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Family environment and the development of hardiness

Jette Lyng Warka

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FAMILY ENVIRONMENT
AND THE DEVELOPMENT OF HARDINESS

A Thesis
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in
Psychology

by
Jette Lyng Warka
June 1996
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ABSTRACT

The study examined the relationship between family environment and the personality characteristic called hardiness. Elements of family environment were used as predictors of adult hardiness. Relationship dimensions, personal growth dimensions, and system maintenance dimensions of family environment were examined. Additionally, the role of hardiness in the stress-illness relationship was examined. Data was collected from self-report questionnaires from 428 college students. A model of these relationships was proposed for analysis by structural equation analysis (EQS). Results revealed that the proposed model did not fit the data, but individual components of the model were significant suggesting that family environment is an important variable in adult perception of stress and symptoms of illness. The results are discussed in terms of the theoretical and methodological limitations of the study.
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INTRODUCTION

Definition of the Hardiness Personality Construct

We all experience stress in our lives. Some of us experience more stress than others and some people perceive their lives as being more stressful than others. Some people seem to be able to manage a large amount of stress in their lives without suffering adverse effects from the stress, while other people experience illness and other adverse effects from stress as soon as they encounter any kind of stress in their lives. These individual differences have been explained in many different ways in the stress and coping literature during the last 30 years.

One of the factors that has been investigated extensively is how an individual's personality mediates or moderates the stress-illness relationship. The individual's personality can either directly or indirectly influence development and progress of certain illnesses. An individual's personality may help explain and predict certain illness, and even identify individuals "at risk" for certain diseases (Suls & Rittenhouse, 1987).

The concept of the hardy personality style, or hardiness as it is called throughout most of the literature, was proposed by Kobasa (1979a) as a personality construct that can influence the way individuals perceive stressful situations, and how they handle the stress they encounter,
that is, hardiness can contribute to and influence the outcome of a stressful situation for the individual person. Using a framework from existential personality theory, Kobasa (1979a, 1979b) defined hardiness as consisting of three components: commitment, control, and challenge. Commitment has been defined as a person's ability to get involved in his or her experiences and believe in their importance and meaningfulness as opposed to being in a state of alienation. Control has been defined as an individual's belief that he or she can control and influence his or her experiences as opposed to being in a state of powerlessness. Challenge has been defined as a person's expectation that changes in life are challenges and opportunities for further development rather than threats. In life, the challenges are viewed as positive occasions to experience, learn, and grow. These three interrelated variables form the construct of hardiness, that is, the personality style that is presumed to influence the relationship between stress and illness (Kobasa, 1979a, 1979b).

Kobasa used an existential framework as the basis for her hardiness construct, but throughout personality literature researchers and theorists have addressed hardiness in various ways. Hardiness has often been thought of as the opposite pole to vulnerability on the continuum of personality traits that influence the relationship between
stress and illness. Hardiness serves as a buffer in times of stress and personality hardiness leads to better coping strategies (Buss, 1995).

The idea that personality may have a positive influence on health is not new in psychology. The popularity of the humanistic perspective during the 1960's and 1970's set the stage for the further exploration of positive aspects of human nature. Maslow (1970, 1982) has written extensively about how individuals who are open to experience, who believe in themselves, and who are willing to grow in their life choices are on their way to self-actualization, which he described as the ultimate psychological health.

In accordance with existential personality theory the person displaying hardiness would represent the basic personality of the authentic person, that is, he or she would attempt to be a person realizing his/her potential, be an active participant in life, feel in control of his or her personal fate, and experience life through a willingness to change. The person who does not display hardiness would represent the basic personality of the inauthentic person, that is, he or she would feel like other people or things are running his or her life, this person would feel uncomfortable with change from being uncertain about himself/herself in this world, and he/she would often wander around without direction resulting in meaningless

**Measurement of the Hardiness Construct**

Throughout the early literature and specifically in Kobasa, Maddi and Courington (1981), the hardiness construct was measured on a composite scale made up of six different subscales. Commitment was measured in two parts by the alienation from self and alienation from work subscales of the Alienation Test (Maddi, Hoover, & Kobasa, 1979) with such items as "The attempt to know yourself is a waste of effort," "I long for a simple life in which body needs are the most important things and decisions don't have to be made," and "Life is empty and has no meaning for me." Challenge was measured by the security scale from the California Life Goals Evaluation Schedule (Hahn, 1966) and by the cognitive structure scale of the Personality Research Form (Jackson, 1974) with such items as "To achieve freedom from want is a large enough goal for anyone," "My work is carefully planned and organized before it is begun," and "I won't answer a personal question until I am very clear as to what he is asking." Control was measured by the External Locus of Control Scale (Rotter, Seeman, & Liverant, 1962) and by the powerlessness scale of the Alienation Test (Maddi Kobasa, & Hoover, 1979) with such items as "Capable people who fail to become leaders have not taken advantage of their
opportunities," "Most of my activities are determined by what society demands," and "Peoples' misfortunes result from the mistakes they make." All of the items on all six subscales were measured negatively making high scores on the scales equivalent to low hardiness and making low scores on the scales equivalent to high hardiness. The cognitive structure scale of the Personality Research Form (Jackson, 1974) was eliminated as a measure of the challenge component of hardiness after it was discovered that it did not share common variance with the other scales and therefore did not contribute anything to the hardiness construct (Kobasa, Maddi, & Kahn, 1982). The composite scale made up from the five remaining subscales consisting of 71 items was for several years the preferred measurement tool used in hardiness research. However, in the last 10 years several measurement problems were discovered when several researchers failed to replicate the factors of the original hardiness construct (Hull, Van Treuren, & Virnelli, 1987; Funk & Houston, 1987). Therefore, several shorter versions of the hardiness scales were developed in order to take into account various criticisms of the earlier scales. There is now a 20-item scale, a 30-item scale, a 36-item scale, a 45-item, and a 50-item scale being used in the research of hardiness making comparisons of the numerous research findings, published during the last decade, somewhat
difficult.

Hardiness has traditionally been measured on a composite scale as one construct with the three interrelated components of commitment, control, and challenge. The challenge component has been a problem in several studies, and several researchers have even proposed that challenge does not belong in the hardiness construct, based on their failure to replicate the original factor analysis that laid the basis for the hardiness construct. Funk and Houston (1987) were only able to identify two factors from the original hardiness scales, namely commitment and control, and they therefore recommended that these two remaining factors be measured as two separate factors. The newer scales, especially the 50-item Personal Views Survey, (Maddi, 1987) and the 45-item Dispositional Resilience Scale, (Bartone, Ursano, Wright, & Ingraham, 1989) allow researchers to assess the reliability of each single factor and of the composite hardiness construct at the same time. These scales have been recommended as the scales to use in future research in order to make comparisons of research findings possible and more reliable (Orr & Westman, 1990, Ouellette, 1993). However, as one of the original developers of the hardiness construct, Maddi (1987) warns researchers against separating the hardiness construct.
before it is fully understood how this complex construct is working (Maddi, Bartone, & Puccetti, 1987).

Another criticism that has been partially corrected in the development of the newer scales is the problem of measuring hardiness as the absence of other factors. The original scales measured all components negatively making a low score indicative of high hardiness, and a high score indicative of low hardiness. In the development of the newer scales researchers have tried to balance the items with positive as well as negative items and making high scores on the hardiness scales equivalent to high hardiness, that is, these new instruments are now making the direct measurement of the hardiness construct possible.

In summary, much effort has been put into measurement controversies during the last 10 years. The importance of researchers trying to pinpoint the exact variables underlying the hardiness construct cannot be underestimated. These efforts have to be undertaken and must continue to assure the further development and increased validity of this very important personality variable affecting the stress-illness relationship.

Review of Hardiness Research

Hardiness, as a mediator between stress and illness, was first examined in a group of male, high level executives working for a large public utility company. Employees
experiencing high levels of stress who reported high levels of illness were identified and compared to employees who were experiencing high levels of stress, but reported low levels of illness. Both groups of employees were administered questionnaires to measure hardiness, and it was hypothesized that the high stress/low illness group would score higher on hardiness, that is, lower scores on the hardiness scale than the high stress/high illness group. The results of this study confirmed the hypothesis that hardy persons were experiencing less illness in their lives even when their stress level was high (Kobasa, 1979a).

The first studies of hardiness used retrospective designs to measure the illness component, that is, subjects were asked to think back for a certain period of time and report any illness during that time period. This method of self-reporting symptoms and illness could present a potential confound in these studies. Maybe individuals high in hardiness experienced as much illness as individuals low in hardiness but did not report it, or maybe it meant so little to them that they forgot it when reporting illness? It is possible that individuals low in hardiness reported more illness than the other group because even the smallest discomfort was considered important, and perhaps the personality displayed by people low in hardiness was itself a result of an illness. These potential confounds were
addressed early on in follow-up studies in several ways in order to narrow down the exact mediating effect of hardiness in the stress-illness relationship.

