRE

Raymond B. Cattell
A. Karen S. Cattell
Heather E.P. Cattell

16 PF

FIFTH EDITION

Questionnaire
WHAT TO DO: This booklet contains some questions to see what interests you have and how you feel about things.

With this booklet, you will be given a separate answer sheet.

- **Code your name** in the top, left-hand grid of the answer sheet. Print your last name in the boxes provided at the top of each column, one letter per box. Do the same for your first name, and then for your middle initial. Next, in the column below each box, blacken in the circle that corresponds to each letter of your name. Fill in the top circle for boxes left blank.

- **Next, code your sex** in the space provided by indicating whether you are a male or a female.

- **I.D. Number is optional.** If the administrator requests it, write your I.D. number in the boxes and blacken in the circle that corresponds to each number.

- **Please do not mark in any other grids.**

- **Please use a soft-lead pencil only and make no other marks in this test booklet.**

Now, read the two example questions below and think about how you would answer them. Find the space on your answer sheet marked ExX. Mark your answer for the first example there. Do the same for question ExY.

**EXAMPLE QUESTIONS**

ExX. I often like to watch team games:
  a. true
  b. ?
  c. false

ExY. I prefer friends who are:
  a. quiet.
  b. ?
  c. lively.

The remaining questions in this booklet are similar to the two you just answered. When the examiner tells you to start, answer the questions, keeping these five things in mind:

1. Read each statement and choose the one that best describes you. For most of the questions there are no "right" or "wrong" answers; just answer what is true for you.

2. Don't spend too much time thinking over any one question. Give the first, natural answer that comes to you.

3. Answer every question. Don't skip any. If you want to change an answer, please erase the old one completely.

4. Try to mark the "a" or "c" answer. Note that the middle answer is a question mark, "?". Only mark this answer when neither "a" nor "c" is better for you.

5. Answer candidly. It is important that you be as careful and honest as you can and give answers that describe you best. Do not give an answer because it seems like the right thing to say or because it is what you might like to be.

Please ask now if something isn't clear.
1. I'd enjoy more being a counselor than being an architect.
   a. true
   b. ?
   c. false

2. When something upsets me, I usually get over it quite soon.
   a. true
   b. ?
   c. false

3. When people do something that bothers me, I usually:
   a. let it go;
   b. ?
   c. mention it to them.

4. I believe more in:
   a. being properly serious in everyday life;
   b. ?
   c. the saying "laugh and be merry" most of the time.

5. I'd rather see a home that:
   a. has strict standards of behavior;
   b. ?
   c. doesn't have too many rules.

6. I usually enjoy spending time talking with friends about social events or parties.
   a. true
   b. ?
   c. false

7. I admire more:
   a. a person who has average abilities, but strict morals;
   b. ?
   c. a person who is very talented, but is sometimes not very responsible.

8. When I was a child, I spent more free time:
   a. making or building something;
   b. ?
   c. reading or daydreaming.

9. In joining a new group, I usually seem to fit in right away.
   a. true
   b. ?
   c. false

10. I get excited about good plays or novels.
    a. true
    b. ?
    c. false

11. There's usually a big difference between what people say they'll do and what they actually do.
    a. true
    b. ?
    c. false

12. My friends think I'm slightly absent-minded and not always practical.
    a. true
    b. ?
    c. false

13. A lot of people will "stab you in the back" in order to get ahead themselves.
    a. true
    b. ?
    c. false

14. I get into trouble because I sometimes pursue my own ideas without talking them over with the people involved.
    a. true
    b. ?
    c. false
15. I find it easy to talk about my life, even about things that others might consider quite personal.
   a. true
   b. ?
   c. false

16. I am willing to help people.
   a. always
   b. ?
   c. sometimes

17. My thoughts are too deep and complicated for many people to understand.
   a. hardly ever
   b. ?
   c. often

18. I prefer to:
   a. talk about my problems with my friends;
   b. ?
   c. keep them to myself.

19. I tend to be too sensitive and worry too much about something I've done.
   a. hardly ever
   b. ?
   c. often

20. I'd prefer to deal with people who are:
   a. conventional and polite in what they say;
   b. ?
   c. direct and speak up about problems they see.

