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Life Events, Social Support, and Health: An Examination

Kathleen Anne Tiemann
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LIFE EVENTS, SOCIAL SUPPORT, AND HEALTH: AN EXAMINATION

by

Kathleen Anne Tiemann

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Philosophy
Department of Sociology

Western Michigan University
Kalamazoo, Michigan
August 1984
This dissertation examines the relationship between life events, social support, and health by testing a theoretically derived model. Regression analysis reveals that the number of undesirable health-related events explains most of the variation in reported health problems. Yet, when undesirable health-related events are added to the dependent variable, only five percent of the variation is explained. This finding suggests a measurement problem: the tautology of health-related events and health outcomes. The impact of this measurement problem is further illustrated through path analysis. When the tautology is removed, only two of the eight predictor variables remain in the model. Suggestions for future research and implications for policy making are also examined.
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ACKNOWLEDGMENTS

I would like to express my gratitude to my dissertation committee, Thomas Van Valey, Lewis Walker, and Lyke Thompson for the guidance they provided throughout the writing of this dissertation. I also thank Nathalie Ostroot and Carl Bajema for providing me with access to the Third Harvard Growth Study Data. Finally, recognition is given to my family and friends for all of the support they gave to me throughout my graduate student career.

Kathleen Anne Tiemann
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INTRODUCTION

Over the past two decades, the relationship between major life events and physical or psychological health has been amply established. The more events an individual experiences during a given time period, the greater the probability that symptoms of physical or psychological disturbance will be displayed (Coates et al., 1969; Myers et al., 1975; Dohrenwend & Dohrenwend, 1974; Paykel et al., 1975). Correspondingly, attempts have been made to identify the specific characteristics of life events which lead to these outcomes. There are two major approaches through which this is attempted: the "total change" approach and the "undesirability" approach.

The argument made by supporters of the "total change" approach is that change itself is the crucial stressful characteristic of life events (Holmes & Rahe, 1967; Masuda & Holmes, 1967). These investigators simply add up all of the desirable, undesirable, and ambiguous events experienced by the individual during a given time period and use this score as a measure of life change. Followers of the "undesirability" approach argue that undesirable or negative change is the crucial stressful characteristic of life events. Through their work, these researchers have demonstrated that undesirable events are better predictors of illness than the total number of events (Myers, et al., 1975; Paykel et al., 1979; Ross & Mirowsky, 1980; Thoits, 1981). It has been further demonstrated by Ross and
Mirowsky (1979) that weighted measures are no better than simple summative life event measures as predictors.

Advocates of both approaches often use a measure of social support in conjunction with their life events measure. There is a general assumption in this literature that support is inversely related to illness (Myers et al., 1975; Berkman & Syme, 1977; Gore, 1978; Lin et al., 1979; Holahan & Noos, 1982; Thoits, 1983). That is, those individuals with a great deal of social support are less likely to become ill than people with little social support. Until recently, little theoretical explanation has been provided as to why social support should play a negative role in the etiology of illness. Berkman and Syme (1979), Gore (1978), Gove and Hughes (1979), Holahan and Noos (1982) and Thoits (1983) suggest that social integration softens life's blows. That is, those who are better integrated into a support system and are satisfied with their roles seem better able to cope with the impact of life events. Likewise, research by Berkman and Syme (1979) noted that those with social ties and relationships had lower mortality rates.

Like Berkman and Syme (1979), Lin et al. (1979), postulate that social support may act as a buffer to life events. It may provide the information or the psychological support necessary to reduce the impact of the stressful life events experienced by the individual. Alternatively, it is posited that social support may act as an antecedent factor. It may preclude certain life events or it may lessen their impact on the individual by influencing his/r perception.
of the situation (House, 1974; Lazarus & Launier, 1978; Lin et al., 1979).