In another study by Kobasa, Maddi, and Courington (1981), the mediating role of constitutional predisposition to illness was examined along with hardiness. Studies involving variables of constitutional disposition usually look at family history of diseases and genetic predispositions to certain diseases, and in this study these factors were taken into account when examining hardiness as a mediator in the stress-illness relationship. The results showed that in times of stress, individuals who experienced a constitutional predisposition to illness showed higher illness scores than individuals who did not experience a constitutional predisposition to illness. That is, even when the predisposition was controlled for through analysis of covariance, hardiness was still a mediator in the stress-illness relationship (Kobasa, Maddi, & Courington, 1981).

In another attempt to further control for potential confounds in self-reports of illness, researchers used a prospective design. A longitudinal design assessed stress level, reported illness, and hardiness several times over a period of five years (Kobasa, Maddi, & Kahn, 1982). With this design the researchers could confirm or disconfirm the previous findings and identify any potential confounds from
the retrospective design. As in the earlier studies the subjects were high level executives working for a public utility company, and the hypothesis was again that individuals high in hardiness would have less illness than individuals low in hardiness, even when all subjects were experiencing high levels of stress. Hardiness was found to mediate in the stress-illness relationship and it was found that hardiness was an especially important personality characteristic in times of extreme stress (Kobasa, Maddi, & Kahn, 1982).

Hardiness has been examined along with other variables that have been proposed to mediate in the stress-illness relationship. In a study by Kobasa, Maddi, and Puccetti (1982) hardiness and exercise were examined in a sample of male business executives as buffers for stress. It was hypothesized that both factors would mediate to decrease illness in times of stress, but the question was whether hardiness and exercise were affecting illness in the same way or if the two variables were affecting the stress-illness relationship through different paths. The results of this study showed that hardiness and exercise were indeed affecting stress-illness relationship through different paths. The individuals who were high in hardiness and used exercise to relieve stress were the healthier compared to individuals low in hardiness who also exercised. These
findings showed evidence for an additive effect of the two variables (Kobasa, Maddi, & Puccetti, 1982).

Another personality type that has been investigated in depth during the last 20 years is the Type A personality. Type A personality is characterized by impatience, competitiveness, and feelings of time pressure. Type A personality has been linked to several stress related diseases like coronary heart disease and high blood pressure (Cooper, Detre, & Weiss, 1981). The relationship between hardiness and Type A personality was examined in a study by Kobasa, Maddi, and Zola (1983). They found that hardiness and Type A personality are two different factors, that is, they showed a correlation of -0.01 indicating that they are independent constructs. The difference between these two constructs was proposed to be in intrinsic versus extrinsic motivation. Hardiness is the intrinsic motivation mediating in the stress-illness relationship in a positive direction (less illness) because of the individual's feelings of commitment, control, and challenge in stressful events happening in his/her life. Type A personality is shaped by the extrinsic motivation mediating in the stress-illness relationship in a negative direction (more illness) because of the individual's feelings of dissatisfaction in life, lack of control of events, and concern with reaching extrinsic goals in life, such as wealth, promotions, and
prestige. The persons suffering most from illness under high stress conditions were the persons who were high in Type A personality style and low in hardiness (Kobasa, Maddi, & Zola, 1983).

Perceived social support as a moderator of effects of stressful events has also been investigated. It has been shown that social support can buffer stress just like hardiness, but would there be any effects or additive buffering for people high in hardiness and who are willing and able to utilize social support? Kobasa and Puccetti (1983) hypothesized that individuals high in hardiness, who have resources for social support, will be healthier under stress than individuals without these characteristics. They also hypothesized that hardiness would be the most important of the two variables. People high in hardiness and low in social support would be healthier than people high in social support and low in hardiness. The results again showed hardiness as a mediator in the stress-illness relationship, and further hardiness also had an indirect influence on illness through social support, that is, most individuals high in hardiness would utilize the social support system to their advantage both at work and at home (Kobasa & Puccetti, 1983).

In addition to hardiness as a mediator between stress and illness, it has also been shown that health practices
such as proper diet, sleeping enough, avoiding substance abuse, and exercising during the times of stress may make people more healthy. To compare the individual effects of the two factors on the stress-illness relationship and to explore an interaction between the two, hardiness and health practices have been investigated jointly as mediators in the stress-illness relationship. Based on previous hardiness literature, Wiebe and McCallum (1986) predicted that hardiness directly would affect stress to lower illness, and that hardiness would interact with health practices in stressful situations by changing health practices under stressful conditions. The results demonstrated that hardiness did in fact directly affect stress to reduce illness, even though the correlation was smaller than previous studies had found. However, hardiness was found to affect health indirectly through health practices. Individuals high in hardiness maintain better health behaviors even in very stressful conditions (Wiebe & McCallum, 1986). These results as well as the results from the other three above-mentioned studies were all correlational studies with small to medium sample sizes. It is imperative that these studies be cross validated with bigger samples from other populations in longitudinal or prospective designs before hardiness can be said to have a causal influence on illness in individuals experiencing high
stress.

How exactly does hardiness mediate the stress-illness relationship to lower illness in stressful situations for people high in hardiness? Williams, Wiebe, and Smith (1992) examined how coping processes affected the relationship between hardiness and health in a sample of undergraduate college students. Individuals high in hardiness were hypothesized to use adaptive coping strategies and problem-focused coping and to use the hardiness components, specifically control and commitment, to perceive stressful events as more positive experiences than individuals low in hardiness, who were hypothesized to use maladaptive coping strategies such as avoidance and denial (Williams, Wiebe, & Smith, 1992). To examine the role that different coping strategies play in the hardiness/health relationship, multiple regression analyses were performed, and it was found that hardiness was positively correlated with problem-focused coping and active coping strategies and that individuals high in hardiness were in fact using more adaptive coping strategies in stressful situations than individuals low in hardiness who were found to use more maladaptive coping strategies (Williams, Wiebe, & Smith, 1992).

In recent years hardiness has been investigated in several different studies of very specific populations in
very specific situations. Bartone, Ursano, Wright, & Ingraham (1989) investigated how Air Force Personnel assigned to support family members of victims from a military air disaster differed in response to the stressful situations they encountered during the period they were assigned to assist the families. The individuals high in hardiness generally remained healthy and perceived the events as less stressful than individuals low in hardiness. This study further confirmed the interaction of hardiness and social support, resulting in individuals high in both hardiness and social support experiencing the smallest amount of stress and low levels of illness (Bartone, Ursano, Wright, & Ingraham, 1989).

Finally, Florian, Mikulincer, & Taubman (1995) investigated the influence of hardiness in another real-life stressful situation, namely the 4-month military combat training period for Israeli soldiers. Soldiers filled out questionnaires at the beginning of their training and toward the end of their training. This study was carefully designed to overcome the measurement problems in previous hardiness research by using a newer hardiness scale and by examining the individual components of the hardiness construct as well as total hardiness scores. The results were broken down to the individual components of hardiness. The control and commitment parts of the hardiness construct
were found to account for less psychological distress and better psychological well-being in the soldiers, but the challenge component did not account for any difference.

In conclusion, despite measurement controversies numerous articles have been published and significant findings have been reported during the last 10 years supporting hardiness as one of the factors in the relationship between personality and health. Hardiness is a construct that has to be taken into consideration in research investigating the relationship between personality and health. Hardiness has been shown to affect the stress-illness relationship in many different situations with different populations both in the workplace and in other stressful situations. Hardiness is clearly a personality characteristic that will benefit an individual in stressful situations throughout life.

Two questions that are still unanswered by researchers are how individuals develop hardiness, and whether there are certain common experiences during childhood that can be attributed to the development of hardiness. One way to address these questions would be to examine the childhood family environment of individuals high in hardiness versus that of individuals low in hardiness. From studies of developmental protective factors Masten and Garmezy (1985) identify the family as one of the three important factors in
personality development, with the others being the personality dispositions of the child and the extended support figures available to the child.

Family Environment and the Development of Hardiness

The family that one grows up in, that is, the family environment, the attitudes we experience, the values that one learns, and the interactions among family members are very influential in the development of our personality and in our adjustment in general. What are the factors that determine personality development and especially what factors influence the development of hardiness? These relationships are complex and many factors are involved. Most factors have been examined in one way or another, but the exact relationships have yet to be found.