21. If people act as if they dislike me:
   a. it doesn't upset me;
   b. ?
   c. I usually feel hurt.

22. I like to think up better ways of doing things rather than to follow well-tried ways.
   a. true
   b. ?
   c. false

23. I have said things that hurt others' feelings.
   a. true
   b. ?
   c. false

24. If I had to cook or build something, I'd follow the directions exactly.
   a. true, why take chances
   b. ?
   c. false, I'd probably try to make it more interesting

25. I like it best when I have people around me.
   a. true
   b. ?
   c. false

26. I feel that:
   a. some jobs just don't have to be done as carefully as others;
   b. ?
   c. any job should be done thoroughly if you do it at all.

27. I usually like to do my planning alone, without interruptions and suggestions from others.
   a. true
   b. ?
   c. false

28. It's hard to be patient when people criticize me.
   a. true
   b. ?
   c. false

29. I can be quite comfortable even in a disorganized setting.
   a. true
   b. ?
   c. false

30. If my carefully made plans have to be changed because of other people:
   a. it annoys me;
   b. ?
   c. I'm happy to change plans.
31. I would rather be:  
   a. in a business office, organizing and seeing people;  
   b. ?  
   c. an architect, drawing plans in a quiet room.  
32. When one small thing after another goes wrong, I:  
   a. feel as though I can't cope;  
   b. ?  
   c. just go on as usual.  
33. I enjoy taking care of other people's needs.  
   a. true  
   b. ?  
   c. false  
34. I sometimes make foolish remarks in fun, just to surprise people.  
   a. true  
   b. ?  
   c. false  
35. When the time comes for something I have planned and looked forward to, I occasionally do not feel up to going.  
   a. true  
   b. ?  
   c. false  
36. In a situation where I’m in charge, I feel comfortable giving people directions.  
   a. true  
   b. ?  
   c. false  
37. I'd prefer to spend an evening:  
   a. working on a quiet hobby;  
   b. ?  
   c. at a lively party.  
38. People think of me as more:  
   a. cooperative;  
   b. ?  
   c. assertive.  
39. I greatly enjoy the racy and slapstick humor of some television shows.  
   a. true  
   b. ?  
   c. false  
40. I value respect for rules and good manners more than easy living.  
   a. true  
   b. ?  
   c. false  
41. I am shy and cautious about making friends with new people.  
   a. true  
   b. ?  
   c. false  
42. If I could, I would rather exercise by:  
   a. fencing or dancing;  
   b. ?  
   c. wrestling or baseball.  
43. It's always important to pay attention to other people's motives.  
   a. true  
   b. ?  
   c. false  
44. It would be more interesting to be a musician than a mechanic.  
   a. true  
   b. ?  
   c. false  
45. People form opinions about me too quickly.  
   a. hardly ever  
   b. ?  
   c. often  
46. I’m the type of person who:  
   a. is always doing practical things that need to be done;  
   b. ?  
   c. daydreams and thinks up things on my own.
47. Some people think I'm hard to get close to.
   a. true
   b. ?
   c. false

48. I may deceive people by being friendly when I really dislike them.
   a. true
   b. ?
   c. false

49. My thoughts tend to be about sensible, down-to-earth things.
   a. true
   b. ?
   c. false

50. I tend to be reserved and keep my problems to myself.
   a. true
   b. ?
   c. false

51. After I make up my mind about something, I still keep thinking about whether it's right or wrong.
   a. usually true
   b. ?
   c. usually false

52. I don't really like people who are "different" or unusual.
   a. true, I usually don't
   b. ?
   c. false, I usually find them interesting

53. I'm more interested in:
   a. seeking personal meaning in life;
   b. ?
   c. a secure job that pays well.

54. When people get angry at each other, it usually bothers me more than most people.
   a. true
   b. ?
   c. false

55. What this world needs is:
   a. more steady, solid citizens;
   b. ?
   c. more reformers with opinions about how to improve the world.