This theme has been elaborated in major review papers by Cassel (1976) and Cobb (1976). They argued that the buffering role of social support had been conclusively demonstrated. Cassel and Cobb also intimate that the beneficial effects of this support are frequently observable among people experiencing stress. Lynch (1977) goes even further by stating that positive human relationships are essential for mental and physical health. Social support, he argues, provides the individual with protection against stressful life events. Moreover, buffering stressful life events reduces the likelihood of a person succumbing to stress-related illnesses like high blood pressure, chronic heart disease, and psychological disorders (Lynch, 1977; Dean & Lin, 1977).

Support for this claim has been provided in several research projects. Gore (1978) found a relationship between low social support and a variety of psychosomatic complaints and physical problems. Dean and Lin (1977) and Antonovsky (1979) report that distress is greatest for those who experience both a high level of life change events and a low level of support. Kissel (1965) and Michaux et al., (1967) discovered that the presence of a friend in stressful situations lowers selected or certain stress responses. Kissel explains that whenever a person is uncertain about an emotional experience, and other means of comparing certainty about the experience are absent, s/he will be motivated to seek others in order to evaluate his/r experience by comparing it with the experience of others.
However, the source of support must be known to the subject. Although there are exceptions, generally the presence of a stranger as a source of comparison is not effective in reducing stress (Kissel, 1965).

Yet as La Rocco et al. (1980) point out, literature in the area of social support is not conclusive. Problems arise because neither the nature and meaning of "social support" nor the empirical effects of social support on health have been well established. Moreover, there is no clear understanding of the conditions that determine whether or not social support will be effective (Pearlin et al., 1981). Although a general sense of what constitutes social support is shared by most investigators, there is great variance in the specific conceptual and operational definitions. This variance makes it difficult to compare the results of different studies. This is particularly problematic as the results of empirical research seem to be in conflict. While some studies have argued that social support buffers the impact of stress on health (c.f., Nuckolls et al., 1972; Pless & Sailerwhite, 1972; Eaton, 1978; Gore, 1978), others have reported a lack of correlation between social support and health (House & Wells, 1978). Still others point out the methodological limitations found in these studies (c.f., Pinneau, 1976; Rabkin & Struening, 1976; Lin et al., 1979; Thoits, 1981).

Within this context, a number of questions may be raised with respect to social support, life events, and health. How is health related to life events? What kind of life events best predict physical health outcomes? What effect does social support have on
physical health? What role do socio-economic characteristics play? Do they have a significant effect on health? Our task is to develop a theoretically-based model and to provide data which address these questions and allow us to draw conclusions concerning the relationship among life events, social support, and health.

This dissertation consists of four major sections. We will begin with a review of the literature in the areas of social support, life events, and health. Its purpose is dual. First, it will explain the theoretical consequences of differences between the "total change" and the "undesirability" approaches. Second, it will enable the construction and examination of a theoretical model containing indicators of salient variables: life events, illness, social support, and demographic characteristics. The second section is concerned with methodology and research design, including the operationalization of variables, history of the Third Harvard Growth Study data, data collection techniques, coding, the rationale for using various social support and life events measures. It will also describe selected characteristics of the Third Harvard Growth Study participants. The third section will present the findings of the research along with some interpretation of their significance to the theoretical issues under examination. Finally, the fourth section will provide the reader with a brief discussion of the results and of the implications of the research. It will further suggest some possibilities for future research.
CHAPTER I

THEORY AND LITERATURE REVIEW

There are three major theoretical emphases in the literature of medical sociology relevant to life events, social support, and health: (1) the social stratification perspective, (2) societal reaction and labeling theory, and (3) models dealing with social resources, stress, and coping. While they are distinct perspectives, these approaches are not mutually exclusive. In fact, it is common to hold conceptions based on all three (Mechanic, 1974). To clarify their assumptions and determine their utility for the present research, these perspectives will be presented individually. Then, after their basic elements are discussed a series of theoretically based models will be presented. Finally, a single model will be developed that utilizes elements from these perspectives.