Several of the pioneering researchers exploring resiliency and protective factors in developmental psychology emphasize that family environment is a major contributor to development of resiliency as well as to development of psychopathology. Within the family, the perception of cohesion, that is, a supportive, warm family environment with little family discord has been identified as a contributor to development of resilience (Rutter, 1993). In a review of research on protective factors in developmental psychology, Garmezy (1985) concluded that competent, loving, compatible, and patient parents are more
likely to have resilient children. These children feel that they can predict and control their environment, and in that way they develop skills to become even more resilient, and less vulnerable to stress, that is, such children are likely high in hardiness.

From Erik Erikson's (1963) theoretical developmental framework, we know that the beginning of personality development starts early in life with the interaction between parents and child. Erikson emphasized the importance of family and child interactions be positive, stable, and predictable in order for the child to develop a sense of trust with his or her environment. In a supportive family environment the child develops a sense of control, that is, the child will develop a sense of self, realizing that he or she can control certain things in his or her life. Later in childhood the child faces a crisis where he or she has to develop a sense of initiative. The experiences that the child has in his/her family are very important to the way this sense of mastery and initiative is developed. If the child is encouraged to experience and fulfill his/her drive for curiosity he/she will develop the sense of initiative and meaningfulness in his/her experiences. On the other hand if the child is not positively reinforced or even punished for being active and exploring his/her environment he/she will develop a sense of
guilt. When the child approaches school age he/she will venture outside the family and interact increasingly more with peers and teachers, but the family still functions as the major influence for development of industry which takes place during the school years. The child needs encouragement, support, and instruction in how to use his/her energy to develop a sense of industry. If the child is not able to develop this sense of industry he/she will feel inferior, and he/she will and take this sense of inferiority with him/her to adolescence and adulthood making the development of hardiness difficult. These are the key ideas for the first stages of Erikson's theory, and these ideas have to be taken in to account when examining family environment and the foundations for development of hardiness.

The family structure has been the subject of numerous studies in the last 20 years. An interesting aspect for personality development is whether children who grow up in a family with both parents, in a family with only one parent, or in a type of extended family show different personality traits. In other words, can family structure influence the development of a positive personality characteristic like hardiness? The early findings suggest that a less cohesive family structure is associated with development of negative personality traits like aggression and hostility, that is,
children have more problems adjusting coming from divorced families and families where the parents have remarried (Fowler, 1980). Later research confirms that children from divorced families have more problems in certain areas, but an overall negative personality development cannot be assumed because of family structure. However, an overall positive personality development cannot be assumed simply because of family structure (Du Toit, Nel, & Steel, 1992).

What is more important than the family structure is the way children perceive their family environment. If children perceive their family as happy or with fewer conflicts, that is more important for development of a positive personality than if they live in an intact or a divorced family. Parish and Parish (1983) found that children differed more in strengths and weaknesses and in self-concept when they were compared to the concept of their family than when they were compared to their family structure suggesting that the quality of the family environment has a significant impact in the development of personality.

Perceived conflict in the family, either between the parents or among all family members, does also influence a positive personality development. Any kind of conflict in the family will always have a negative impact on the children especially if it continues over a long period of time and if no attempts are made to solve the conflicts.
Markland and Nelson (1993) have shown that the important factors in identity development are the child's perception of the conflict and the availability of the parents to guide and support the child through the conflicts.

Conflicts will arise many times during an individual's lifetime. A moderate amount of family conflict during childhood, although sometimes very stressful, can be influential for personality development. Children will benefit from a family environment where the parents model conflict resolution skills and guide the children through solving their own conflicts. Such children will develop to see conflicts as challenges and they will not display fear and inability to solve conflicts in the future. As Pardeck and Pardeck (1988) discuss in their research, conflicts are important for the development of autonomy in adolescents, and conflicts will arise in the family when teenagers are pushing for autonomy. Conversely when children perceive their families as low in cohesion, that is, little support and commitment from family members to each other, and when children perceive their families as high in conflict, these conflicts can be damaging to the personality development.

Research on different parenting styles indicate that certain patterns of parent and child interactions will strengthen the personality development in most children in a positive direction. A family environment where the
parenting style is authoritative (Baumrind, 1973), that is, a family environment where children have clearly defined boundaries, where parents explain their decisions to the children, where parents encourage children to master new accomplishments, where warmth and support are given frequently, and where all members of the family are encouraged to express their ideas and feelings, will create an environment where children will have a better chance of developing the characteristics of hardiness. The authoritative parenting style emphasizes the child and his or her potential for development and it is therefore ideal for development of hardiness. This parenting style supports development of control through allowing children to experience and master new skills, the development of commitment through parental support across all events throughout childhood, and the development of challenge through allowing children to experience richness in their lives.

In a family environment where parents use the authoritarian parenting style children will have less of a chance of developing the personality characteristics associated with hardiness. These parents are rigid, cold, and strict without explaining their behavior and rules to the children. In such a family environment children will probably not experience support from their parents and will
probably not experience the feelings of mastery that are important for the development of commitment. Additionally, such children will likely feel powerless over their lives since they have few experiences with making choices and decisions. The lack of such experiences will likely lead to individuals with external locus of control. The same is true for an environment where parents use the permissive parenting style characterized by few boundaries and rules, little communication with the children about what is and is not appropriate to do in certain situations, and few expectations for the children.

A key part of the hardness construct involves locus of control. Higher hardness is associated with internal locus of control in that the individual believes that he or she can control and influence situations and events in his or her environment. The development of an individual's locus of control is clearly associated with family experiences throughout childhood, that is, locus of control is primarily learned through social experiences (Rotter, Seeman, & Liverant, 1962). Further research supports this view. De Man, Hall, and Stout (1990) concluded from exploring adults' perceptions of their family environment that internal locus of control was associated with perceptions of family environments as warm, supporting, and democratic, that is, a family environment that would promote the development of
hardiness. External locus of control was associated with perceptions of family environments being authoritarian and overprotective, that is, the exact opposite of an environment expected to be optimal for development of hardiness.

In conclusion, several aspects of family environment are important for the development of hardiness. Relationships among the members of the family or how an individual perceives the cohesion in the family are important because a high level of support and commitment among the different family members, and especially between parents and children, can contribute to development of hardiness, whereas high levels of conflict among members of the family can hamper development of hardiness. Children who experience support and encouragement will see their world as interesting, worthwhile, and meaningful, that is, these interactions within their family will set the stage for the development of hardiness (Maddi & Kobasa, 1991).

Support from family members in addition to encouragement when learning different tasks are important for the feeling of mastery. Being encouraged to be autonomous and self-sufficient will promote independence, and a family environment that supports this notion will promote development of the internal locus of control, which can inhibit development of powerlessness.
The sense of mastering one's environment is the basis for the development of control. When an individual has a feeling of control he or she feels that it is possible to influence and control experiences in life leading to less frustration and use of more appropriate coping strategies in times of stress.

Lastly, the individual's perception of family organization along with the perception of changes within the family are important for the development of challenge. A person high in hardiness perceives change as a way of enriching experiences and a family environment with change experienced that way will promote development of hardiness, that is, participation in political, intellectual, cultural, and recreational activities will enrich the experiences of the individual as long as all the activity is not perceived as chaos.

Purpose of the Study

Assuming that an individual's personality is determined by environmental factors as well as genetic factors it is important to determine what environmental factors facilitate development of favorable personality characteristics. Specifically, this study investigates the development of hardiness. Since the family is the most important environment for most children it can be beneficial for researchers and for society to acquire more knowledge about
the family processes and interactions that can be influential in the development of a favorable personality characteristic like hardiness.

The benefit of hardiness is for the individual that he or she will likely experience less illness and perceive his or her life as less stressful, but the benefit for society could be equally great with fewer individuals feeling stressed and displaying fewer illnesses. Significant health related costs would be saved or directed toward prevention instead of treating the illnesses.

The present study examines proposed relationships between family environment and development of hardiness with the purpose of pinpointing variables in early family environments and early family interactions that can predict hardiness in adults.

Hypotheses

Elements of perceived family environment were used as predictors for adult hardiness. Additionally, relationships between recently experienced stress and illness and hardiness were investigated.

1. It was hypothesized that family environment variables would predict hardiness. Specifically, relationship dimensions of family environment as defined by Moos and Moos (1994) consisting of family cohesion, expressiveness, and conflict would predict hardiness such that individuals who
experienced high family cohesion, high expressiveness, and low conflicts would display higher hardiness. It was further hypothesized that personal growth dimensions of family environment as defined by Moos and Moos (1994) would predict hardiness, such that the individual's perception of high independence, high achievement orientation, high level of intellectual cultural orientation, high level of active recreational orientation, and strong emphasis on religious and ethical issues would predict high hardiness. Additionally, clear perceptions of family organization, responsibilities and rules in the family would predict high hardiness. Lastly, it was hypothesized that individuals high in hardiness would experience less illness or symptoms of illness even when experiencing high stress in the lives. Hypothesis 1 is illustrated in Figure 1.