56. I prefer games where:
   a. you're on a team or have a partner;
   b. ?
   c. people are on their own.

57. I usually leave some things to chance rather than make complex plans about every detail.
   a. true
   b. ?
   c. false

58. I frequently have periods where it's hard to stop a mood of self-pity.
   a. true
   b. ?
   c. false

59. The best hours of the day are usually when I'm alone with my own thoughts and projects.
   a. true
   b. ?
   c. false

60. If people interrupt me while I'm trying to do something, it doesn't bother me.
   a. true, it doesn't
   b. ?
   c. false, it does

61. I always keep my belongings in tip-top shape.
   a. true
   b. ?
   c. false

62. Sometimes I get frustrated with people too quickly.
   a. true
   b. ?
   c. false
63. I'm not comfortable talking about or showing my feelings of affection or caring.
   a. true, I'm not
   b. ?
   c. false, I am

64. In my personal life I reach the goals I set, almost all of the time.
   a. true
   b. ?
   c. false

65. If the salary were the same, I'd rather be a scientist than a sales manager.
   a. true
   b. ?
   c. false

66. If people are doing something wrong, I usually tell them what I think.
   a. true
   b. ?
   c. false

67. I feel that my emotional needs are:
   a. not too satisfied;
   b. ?
   c. well satisfied.

68. I usually like being in the middle of a lot of excitement and activity.
   a. true
   b. ?
   c. false

69. People should insist more than they now do that moral standards be strictly followed.
   a. true
   b. ?
   c. false

70. I'd rather dress:
   a. neatly and quietly;
   b. ?
   c. in an eye-catching, stylish way.

71. I tend to get embarrassed if I suddenly become the center of attention in a social group.
   a. true
   b. ?
   c. false

72. I get annoyed when people insist that I follow every single minor safety rule.
   a. true, it's not always necessary
   b. ?
   c. false, it's important to do things right

73. Starting conversations with strangers:
   a. never gives me any trouble;
   b. ?
   c. is hard for me.

74. If I worked on a newspaper, I'd rather deal with:
   a. movie or book reviews;
   b. ?
   c. sports or politics.

75. I let little things upset me more than they should.
   a. sometimes
   b. ?
   c. rarely

76. It's wise to be on guard against smooth talkers because they might take advantage of you.
   a. true
   b. ?
   c. false

77. I'd rather stop in the street to watch an artist painting than a building being constructed.
   a. true
   b. ?
   c. false

78. People are lazy on a job if they can get away with it.
   a. hardly ever
   b. ?
   c. often
79. I get new ideas about all sorts of things, too many to put into practice.
   a. true
   b. ?
   c. false

80. In talking to someone new, I don’t give out any more information than is necessary.
   a. usually true
   b. ?
   c. usually false

81. I pay more attention to:
   a. the practical things around me;
   b. ?
   c. thoughts and imagination.

82. When people criticize me in front of others, I feel very downhearted and hurt.
   a. hardly ever
   b. ?
   c. often

83. I find people more interesting if their views are different from most people’s.
   a. true
   b. ?
   c. false

84. In dealing with people it’s better to:
   a. “put all your cards on the table”;  
   b. ?
   c. “play your hand close to your chest.”

85. Sometimes, I would like to get even, rather than forgive and forget.
   a. true
   b. ?
   c. false

86. I like people who:
   a. are stable and conventional in their interests;
   b. ?
   c. seriously think through their views about life.

87. I sometimes feel too responsible for things that happen around me.
   a. true
   b. ?
   c. false

88. Work that is familiar and routine makes me feel:
   a. bored and sleepy;
   b. ?
   c. secure and confident.

89. I get things done better working alone rather than working with a committee.
   a. true
   b. ?
   c. false

90. I don’t usually mind if my room is messy.
   a. true
   b. ?
   c. false

91. Even when someone is slow to understand what I’m explaining, it’s easy for me to be patient.
   a. true
   b. ?
   c. false, it’s hard to be patient

92. I like to join in with people who are doing something together such as going to a park or to a museum.
   a. true
   b. ?
   c. false

93. I’m somewhat of a perfectionist and like to have things done just right.
   a. true
   b. ?
   c. false

94. When I have to wait in a long line for something, I don’t get as restless and fidgety as most people.
   a. true, I don’t
   b. ?
   c. false, I get restless
95. People treat me less reasonably than my good intentions deserve.
   a. sometimes
   b. 
   c. never

96. I enjoy people who show their emotions openly.
   a. true
   b. 
   c. false

97. I don’t let myself get depressed over little things.
   a. true
   b. 
   c. false

98. In helping with a useful invention, I’d prefer:
   a. working on it in a laboratory;
   b. 
   c. showing people how to use it.

99. If being polite and pleasant doesn’t work, I can be tough and sharp if I need to.
   a. true
   b. 
   c. false

100. I like to go out to shows or entertainment often.
    a. true
    b. 
    c. false

101. I feel dissatisfied with myself.
    a. sometimes
    b. 
    c. rarely

102. If we were lost in a city and my friends didn’t agree with me on the best way to go, I’d:
    a. make no fuss and follow them;
    b. 
    c. let them know that I thought my way was best.

103. People think of me as a happy-go-lucky, carefree person.
    a. true
    b. 
    c. false

104. If a bank were careless and didn’t charge me for something, I’d feel:
    a. I had to point it out and pay;
    b. 
    c. it’s not my business to tell them.

105. I have always had to fight against being too shy.
    a. true
    b. 
    c. false

106. Teachers, ministers, and others spend too much time trying to stop us from doing what we want to do.
    a. true
    b. 
    c. false

107. When I’m in a group, I usually sit and listen and let others do most of the talking.
    a. true
    b. 
    c. false

108. I’d usually appreciate the beauty of a poem more than an expert football strategy.
    a. true
    b. 
    c. false

109. If people are frank and open, others try to get the better of them.
    a. hardly ever
    b. 
    c. often

110. I’m always interested in mechanical things and am pretty good at fixing them.
    a. true
    b. 
    c. false
111. Sometimes I get so lost in my thoughts that, unless I watch out, I misplace things, have small mishaps, or lose track of time.
   a. true
   b. ?
   c. false

112. It seems that more than half the people I meet can't really be trusted.
   a. true, they can't be trusted
   b. ?
   c. false, they can be trusted

113. I usually find that I know other people better than they know me.
   a. true
   b. ?
   c. false

114. People often say that my ideas are realistic and practical.
   a. true
   b. ?
   c. false

115. I make smart, sarcastic remarks to people if I think they deserve it.
   a. sometimes
   b. ?
   c. never

116. Sometimes I feel as if I've done something wrong, even though I really haven't.
   a. true
   b. ?
   c. false

117. I talk about my feelings:
   a. readily when people seem interested;
   b. ?
   c. only if I can't avoid it.

118. I like to think out ways in which our world could be changed to improve it.
   a. true
   b. ?
   c. false

119. I think about things that I should have said, but didn't.
   a. hardly ever
   b. ?
   c. often

120. In my newspaper, I'd rather read:
   a. articles on current social problems;
   b. ?
   c. all the local news.

121. I'd rather spend a free evening:
   a. reading or working alone on a project;
   b. ?
   c. working on a task with friends.

122. If there is a chore to do, I'm more likely to:
   a. put it off until it needs to be done;
   b. ?
   c. get started on it right away.

123. I prefer to eat lunch:
   a. with a group of people;
   b. ?
   c. by myself.

124. I am patient with people, even when they aren't polite and considerate of my feelings.
   a. true
   b. ?
   c. false

125. When I do something, I usually take time to think of everything I'll need for the job first.
   a. true
   b. ?
   c. false

126. I get frustrated when people take too long to explain something.
   a. true
   b. ?
   c. false
127. My friends would probably describe me as:
   a. warm and comforting;
   b. ?
   c. objective and formal.

128. I usually go to bed at night feeling satisfied with how my day went.
   a. true
   b. ?
   c. false

129. For a pleasant hobby, I'd prefer:
   a. building or making something;
   b. ?
   c. working with a community service group.

130. I believe in complaining if I receive bad service or poor food in a restaurant.
   a. true
   b. ?
   c. false

131. I have more ups and downs in mood than most people I know.
   a. usually true
   b. ?
   c. usually false

132. When others don’t see things my way, I can usually get them to come around.
   a. true
   b. ?
   c. false

133. I think that being free to do what I want is more important than good manners and respect for rules.
   a. true
   b. ?
   c. false

134. I love to make people laugh with witty stories.
   a. true
   b. ?
   c. false

135. I consider myself a very socially bold, outgoing person.
   a. true
   b. ?
   c. false

136. If a person is clever enough to get around the rules without seeming to break them, he or she should:
   a. do it if there is a special reason;
   b. ?
   c. not do it.