2. Hypothesis 2 tested that specific elements of family environment would predict hardiness. Specifically the relationship dimension was modified to exclude emphasis on moral and ethical issues and the family system maintenance dimension was modified to exclude the control variable. The subscales from the Family environment Scale were used as direct predictors of hardiness, and the latent constructs were deleted from the hypothesis. Hypothesis 2 is illustrated in Figure 2.
Figure 1.

Hypothesis 1.
Figure 2.

Hypothesis 2.
METHOD

Participants

The participants were 428 college students from a Southern California University. The majority of the participants were undergraduate psychology students and the sample consisted of 337 females and 91 males. The participants were recruited from undergraduate psychology classes. Subjects were told that their help was needed in completing a packet of questionnaires that examined the relationship between personality and health. The subjects were informed that the questions would pertain to their family environment, their health and the stressors they had experienced in the last month, as well as their opinion on some general statements. Participation was strictly voluntary and anonymous, and there was extra credit available in many psychology classes for completing the questionnaire (Informed Consent is in Appendix A).

Procedures and Instruments

All questionnaires were distributed to subjects before their classes one week and were collected the following week. In addition to the psychological measures all subjects completed a short demographic questionnaire (See Appendix B). Table 1 summarizes the demographic characteristics.
Table 1.

Demographic Characteristics.

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Family Environment Scale (form R):

The Family Environment Scale (Moos and Moos, 1994) is a 90-item scale designed to measure family functioning and social climate in the family (see Appendix C). The Family Environment Scale measures three constructs namely Relationship Dimensions, Personal Growth Dimensions, and System Maintenance Dimensions. Each construct is made up of several different subscales. The subscales for the Relationship Dimensions are Cohesion, Expressiveness, and Conflict, (e.g. "We put a lot of energy into what we do at home" = Cohesion, "Family members often keep their feelings to themselves" = Expressiveness, "We fight a lot in our family" = Conflict). The subscales for the Personal Growth Dimensions are Independence, Achievement Orientation, Intellectual-Cultural Orientation, Active-Recreational Orientation, and Moral-Religious Orientation, (e.g. "In our family, we are strongly encouraged to be independent" = Independence, "In our family, we don't try that hard to succeed" = Achievement Orientation, "We often talk about political and social problems" = Intellectual-Cultural Orientation, "We often go to movies, sports events, camping, etc." = Active-Recreational Orientation, "The Bible is an important book in our home" = Moral-Religious Emphasis). Lastly, the subscales for the System Maintenance are Organization and Control, (e.g. "Each person's duties are
clearly defined in our family" = Organization, "We can do whatever we want in our family" = Control).

Subjects were asked to answer true or false to the 90 items in relation to the family that they grew up in. All subjects were asked to answer as the son or daughter in the family.

The reliability for the Family Environment Scale has been shown to be consistent by several researchers. Moos (1994) reports reliability coefficients (Cronbach Alpha) ranging from .61 (Independence) to .78 (Cohesion, Intellectual-Cultural Orientation, and Moral-Religious Emphasis).

The Dispositional Resilience (Hardiness) Scale (DRS):

The Dispositional Resilience Scale (see Appendix D) is a 45-item self report instrument designed to measure the individual's dispositional resilience or hardiness (Bartone et.al., 1989). The hardiness construct is measured with positive as well as negative items, and lower scores indicate higher hardiness. The Dispositional Resilience Scale consists of three subscales measuring commitment, control, and challenge, that is, the scale assesses commitment (e.g. "By working hard you can always achieve your goals"), control (e.g. "Most of what happens in life is just meant to be"), and challenge (e.g. "It's exciting to learn something about myself").
Subjects rated each item on a 4-point Likert scale ranging from 0 (not at all true) to 3 (completely true).

Previous research has shown that the Dispositional Resilience Scale has good reliability. Alpha coefficients for the three individual components ranged from .62 to .82 and the alpha coefficient was .85 for the total 45 items (Bartone et al., 1989).

The Inventory of College Students' Recent Life Experiences (ICSRLE):

The Inventory of College Students' Recent Life Experiences (ICSRLE) is a 49-item scale is designed to measure college students' perceived stress from recent life experiences and hassles, that is, the students were asked to refer to experiences over the past month (see Appendix E). Experiences and hassles were measured with items found to represent stressors commonly experienced by college students (Kohn, Lafreniere, & Gurevich, 1990). The ICSRLE is composed of 7 factors namely Developmental Change (e.g. "Important decisions about your education"), Time Pressure (e.g. "Too many things to do at once"), Academic Alienation (e.g. "Disliking your studies"), Romantic Problems (e.g. "Conflicts with boyfriend/girlfriend/spouse"), Assorted Annoyances (e.g. "Disliking fellow students"), General Social Mistreatment (e.g. "Being ignored"), and Friendship Problems (e.g. "Conflicts with a friend").
Subjects rated each item on a 4-point Likert scale ranging from 1 (not at all) to 4 (very much).

Reliability has been shown high and consistent by several researchers with an alpha coefficient as high as .89 (Kohn, Lefreniere, & Gurevich, 1990).

The Seriousness of Illness Rating Scale (SIRS):

The Seriousness of Illness Rating Scale (SIRS) is a 126-item self report checklist designed to assess physical and mental illness and symptoms (Wyler, Masuda, Holmes, 1968). The 126 medical conditions have various degrees of severity based on ratings by physicians and laypeople (see Appendix F). Severity weights are assigned to each reported illness and summed to compute a total illness score. Sample items from the scale include "Common Cold" with a weight of 62, "Bronchitis" with a weight of 210, "Hepatitis" with a weight of 488, and "Heart Attack" with a weight of 855.

Subjects were asked to check off each illness or symptom that they have experienced within the last 6 months. The SIRS have been used extensively in stress/illness research as well as in all the hardiness research and the scale has consistently been shown to have good reliability and validity.

Statistical Analysis

Initially descriptive statistics and univariate correlations among all variables were computed and assessed
to establish all correlational relationships. To further assess and estimate the effects on adult hardiness from predictors based on family environment a variance-covariance matrix was generated and used as data input for a structural equation analysis of the variables with structural equation modeling software (EQS) developed by Bentler (1992).

Using EQS, the relationship between adult hardiness and family environmental factors were examined. The latent constructs comprising the Relationship Dimension, the Personal Growth Dimension, and the System Maintenance Dimension from the Family Environment Scale measured by the individual subscales were used a predictor variables for the latent construct of hardiness measured by the three subscales from the Dispositional Resilience Scale. Additionally, illness was used as a dependent variable predicted by hardiness, and stress was used as an additional indicator of illness.
RESULTS

Data Screening

Initially, descriptive statistics were generated on all computed variables used in the analysis. Table 2 summarizes the descriptive statistics. To verify that no statistical assumptions were violated the data was screened for normality by examining histograms produced by SPSS. Skewness and kurtosis on all variables were found to be within the acceptable range (below +/- 1.00). Linearity was assessed by bivariate scatterplots produced by SPSS and all variables were found to be linearly related. Additionally, the data was screened for univariate and multivariate outliers through a regression analysis produced by SPSS. Residual statistics from the regression analysis were assessed. Mahalanobis' distance, standardized residuals, and Cook's distance identified five multivariate outliers (z=3.89, 3.93, 4.59, 4.66, 4.67) on the illness scale. These cases were deleted from the data set before EQS analysis as recommended by Ullman (1996) making the sample consisting of 423 cases. Further, residual scatterplots were examined to assess if residuals were normally and symmetrically distributed, and both were found to be acceptable.

Multicollinearity and singularity were assessed from a bivariate correlation matrix produced by SPSS. No
Table 2.

Descriptive Statistics of the Variables Analyzed.

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Table 3.

Bivariate Correlations of Variables.

1=Cohesion, 2=Expressiveness, 3=Conflict, 4=Independence, 5=Achievement Orientation, 6=Intellectual-Cultural Orientation, 7=Active-Recreational Orientation, 8=Moral-Religious Emphasis, 9=Organization, 10=Control(FES), 11=Commitment, 12=Control(hardiness), 13=Challenge, 14=Stress, 15=Illness.

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multicollinearity or singularity was found. Missing data was deleted listwise resulting in a data set consisting of 383 cases for the final analysis. The ratio of cases to observed variables was 25:1, and the ratio of cases to parameters in hypothesis 1 was 11:1. The sample size was considered adequate for the EQS analysis (Ullman, 1996).

Finally, the variance for the illness variable was extremely high (see table 2) and it is recommended that such a variable be rescaled before the EQS analysis is done (Ullman, 1996). The illness variable was therefore rescaled into z-scores making the variance-covariance compatible to the other scores.