137. I'm usually the one who takes the first step in making new friends.
   a. true
   b. ?
   c. false

138. I prefer reading rough and realistic action stories more than sensitive, imaginative novels.
   a. true
   b. ?
   c. false

139. I suspect that people who seem friendly to me could be disloyal behind my back.
   a. hardly ever
   b. ?
   c. often

140. In school I preferred (or prefer) math more than English.
   a. true
   b. ?
   c. false

141. Many people are too fussy and sensitive and should toughen up for their own good.
   a. true
   b. ?
   c. false

142. I get so interested in thinking about ideas that I sometimes overlook practical details.
   a. true
   b. ?
   c. false
143. If someone asks me a question that is too personal, I carefully try to avoid answering.
   a. usually true
   b. ?
   c. usually false

144. When asked to do volunteer work, I say I’m too busy.
   a. sometimes
   b. ?
   c. rarely

145. Sometimes I don’t fit in very well because my ideas are not conventional or ordinary.
   a. true
   b. ?
   c. false

146. I consider myself less of a worrier than most people.
   a. true
   b. ?
   c. false

147. More trouble arises from people:
   a. questioning and changing methods that are already satisfactory;
   b. ?
   c. turning down promising, new approaches.

148. I’m very careful when it comes to choosing someone to really “open up” with.
   a. true
   b. ?
   c. false

149. When I find I differ with someone on social views, I prefer to:
   a. discuss what our basic differences mean;
   b. ?
   c. discuss something else.

150. People say I tend to be too self-critical.
   a. true
   b. ?
   c. false

151. I most enjoy a meal if it consists of familiar, everyday foods rather than new, unusual foods.
   a. true
   b. ?
   c. false

152. I can easily go a whole morning without wanting to speak to anyone.
   a. true
   b. ?
   c. false

153. I take advantage of people.
   a. sometimes
   b. ?
   c. never

154. I like to plan ahead so that I don’t waste time between tasks.
   a. rarely
   b. ?
   c. often

155. When I’m feeling tense, even small things get on my nerves.
   a. true
   b. ?
   c. false

156. In building or making something, I would rather work:
   a. with others;
   b. ?
   c. on my own.

157. In carrying out a task, I’m never satisfied unless I give careful attention even to small details.
   a. true
   b. ?
   c. false

158. I’ve trained myself to be patient with all kinds of people.
   a. true
   b. ?
   c. false
159. I enjoy more listening to people talk about their personal feelings than about other things.
   a. true
   b. ?
   c. false

160. There are times when I don’t feel in the right mood to see anyone.
   a. very rarely
   b. ?
   c. quite often

161. In a business it would be more interesting to be in charge of:
   a. machinery or keeping records;
   b. ?
   c. talking to and hiring new people.

162. In my everyday life, I hardly ever meet problems that I can’t cope with.
   a. true, I can cope easily
   b. ?
   c. false

163. If I notice that another person’s line of reasoning is wrong, I usually:
   a. point it out;
   b. ?
   c. let it pass.

164. I greatly enjoy inviting guests over and amusing them.
   a. true
   b. ?
   c. false

165. I enjoy having some competition in the things I do.
   a. true
   b. ?
   c. false

166. Most rules are made to be broken when there are good reasons for it.
   a. true
   b. ?
   c. false

167. I find it hard to speak in front of a large group.
   a. true, I usually find it very hard
   b. ?
   c. false, it doesn’t bother me

168. In making a decision, I always think carefully about what’s right and proper.
   a. true
   b. ?
   c. false

169. In social groups I tend to feel shy and unsure of myself.
   a. true
   b. ?
   c. false

170. On television, I’d rather watch:
   a. a program on practical new inventions;
   b. ?
   c. a famous concert artist.

The following questions were designed as problem-solving tasks. Each has ONE and ONLY ONE correct answer. If you are not sure of the answer to a problem, choose your best estimate.

EXAMPLE

ExZ. Adult is to child as cat is to:
   a. kitten
   b. dog
   c. baby

You will notice that “a. kitten” is the most logical answer. You should then darken the “a” bubble on your answer sheet.
Problem solving questions

171. Minute is to hour as second is to:
   a. minute
   b. millisecond
   c. hour

172. Tadpole is to frog as larva is to:
   a. spider
   b. worm
   c. insect

173. Pork is to pig as veal is to:
   a. calf
   b. chicken
   c. lamb

174. Ice is to water as rock is to:
   a. lava
   b. sand
   c. oil

175. Better is to worst as slower is to:
   a. fast
   b. slowest
   c. quickest

176. Which of the following words does not belong with the others?
   a. terminal
   b. seasonal
   c. cyclical

177. Which word does not belong with the other two?
   a. cat
   b. near
   c. sun

178. The opposite of "right" is the opposite of:
   a. left
   b. wrong
   c. correct

179. Which of the following words does not belong with the others?
   a. likely
   b. probably
   c. possibly

180. The opposite of the opposite of "inexact" is:
   a. casual
   b. accurate
   c. rough

181. Which number should come next at the end of this series: 1, 4, 9, 16?
   a. 20
   b. 25
   c. 32

182. Which should come next at the end of this row of letters: A B D G?
   a. H
   b. K
   c. J

183. Which should come next at the end of this row of letters: E I L?
   a. M
   b. N
   c. P

184. Which number should come next at the end of this series: $\frac{1}{2}, \frac{1}{6}, \frac{1}{3}, \frac{1}{8}$?
   a. $\frac{1}{4}$
   b. $\frac{1}{3}$
   c. $\frac{1}{2}$

185. Which should come next at the end of this series of numbers: 1, 2, 0, 3, -1?
   a. 5
   b. 4
   c. -3
### 16PF Fifth Edition Answer Sheet

To complete: Use a #2 pencil; don't use ink, markers, or ballpoints. Please keep the circles filled in until the end and do not mark outside the circles or in the box marked "For Administrator". Improper marks will be invalidated.

**Proper Mark:** Fill in the circle completely.

**Improper Mark:** Do not fill in the circle completely. Partially filled circles may be interpreted differently from properly marked ones.

**For Administrator**

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**For Combined Sex**

Sex-specific norms will be used if not coded.

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**Example Answer Sheet**

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**Answer Sheet Instructions**

- Make dark marks that fill the circle.
- Improper marks will be invalidated.

---

**For Administrator**

- Place the answer sheets in a plastic pouch or plastic bag.
- Place the answer sheets in the envelope provided.
- Place the completed answer sheets in the envelope provided.

---

**For Combined Sex**

Sex-specific norms will be used if not coded.
### PRIMARY FACTORS

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<td>U</td>
<td>U</td>
<td>U</td>
</tr>
<tr>
<td>L: Vigilance</td>
<td>Trusting, Unsuspecting, Accepting</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>M: Abstemiousness</td>
<td>Grounded, Pragmatic, Solution-Oriented</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>O: Apprehension</td>
<td>Self-Assured, Unworried, Compliant</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Q1: Openness to Change</td>
<td>Traditional, Attached to Familiar</td>
<td>T</td>
<td>T</td>
<td>T</td>
</tr>
<tr>
<td>Q2: Self-Reliance</td>
<td>Group-Oriented, Affiliative</td>
<td>G</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>Q4: Tension</td>
<td>Relaxed, Placid, Patient</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
</tbody>
</table>

### GLOBAL FACTORS

| EX: Extraversion | Introverted, Socially Inhibited | E | E | E | E | E | E | E | E | E | Extraverted, Socially Participating |
| AX: Anxieties | Low Anxiety, Uncertainties | L | L | L | L | L | L | L | L | L | Low Anxiety, Perturbable |
| Th: Tough-mindedness | Receptive, Open-Minded, Intuitive | R | R | R | R | R | R | R | R | R | Tough-Minded, Reasonable, Unemotional |
| It: Independence | Accommodating, Agreeable, Selfless | A | A | A | A | A | A | A | A | A | Independent, Persuasive, Willful |
| SC: Self-Control | Unrestrained, Follows Urges | U | U | U | U | U | U | U | U | U | Self-Controlled, Inhibits Urges |

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**APPENDIX C - SAMPLE PROFILE SHEET**

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### Instructions:

1. In the far left column, place the raw score for each factor in the appropriate box.
2. Starting with Factor A, follow the starred line to the right, and each time a number in a black box is reached, multiply the row x Factor A sum square by that number. (Note: the number right a previous dot.)
3. Enter the products in the empty box adjacent to the number in the black box. This empty box has the decimal point correctly placed for you.
4. Repeat the process for each factor.
5. When all boxes are completed, add each vertical column separately. For some columns, there is a given constant that should be included in the sum. Check that the sum of the shaded columns is in the lower row.
6. After all columns are totaled, subtract the sum of each shaded column from the sum of the unshaded column. Write the answer in the correct box. The resulting score is the raw score of the global factor indicated. Round this answer to the nearest whole number, and put the score on the intake chart or form.