Reliability Analysis

Cronbach alpha reliability coefficients for all variables in the analysis was computed and assessed. Cronbach alpha reliability coefficients for the this sample for the Family Environment Scale ranged from .46 to .82. The breakdown for the 10 subscales were: Cohesion .82, Expressiveness .70, Conflict .78, Independence .46, Achievement Orientation .52, Intellectual-cultural Orientation .75, Active-recreational Orientation .72, Moral-religious Emphasis .74, Organization .75, and Control .70.

Cronbach alpha reliability coefficients for this sample for the Dispositional Resilience Scale ranged from .54 to
.75 for the three subscales, and .82 for the complete scale. The individual alpha coefficients for the subscales were: Commitment .75, Control .66, and Challenge .54.

Cronbach alpha reliability coefficient for the ICSRLE for this sample was .92. Table 4 provides a summary of the reliability coefficients.

**EQS Analysis Hypothesis 1**

Before hypothesis 1 was tested, correlation coefficients were corrected for attenuation because of the low to moderate alpha reliability coefficients of several of the scales used in the analysis. The variance-covariance matrix produced after correction for attenuation was used as data input matrix for EQS analysis of hypothesis 1. However, the correction for attenuation made the variance-covariance matrix unstable, and the matrix generated by EQS for the analysis showed a negative determinant making further analysis impossible. The original correlations, which were not corrected for attenuation, were instead used as the basis for the variance-covariance matrix used for the EQS analysis.

The structural modeling test of hypothesis 1 revealed that the analysis could not be completed due to failure to replicate the confirmatory factor analysis of the latent constructs (factors) of the Family Environment Scale. It was therefore not possible to complete the analysis of
**Table 4.**

**Cronbach Alpha Reliability Coefficients.**

| Family Environment Variables: |  
|-------------------------------|---|
| Cohesion                      | .82  
| Expressiveness                | .70  
| Conflict                      | .78  
| Independence                  | .46  
| Achievement Orientation       | .52  
| Intellectual-Cultural Orientation | .75  
| Active-Recreational Orientation | .72  
| Moral-Religious Emphasis      | .74  
| Organization                  | .75  
| Control                       | .70  

| Composite Personal Growth Scale | .82  
| Composite System Maintenance Scale | .75  

| Hardiness Variables: |  
|----------------------|---|
| Commitment           | .75  
| Control              | .66  
| Challenge            | .54  

| ICSRLE:              | .92  

hardiness through latent factors. Additionally, the analysis revealed problems with the challenge component of the hardiness construct. The analysis demonstrated that the fit of the data to the hypothesized model was very poor. Updated parameter estimates were used as starting points for the analysis several times, but the analysis could not finish within 30 iterations and terminated leaving two parameters fixed at 1.00 and therefore unestimated. A chi square difference statistic and comparative fit index (CFI) also indicated that the model did not fit the data adequately. $X^2 (88, \text{N}=383) = 428.09, \text{p}<.001$. CFI 0.27 on a scale from 0.00 to 1.00.

EQS Analysis Hypothesis 2.

Hypothesis 2 was tested by using the family environment variables as independent predictors of hardiness. The cohesion, expressiveness, and conflict subscale scores were used as individual predictors. Because of the low reliability of several of the scales in the Personal Growth Dimension it was decided to add all subscales into a composite score of personal growth and use this composite score as a predictor. This procedure was also used for the subscales in the System Maintenance Dimension. The predictors were: Cohesion, expressiveness, conflict, personal growth, and system maintenance.

Additionally, the hardiness construct was examined, and
due to the low alpha coefficient of the challenge scale (.54), this component was omitted before further analysis. Further, when examining the correlation coefficients of the challenge component compared to the commitment and control component it was discovered that the correlation coefficient for challenge with commitment (r=.32) and with control (r=.31) was lower than the correlation coefficient of these two variables (r=.67). Challenge would be expected to have a stronger correlation with commitment and control to be an equal contributor to the hardiness construct (Funk, 1992). Additionally, challenge did not correlate significantly with the illness variable (r=.07) whereas both commitment (r=.15) and control (r=.17) did. It did not appear that the challenge component added substantial variance to the hardiness construct. As suggested by Funk and Houston (1987), the challenge component of hardiness was therefore omitted and the hardiness construct was analyzed by the commitment and control variables alone.

Lastly, it was decided to add covariance estimates between the cohesion, expressiveness, and conflict variables based on previous estimates of a relationship among these variables (Moos, 1994). The structural equation analysis revealed that the fit of the data to the hypothesized model was poor. A chi-square difference statistic and comparative fit index (CFI) indicated that the model did not fit the
data adequately. $X^2 (20, N=383) = 702.02, p<.001$. CFI 0.39.

The direct paths expected from the family environment predictors to the hardiness components were only significant from the System Maintenance Dimension to both commitment (standardized beta = -.20, $z = -4.12$, $p<.05$) and control (standardized beta = -.18, $z = -3.82$, $p<.05$), and from expressiveness to commitment (standardized beta = .12, $z = -2.16$, $p<.05$) and control (standardized beta = -.27, $z = -3.91$, $p<.05$). Additionally, a significant direct path was found from stress to illness (standardized beta = .35, $z = 7.52$, $p<.05$), but, inconsistent with hardiness theory, no significant paths were found from commitment and control to illness. Figure 3 illustrates the above results.

**Post Hoc Model Modifications**

Post hoc model modifications were performed after examining the output statistics from the EQS process in an attempt to develop a better fitting model to be used for hypothesis generating for further research. From the Wald test for dropping parameters and the Lagrange test for adding parameters in the model to make a better fit to the data possible, the model tested in hypothesis 2 was modified. Based on the poor fit of the original hypothesis to the estimated model, 7 parameters were dropped and 13 were added to estimate a better fitting model. Direct paths were added from the family environment variables to the
stress and illness variables, and direct paths were added from commitment and control for the stress variable. Additionally, covariance estimates were added among the family environment predictor variables. However, the chi-square difference statistic and comparative fit index (CFI) still indicated that the model did not fit the data adequately. \(X^2 (20, N=383) = 246.79, \ p<.001. \ CFI 0.79.\) Figure 4 illustrates the modified model. Further modification to make the model fit adequately was not attempted in this analysis. The poor fit of the model even after refitting suggests that further modification will go beyond the theoretical background that warranted the originally hypotheses. Further modifications should be taken into account when designing new research.
Figure 3.

Hypothesis 2 - Results.

* p < .05
Figure 4.

Modified Model.

* $p < .05$
DISCUSSION

The objective of this study was to examine variables in the family environment that might contribute to hardiness in adults. It was anticipated that this examination would add to the understanding and knowledge about family processes and interactions that can influence the development of hardiness. Based on review of the existing literature a model of the expected relationships was hypothesized. It was expected that high family cohesion, high level of encouragement to express feelings openly, and low levels of conflict would promote development of hardiness. Additionally, it was expected that families who encourage and support personal growth among family members through independence, intellectual-cultural activities, achievement, recreational activities, or religious or moral emphasis would rear children high in hardiness. Lastly, it was expected that family organization and control through rules and expectations would promote the development of hardiness. However, the hypothesized models (figure 1 and 2) as a whole were not confirmed by the data collected. Some of the family environment variables were indeed by themselves significant predictors of hardiness as hypothesized in hypothesis 2, but only when looked at as individual univariate correlations.

The significant paths in the model generated from
hypothesis 2 from expressiveness to commitment and control and from the family maintenance system component to commitment and control supports previous research findings that these variables are related to positive psychological functioning, (Burt, Cohen, & Bjorck, 1988).

Family cohesion was also linked to positive psychological functioning by above researchers, but this variable was a non-significant predictor in the hypothesized model in the present study (see figure 2). In the study by Burt et al. (1988) where family cohesion was linked to positive psychological functioning, this outcome variable was represented by low anxiety and depression and by high self-esteem, whereas hardiness represented positive psychological functioning in the present study. The difference in results warrants further examination of the hardiness construct as a representation of positive psychological functioning.

Hypothesis 2 confirmed a strong positive relationship between stress and illness. Numerous researchers have confirmed this link during the last 50 years and these findings have been replicated many times using different measurements of stress. The interesting point in the present study is that the hardiness variables of commitment and control did not predict illness, that is, there was no significant difference in illness scores for individuals
high in hardness versus individuals low in hardness when analyzed by structural equation modeling. These results are contradictory to the results obtained by Kobasa (1979a, 1979b) which established the personality variable of hardness as a significant variable in the stress-illness relationship. However, it should be noted that the sample in the present study mainly consisted of younger female college students, whereas the sample in Kobasa's 1975 research mainly consisted of middle aged male executives.

Methodological Limitations

The Family Environment Scale was chosen as the instrument to measure the predictor variables in the analysis, but several problems were encountered in the analysis. The analysis of the Cronbach alpha reliability coefficients revealed that the alpha coefficients for the independence subscale (.46) and the achievement subscale were (.52) were extremely low for this sample making predictions with these scales questionable. Additionally, the expected EQS analysis of hypothesis 1 was not possible partly due to the confirmatory factor analysis of the 3 factors in the Family Environment Scale failing. Other researchers have encountered these problems when using the Family Environment Scale. May and Sowa (1994) elected to omit 6 of the subscales for their analysis of family environment as an indicator of willingness to seek
short-term counseling because of low reliability. Several researchers have tried to replicate the factor structure of the family environment scale and have failed. In a review of instruments in family research Halvorsen (1991) pointed to this problem and recommended more construct and concurrent validation of the scale. Likewise, Waldron, Sabatelli and Anderson (1990) failed to replicate the 3 factors of the Family Environment Scale. Instead, they proposed a 6 factor subscale solution. The above mentioned research raises concern about the reliability of the factor structure of the Family Environment Scale, and the present research can add to this concern by the failure of the confirmatory factor analysis of hypothesis 1.

Moreover, the Dispositional Resilience Scale used to measure hardiness had a low alpha reliability coefficient for the challenge scale (.54), and it can be questioned if the scale is measuring challenge as it was intended by the developers of the hardiness construct.

Additional limitations of the present study is the cross-sectional nature of the study using a sample consisting of mostly female undergraduate college students. This sample that may not be generalizable to the population in general. All responses were based on mostly retrospective self-report inventories and accuracy of memory
and response bias could be present. The results must therefore be interpreted with caution.

**Theoretical Limitations**

When examining the bivariate correlations of the individual subscales from the Family Environment Scale, there were several subscales that were significantly correlated with the commitment and control variables from the hardiness construct pointing to the presence of the direct effects hypothesized in this study, but when all variables are tested together as in a structural equation analysis a different pattern emerges suggesting that the significance of the individual bivariate correlations does not represent the way these variables interact in reality. Family environment variables are important in the stress-illness relationship. As demonstrated with the modified model (figure 4) there are significant paths from several family environment variables to both stress and illness indicating that these variables are in fact important predictors of stress and illness, but the relationships are different than originally hypothesized. Family environment is an important variable in the stress-illness relationship, but the direct paths established in this study are clearly only part of a much larger picture.

The hardiness construct must clearly be reexamined and evaluated before it should be used as a single construct in
further research. The present study demonstrated that the challenge component is different from the commitment and control components of the hardiness construct. Challenge is different in the way it is measured by the current hardiness scales, and additionally, challenge may not belong at all with the other two hardiness variables as a personality variable that can influence health. Following suggestions by Funk and Houston (1987) and by Florian, Mikilincer, and Taubman (1994) challenge was eliminated from this analysis, but even with challenge eliminated no significant difference was found in illness scores of individuals high or low in hardiness. Instead commitment and control were highly correlated with the subjects' individual experiences of stress in their lives, and in turn the stress they experienced correlated highly with illness experienced. In the original research done by Kobasa (1979a, 1979b) hardiness was shown as a direct effect on illness no matter how much stress an individual experienced. These results are clearly in contrast to results obtained by this study.

Most hardiness research has utilized analysis of variance (ANOVA) and found significant main effects for hardiness. Median splits were used for individuals high or low in hardiness and ANOVAS were used to analyze the difference of the groups. As pointed out by several researchers, hardiness research with the current scales
should be conducted using the availability of the continuous data and therefore regression analysis (Funk & Houston, 1987; Funk, 1992). The present study attempted to use this approach with the EQS analysis and failed to replicate the earlier results obtained with ANOVA. The hypothesized direct paths between the hardiness components of commitment and control to illness were nonsignificant, but significant paths were found from commitment and control to stress (Figure 4) indicating that hardiness may have a direct effect on the individual's experience of stress rather than at presence of illness. Hardiness is important in the stress-illness relationship, but hardiness affects the stress variable rather than the illness variable. It is possible that people higher in hardiness, or in this study higher in commitment and control, perceive their lives as less stressful and therefore experience less illness.

Implications For Further Research

The present study confirmed that future research need to examine the hardiness construct in depth before using a composite hardiness score of the commitment, control, and challenge dimension as a total hardiness score. The challenge component as conceptualized by the original developers, and as measured by the various hardiness scales of hardiness may not belong with the commitment and control dimensions. In the present study the challenge component
did not show correlation with illness on a univariate level. The challenge scale used in the present study had problems with reliability (.54). New items should be tested to find the best way to measure challenge, or a new scale should be developed in which the items better capture the exact essence of the challenge construct.

Future research should reexamine the originally proposed direct effects of hardiness on illness (Kobasa, 1979a, 1979b) with a variety of populations and ages in longitudinal designs to determine how exactly hardiness influences the stress-illness relationship. The focus should be on the individual's perception of stress and their coping and how these factors function as possible mediator or moderator variables between stress and illness. The direct effects between hardiness and health have only been shown by ANOVA, and further examination of these relationships may demonstrate that no main effects are present, but that hardiness instead has a mediating effect or functions as a moderator variable.

As illustrated in Figure 4, several of the family environment variables used as predictors in this study were direct predictors of stress and illness. Future research should examine exactly how these variables affect stress and illness. Additionally, the factor structure of the Family Environment Scale (Moos, 1994) requires further examination.
The methodological and reliability problems in the present study centered around what is presented as personal growth dimensions of family environment. New items should be developed to ensure better reliability before using these individual subscales in research.

Lastly, family environment would be expected to influence other factors that are important for positive psychological functioning. Such relationships could be evaluated along with family environmental influence on hardiness. An example is social support, a variable that previous research has found important in the stress-illness relationship. Social support could be added to a future model to make a more complete hypothesis.

Conclusion

The present study attempted to eliminate some of the methodological difficulties encountered in previous research on the hardy personality. The instruments used in the present research were carefully selected based on recommendations from previous research. However, the low alpha reliability coefficients of several subscales and the failure to replicate the 3-factor structure of the Family Environment Scale presented serious problems in the present research. The non-significance of the overall hypotheses supported the instability of the hardiness construct and the methods used in earlier hardiness research. It is
imperative that the exact relationships among the hardiness components of commitment, control, and challenge be examined further, and that new items are developed on the hardiness scales, especially for the challenge component, to ensure better reliability when using these instruments.

Family environment seemed to have a limited influence on hardiness in the present study, but with better psychometric properties of predictor variables and a better understanding of the hardiness construct further assessment is warranted.
APPENDIX A
Informed Consent

The research in which you are about to participate is investigating the relationship between family environment and the development of the personality characteristic called hardiness. The purpose of this study is to gain a better understanding of family processes and individual experiences that can influence the development of hardiness.

Your participation in this research will require that you fill out a questionnaire asking you to think back to experiences in the family that you grew up in, your opinion on certain statements about life that people often feel differently about, recent life experiences, and recent symptoms of physical illness that you have experienced. The questionnaire requires 30 - 45 minutes to complete.

Your participation is this study is completely voluntary, and you are free to withdraw or to omit answering any questions that make you uncomfortable without any penalty to you. To insure complete anonymity to you this sheet with your name will be detached from the questionnaire as you hand it in. Thereafter each questionnaire will be identified only with a number.

This study is conducted by Jette Warka under supervision of Dr. Fred Newton, Professor of Psychology. The study has been approved by the Human Subjects Review Board. If you have any questions, please feel free to contact:

Fred Newton, Ph.D.
Department of Psychology
(909) 880-5588

If you want to participate in the study, please read the following paragraph and sign below.

I acknowledge that I am at least 18 years old, that I have been informed of, and understand, the nature and purpose of this study. I understand that the information obtained from my participation will be kept strictly confidential. I acknowledge that my participation is completely voluntary.

Participant's Signature ___________________________ Date _____________

****Please detach this sheet from the questionnaire before returning both to the researcher.
APPENDIX B
Demographic Information

What is your gender?  Male _____  Female _____

What is your age?     _____

What is your racial/ethnic group?  ______________________

What is your marital status?  ______________

What is your current class standing in college?  __________

Did your biological parents divorce?  Yes _____  No _____

If yes, how old were you when they divorced?  _____

If your parents divorced when you were a child, who did you live with?
Mother _____
Father _____
Both _____
Other _____  Who __________

After your parents divorced, did your mother remarry?  Yes _____  No _____

If yes, did you live with your mother and her new husband?  Yes _____  No _____

After your parents divorced, did your father remarry?  Yes _____  No _____

If yes, did you live with your father and his new wife?  Yes _____  No _____

How many children were in your household when you were growing up?  _____
APPENDIX C
Family Environment Scale - Form R

There are 90 statements in this questionnaire. They are statements about families. You are to decide which of these statements are true of your family and which are false. Refer to the family that you grew up in.