### GLOBAL FACTORS

<table>
<thead>
<tr>
<th>Column</th>
<th>Raw Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>D</td>
<td>4</td>
</tr>
<tr>
<td>E</td>
<td>5</td>
</tr>
<tr>
<td>F</td>
<td>6</td>
</tr>
<tr>
<td>G</td>
<td>7</td>
</tr>
<tr>
<td>H</td>
<td>8</td>
</tr>
<tr>
<td>I</td>
<td>9</td>
</tr>
<tr>
<td>J</td>
<td>10</td>
</tr>
<tr>
<td>K</td>
<td>11</td>
</tr>
<tr>
<td>L</td>
<td>12</td>
</tr>
<tr>
<td>M</td>
<td>13</td>
</tr>
<tr>
<td>N</td>
<td>14</td>
</tr>
<tr>
<td>O</td>
<td>15</td>
</tr>
<tr>
<td>P</td>
<td>16</td>
</tr>
<tr>
<td>Q</td>
<td>17</td>
</tr>
<tr>
<td>R</td>
<td>18</td>
</tr>
<tr>
<td>S</td>
<td>19</td>
</tr>
<tr>
<td>T</td>
<td>20</td>
</tr>
</tbody>
</table>

### Constants

- Extraversion: 4.4
- Anxiety: 1.6
- Tough-Mindedness: 13.8
- Independence: 2.2
- Self-Control: 3.8

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APPENDIX D

Directions: Circle the Life Changes Units for those events which are now or have impacted your life within the past three years.

STRESS UNITS ASSOCIATES WITH SOME COMMON LIFE CHANGES EXPERIENCED BY STUDENTS

<table>
<thead>
<tr>
<th>Event</th>
<th>Life Change Units</th>
<th>Event</th>
<th>Life Change Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death of close family member</td>
<td>100</td>
<td>Serious argument with instructor</td>
<td>30</td>
</tr>
<tr>
<td>Death of a close friend</td>
<td>73</td>
<td>Lower grades than expected</td>
<td>29</td>
</tr>
<tr>
<td>Divorce between parents</td>
<td>65</td>
<td>Change in sleeping habits</td>
<td>29</td>
</tr>
<tr>
<td>Jail term</td>
<td>63</td>
<td>Change in social activities</td>
<td>28</td>
</tr>
<tr>
<td>Major personal injury or illness</td>
<td>63</td>
<td>Change in eating habits</td>
<td>28</td>
</tr>
<tr>
<td>Marriage</td>
<td>58</td>
<td>Chronic car trouble</td>
<td>26</td>
</tr>
<tr>
<td>Fired from job</td>
<td>50</td>
<td>Change in number of family get-togethers</td>
<td>25</td>
</tr>
<tr>
<td>Failed important course</td>
<td>47</td>
<td>Too many missed classes</td>
<td>25</td>
</tr>
<tr>
<td>Change in health of family member</td>
<td>45</td>
<td>Change of college/ change of work</td>
<td>24</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>45</td>
<td>Dropped more than one class</td>
<td>23</td>
</tr>
<tr>
<td>Sex problems</td>
<td>44</td>
<td>Minor traffic violations</td>
<td>20</td>
</tr>
<tr>
<td>Serious argument with close friend</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in financial status</td>
<td>39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trouble with parents</td>
<td>39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change of major</td>
<td>39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New girlfriend or boyfriend</td>
<td>36</td>
<td>Please complete the following questions:</td>
<td></td>
</tr>
<tr>
<td>Increased workload at school</td>
<td>37</td>
<td>I am a: Male _____</td>
<td></td>
</tr>
<tr>
<td>Outstanding personal achievement</td>
<td>36</td>
<td>Female _____</td>
<td></td>
</tr>
<tr>
<td>First quarter/semester in college/university</td>
<td>35</td>
<td>I am: _____ years old.</td>
<td></td>
</tr>
<tr>
<td>Change in living conditions</td>
<td>31</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>