You may feel that some of the statements are true for some family members and false for others. Circle T if the statement is true for most members. Circle F if the statement is false for most members. If the members are evenly divided, decide what is the stronger overall impression and answer accordingly.

Remember, we would like to know what your family seemed like to you. So do not try to figure out how other members saw your family, but do give us your general impression of your family for each statement.

Remember: Please answer by referring to the family that you grew up in.

1. Family members really help and support one another. T F
2. Family members often keep their feelings to themselves. T F
3. We fight a lot in our family. T F
4. We don't do things on our own very often in our family. T F
5. We feel it is important to be the best at whatever you do. T F
6. We often talk about political and social problems. T F
7. We spend most weekends and evenings at home. T F
8. Family members attend church, synagogue, or Sunday School fairly often. T F
9. Activities in our family are pretty carefully planned. T F
10. Family members are rarely ordered around. T F
11. We often seem to be killing time at home. T F
12. We say anything we want to around home. T F
13. Family members rarely become openly angry. T F
14. In our family, we are strongly encouraged to be independent. T F
15. Getting ahead in life is very important in our family. T F
16. We rarely go to lectures, plays or concerts. T F
17. Friends often come over for dinner or to visit. T F
18. We don't say prayers in our family. T F
19. We are generally very neat and orderly. T F
20. There are very few rules to follow in our family. T F
21. We put a lot of energy into what we do at home. T F
22. It's hard to "blow off steam" at home without upsetting somebody. T F
23. Family members sometimes get so angry they throw things. T F
24. We think things out for ourselves in our family. T F
25. How much money a person makes is not very important to us. T F
26. Learning about new and different things is very important in our family. T F
27. Nobody in our family is active in sports, Little League, bowling, etc. T F
28. We often talk about the religious meaning of Christmas, Passover, or other holidays. T F
29. It's often hard to find things when you need them in our household. T F
30. There is one family member who makes most of the decisions. T F
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<table>
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<tbody>
<tr>
<td>31. There is a feeling of togetherness in our family.</td>
<td>T  F</td>
</tr>
<tr>
<td>32. We tell each other about our personal problems.</td>
<td>T  F</td>
</tr>
<tr>
<td>33. Family members hardly ever lose their tempers.</td>
<td>T  F</td>
</tr>
<tr>
<td>34. We come and go as we want to in our family.</td>
<td>T  F</td>
</tr>
<tr>
<td>35. We believe in competition and &quot;may the best man win&quot;</td>
<td>T  F</td>
</tr>
<tr>
<td>36. We are not that interested in cultural activities.</td>
<td>T  F</td>
</tr>
<tr>
<td>37. We often go to movies, sports events, camping, etc.</td>
<td>T  F</td>
</tr>
<tr>
<td>38. We don't believe in heaven or hell.</td>
<td>T  F</td>
</tr>
<tr>
<td>39. Being on time is very important in our family.</td>
<td>T  F</td>
</tr>
<tr>
<td>40. There are set ways of doing things at home.</td>
<td>T  F</td>
</tr>
<tr>
<td>41. We rarely volunteer when something has to be done at home.</td>
<td>T  F</td>
</tr>
<tr>
<td>42. If we feel like doing something on the spur of the moment we often just pick up and go.</td>
<td>T  F</td>
</tr>
<tr>
<td>43. Family members often criticize each other.</td>
<td>T  F</td>
</tr>
<tr>
<td>44. There is very little privacy in our family.</td>
<td>T  F</td>
</tr>
<tr>
<td>45. We always strive to do things just a little better the next time.</td>
<td>T  F</td>
</tr>
<tr>
<td>46. We rarely have intellectual discussions.</td>
<td>T  F</td>
</tr>
<tr>
<td>47. Everyone in our family has a hobby or two.</td>
<td>T  F</td>
</tr>
<tr>
<td>48. Family members have strict ideas about what is right and wrong.</td>
<td>T  F</td>
</tr>
<tr>
<td>49. People change their minds often in our family.</td>
<td>T  F</td>
</tr>
<tr>
<td>50. There is a strong emphasis on following rules in our family.</td>
<td>T  F</td>
</tr>
<tr>
<td>51. Family members really back each other up.</td>
<td>T  F</td>
</tr>
</tbody>
</table>
52. Someone usually gets upset if you complain in our family.  T  F
53. Family members sometimes hit each other.  T  F
54. Family members almost always rely on themselves when a problem comes up.  T  F
55. Family members rarely worry about job promotions, school, grades, etc.  T  F
56. Someone in our family plays a musical instrument.  T  F
57. Family members are not very involved in recreational activities outside work or school.  T  F
58. We believe there are some things you just have to take on faith.  T  F
59. Family members make sure their rooms are neat.  T  F
60. Everyone has an equal say in family decisions.  T  F
61. There is very little group spirit in our family.  T  F
62. Money and paying bills is openly talked about in our family.  T  F
63. If there's a disagreement in our family, we try hard to smooth things over and keep the peace.  T  F
64. Family members strongly encourage each other to stand up for their rights.  T  F
65. In our family, we don't try that hard to succeed.  T  F
66. Family members often go to the library.  T  F
67. Family members sometimes attend courses or take lessons for some hobby or interest (outside of school).  T  F
68. In our family each person has different ideas about what is right and wrong.  T  F
69. Each person's duties are clearly defined in our family.  T  F
70. We can do whatever we want to in our family.        T  F
71. We really get along well with each other.       T  F
72. We are usually careful about what we say to each other.  T  F
73. Family members often try to one-up or out-do each other.  T  F
74. It's hard to be by yourself without hurting someone's feelings in our household.  T  F
75. "Work before play" is the rule in our family.       T  F
76. Watching T.V. is more important than reading in our family.  T  F
77. Family members go out a lot.               T  F
78. The Bible is a very important book in our home.    T  F
79. Money is not handled very carefully in our family.  T  F
80. Rules are pretty inflexible in our household.      T  F
81. There is plenty of time and attention for everyone in our family.  T  F
82. There are a lot of spontaneous discussions in our family.  T  F
83. In our family, we believe you don't ever get anywhere by raising your voice.  T  F
84. We are not really encouraged to speak up for ourselves in our family.  T  F
85. Family members are often compared with others as to how well they are doing at work or school.  T  F
86. Family members really like music, art and literature.  T  F
87. Our main form of entertainment is watching T.V. or listening to the radio.  T  F
88. Family members believe that if you sin you will be punished.  T  F
89. Dishes are usually done immediately after eating.  

90. You can't get away with much in our family.

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APPENDIX D
Dispositional Resilience Scale (Hardiness)

Below are statements about life that people often feel differently about. Circle a number to show how you feel about each one. Read the items carefully and indicate how much you think each one is true in general. There are no right or wrong answers; just give your own honest opinions.

Not true at all = 0
A little true = 1
Quite true = 2
Completely true = 3

1. Most of my life gets spent doing things that are worthwhile. 0 1 2 3
2. Planning ahead can help avoid most future problems. 0 1 2 3
3. Trying hard doesn't pay, since things still don't turn out right. 0 1 2 3
4. No matter how hard I try, my efforts usually accomplish nothing. 0 1 2 3
5. I don't like to make changes in my everyday schedule. 0 1 2 3
6. The "tried and true" ways are always best. 0 1 2 3
7. Working hard doesn't matter, since only the bosses profit by it. 0 1 2 3
8. By working hard you can always achieve your goals. 0 1 2 3
9. Most working people are simply manipulated by their bosses. 0 1 2 3
10. Most of what happens in life is just meant to be. 0 1 2 3
11. It's usually impossible for me to change things at work. 0 1 2 3
12. New laws should never hurt a person's paycheck. 0 1 2 3
13. When I make plans, I'm certain I can make them work. 0 1 2 3
14. It's hard for me to change a friend's mind about something. 0 1 2 3
15. It's exciting to learn something about myself. 0 1 2 3
16. People who never change their minds usually have good judgement. 0 1 2 3
17. I really look forward to my work. 0 1 2 3
18. Politicians run our lives. 0 1 2 3
19. If I'm working on a difficult task, I know when to seek help. 0 1 2 3
20. I won't answer a question until I'm really sure I understand it. 0 1 2 3
21. I like a lot of variety in my work. 0 1 2 3
22. Most of the time, people listen carefully to what I say. 0 1 2 3
23. Daydreams are more exciting than reality for me. 0 1 2 3
24.Thinking of yourself as a free person just leads to frustration. 0 1 2 3
25. Trying your best at work really pays off in the end. 0 1 2 3
26. My mistakes are usually very difficult to correct. 0 1 2 3
27. It bothers me when my daily routine gets interrupted. 0 1 2 3
28. It's best to handle most problems by just not thinking of them. 0 1 2 3
29. Most good athletes and leaders are born, not made. 0 1 2 3
30. I often wake up eager to take up my life wherever it left off. 0 1 2 3
31. Lots of times, I don't really know my own mind. 0 1 2 3
32. I respect rules because they guide me. 0 1 2 3
33. I like it when things are uncertain or unpredictable. 0 1 2 3
34. I can't do much to prevent it if someone wants to harm me. 0 1 2 3
35. People who do their best should get full support from society. 0 1 2 3
36. Changes in routine are interesting to me. 0 1 2 3
37. People who believe in individuality are only kidding themselves. 0 1 2 3
38. I have no use for theories that are not closely tied to facts. 0 1 2 3
39. Most days, life is really interesting and exciting for me. 0 1 2 3
40. I want to be sure someone will take care of me when I'm old. 0 1 2 3
41. It's hard to imagine anyone getting excited about working. 0 1 2 3
42. What happens to me tomorrow depends on what I do today. 0 1 2 3
43. If someone gets angry at me, it's usually no fault of mine. 0 1 2 3
44. It's hard to believe people who say their work helps society. 0 1 2 3
45. Ordinary work is just too boring to be worth doing. 0 1 2 3
APPENDIX E
Inventory of College Students' Recent Life Experiences (ICRSLE)

Following is a list of experiences which many students have some time or other. Please indicate for each experience how much it has been a part of your life over the past month. Put "1" in the space provided next to an experience if it was not at all part of your life over the past month (e.g., "trouble with my mother in law - 1"); "2" for an experience which was only slightly part of your life over that time; "3" for an experience which was distinctly part of your life; and "4" for an experience which was very much part of your life over the past month.

Intensity of Experience over Past Month.

1 = not at all part of my life
2 = only slightly part of my life
3 = distinctly part of my life
4 = very much part of my life

1. Conflicts with boyfriend's/girlfriend's/spouse's family.
2. Being let down or disappointed by friends.
3. Conflict with professor(s).
4. Social rejection.
5. Too many things to do at once.
7. Financial conflicts with family members.
8. Having your trust betrayed by a friend.
9. Separation from people you care about.
10. Having your contributions overlooked.
11. Struggling to meet your own academic standards.
12. Being taken advantage of.
13. Not enough leisure time.
14. Struggling to meet the academic standards of others.

15. A lot of responsibilities.

16. Dissatisfaction with school.

17. Decisions about intimate relationship(s).

18. Not enough time to meet your obligations.

19. Dissatisfaction with your mathematical ability.

20. Important decisions about your future career.


22. Dissatisfaction with your reading ability.

23. Important decisions about your education.

24. Loneliness.

25. Lower grades than you hoped for.

26. Conflict with teaching assistant(s).

27. Not enough time for sleep.

28. Conflicts with your family.

29. Heavy demands from extracurricular activities.

30. Finding courses too demanding.

31. Conflicts with friends.

32. Hard effort to get ahead.

33. Poor health of a friend.

34. Disliking your studies.

35. Getting "ripped off" or cheated in the purchase of services.

36. Social conflicts over smoking.

37. Difficulties with transportation.
38. Disliking fellow student(s).
40. Dissatisfaction with your ability at written expression.
41. Interruptions of your school work.
42. Social isolation.
43. Long waits to get service (e.g., at banks, stores, etc.)
44. Being ignored.
45. Dissatisfaction with your physical appearance.
46. Finding course(s) uninteresting.
47. Gossip concerning someone you care about.
48. Failing to get expected job.
49. Dissatisfaction with your athletic skills.
APPENDIX F
The Seriousness of Illness Rating Scale (SIRS)

Following is a list of illnesses that people sometimes experience. Please indicate which illnesses and symptoms you have experienced within the last 6 months by placing an "X" on the line next to the illness or symptom.

1. Dandruff
2. Warts
3. Cold sore, canker sore
4. Corns
5. Hiccups
6. Bad breath
7. Sty
8. Common cold
9. Farsightedness
10. Nosebleed
11. Sore throat
12. Nearsightedness
13. Sunburn
14. Constipation
15. Astigmatism
16. Laryngitis
17. Ringworm
18. Headache
19. Scabies
20. Boils
21. Heartburn
22. Acne

23. Abscessed tooth
24. Colorblindness
25. Tonsillitis
26. Diarrhea
27. Carbuncle
28. Chicken pox
29. Menopausal
30. Mumps
31. Dizziness
32. Sinus infection
33. Bed sores
34. Increased menstrual flow
35. Fainting
36. Measles
37. Painful menstruation
38. Infection of the middle ear
39. Varicose veins
40. Psoriasis
41. No menstrual period
42. Hemorrhoids
<table>
<thead>
<tr>
<th>43. Hay fever</th>
<th>68. Gout</th>
</tr>
</thead>
<tbody>
<tr>
<td>44. Low blood pressure</td>
<td>69. Snake bite</td>
</tr>
<tr>
<td>45. Eczema</td>
<td>70. Appendicitis</td>
</tr>
<tr>
<td>46. Drug allergy</td>
<td>71. Pneumonia</td>
</tr>
<tr>
<td>47. Bronchitis</td>
<td>72. Depression</td>
</tr>
<tr>
<td>48. Hyperventilation</td>
<td>73. Frigidity</td>
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<tr>
<td>49. Shingles</td>
<td>74. Burns</td>
</tr>
<tr>
<td>50. Mononucleosis</td>
<td>75. Kidney infection</td>
</tr>
<tr>
<td>51. Infected eye</td>
<td>76. Inability for sexual</td>
</tr>
<tr>
<td></td>
<td>intercourse</td>
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<tr>
<td>52. Bursitis</td>
<td>77. Hyperthyroid</td>
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<tr>
<td>53. Whooping cough</td>
<td>78. Asthma</td>
</tr>
<tr>
<td>54. Lumbago</td>
<td>79. Glaucoma</td>
</tr>
<tr>
<td>55. Fibroids of the uterus</td>
<td>80. Sexual deviation</td>
</tr>
<tr>
<td>56. Migraine</td>
<td>81. Gallstones</td>
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<tr>
<td>57. Hernia</td>
<td>82. Arthritis</td>
</tr>
<tr>
<td>58. Frostbite</td>
<td>83. Starvation</td>
</tr>
<tr>
<td>59. Goiter</td>
<td>84. Syphilis</td>
</tr>
<tr>
<td>60. Abortion</td>
<td>85. Accidental poisoning</td>
</tr>
<tr>
<td>61. Ovarian cyst</td>
<td>86. Slipped disk</td>
</tr>
<tr>
<td>62. Heatstroke</td>
<td>87. Hepatitis</td>
</tr>
<tr>
<td>63. Gonorrhea</td>
<td>88. Kidney stones</td>
</tr>
<tr>
<td>64. Irregular heart beats</td>
<td>89. Peptic ulcer</td>
</tr>
<tr>
<td>65. Overweight</td>
<td>90. Pancreatitis</td>
</tr>
<tr>
<td>66. Anemia</td>
<td>91. High blood pressure</td>
</tr>
<tr>
<td>67. Anxiety reaction</td>
<td>92. Smallpox</td>
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</tbody>
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93. Deafness
94. Collapsed lung
95. Shark bite
96. Epilepsy
97. Chest pain
98. Nervous breakdown
99. Diabetes
100. Blood clot in blood vessels
101. Hardening of the arteries
102. Emphysema
103. T.B.
104. Alcoholism
105. Drug addiction
106. Coma
107. Cirrhosis of the liver
108. Parkinson's disease
109. Blindness
110. Mental retardation
111. Blood clot in the lung
112. Manic depressive psychosis
113. Stroke
114. Schizophrenia
115. Muscular dystrophy
116. Congenital heart defects
117. Tumor in the spinal cord
118. Cerebral palsy
119. Heart failure
120. Heart attack
121. Brain infection
122. Multiple sclerosis
123. Bleeding in the brain
124. Uremia
125. Cancer
126. Leukemia
APPENDIX G
Debriefing Statement

The research in which you participated is investigating the relationship between family environment and the development of the personality characteristic called hardiness. The purpose of this study is to gain a better understanding of family processes and individual experiences that can influence the development of hardiness. Thank you for participating in the study. If you have any questions or comments on any part of the questionnaire, please let me know.

The results of this study are expected to be available during Spring or Summer 1996. If you are interested in getting information about the results you can contact Jette Warka through Dr. Fred Newton in the Psychology department at (909) 880-5588.

If any of the issues brought up in this questionnaire made you feel uncomfortable in any way, please feel free to contact me, or you can contact the California State University, San Bernardino Counseling Center at (909) 880-5040 or the Community Counseling Center at (909) 880-5569.

**** Tear off this page and keep this debriefing statement for yourself.
REFERENCES


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