The Social Stratification Perspective

The impetus for this perspective derives from Robert Merton's (1957) theory of anomie. Merton suggested that while the social structure induces common aspirations among all social groups, it differentially provides access to the legitimate means for achieving these socially approved goals. Those who lack access to these socially approved means must make some sort of adaptation. One adaptation is to use socially unapproved means in the quest for socially approved goals. Alternatively, because these goals are
perceived to be unattainable, some individuals reject them or substitute new goals. Although they believe socially approved goals are unattainable, some people maintain the facade of pursuing them through socially approved means. This ritualistic adaptation is typical of those in bureaucratic settings who follow and enforce rules more precisely and mindlessly than was ever intended. The reason for this adaptation is simple. It eliminates the negative sanctions for nonconformity as these people become "secret deviants" (Becker, 1973). Yet another adaptation is to reject both the societal goals and the means. These "retreatists" lack the institutional security of the ritualists and experience the condition of normlessness to the degree that they cannot function. The retreatist population is composed of alcoholics, panhandlers, and others who cease to pursue socially approved goals through the sanctioned means because they lack access to them (Merton, 1957). Unlike ritualists, these people are punished for their obvious nonconformity through various social control agencies like the police.

In essence, Kessler and Cleary (1980) apply the Mertonian approach in their discussion of stress and illness. These researchers suggest that exposure to stress is important, but only accounts for a relatively small portion of the stress-illness relationship. They argue that class differences in responsiveness to stress are far more important. Specifically, they believe that lower-status people are disadvantaged in their access to both social
and intrapsychic resources. Thus, due to this lack of coping resources, Kessler and Cleary believe that lower-status people are more likely than middle- or upper-status people to develop an illness.¹

Economic resources also have an impact on illness. Economic constraints also may force lower-status people to defer treatment until their illness is more serious, settle for inadequate treatment, or take no treatment at all. These constraints, therefore, may further limit the taking of preventive measures, thus increasing the likelihood of illness. In this instance, illness itself can be seen as a coping response which reflects the limitations imposed on the individual. The only coping option left to this person is illness. Therefore, differential rates of deviant adaptations like illness can be understood in social structural terms.

This perspective indicates that while everyone is socialized toward similar aspirations, the resources approved to reach them are unequally distributed. Therefore, an adaptation must be made. This may involve substituting new goals, new means, or both. In terms of stress and illness, it is suggested that socio-economic status has an impact on the individual's access to these resources. Low-status people have fewer coping resources than middle-or upper-status people by virtue of their social class. Therefore, illness may be used as a coping response to stress more readily by lower-status people than by higher-status people. This perspective leads us to expect that the
lower-status individuals in the Third Harvard Growth Study data will report more health problems than middle- or upper-status individuals when the number of life events is held constant. Moreover, the stratification perspective suggests the importance of considering a variety of demographic variables like income, education, employment, marital status, and others as relative indicators of social resources in our analysis.

Societal Reaction and Labeling Theory

Labeling theory directs our attention to the processes involved in making rules, their situational and discriminatory application, and their effects on individuals. It shifts our attention away from an individual's actions and toward the ways in which social definitions and institutional processes of social control define both what and who is deviant (cf., Spector & Kitsuse, 1977; Traub & Little, 1980; Schur, 1980). In this view, deviance itself is a social construction or label applied by "official" social control agencies. It is a "consequence of the application of rules and sanctions to an offender" (Becker, 1973, p. 9). The main assumption behind this model is that the community response to an alleged deviant behavior significantly influences the course of that behavior.

Sometimes the individual's behavior is perceived by the community as nonthreatening and is ignored. Lemert (1951) referred to this as primary deviation. However, if societal reactions become severe enough, the individual may be labeled by others as deviant. At that juncture, it is often expedient for the individual to take on
the deviant role to organize his/r life. In exchange for capitulat­ing to the deviant label, the individual is spared certain indignities and difficulties. It is in this sense that the deviant's life is expediated. In Lemert's (1951) terminology, this constitutes secondary deviance. In other words, the reaction to disapproved behavior affects the opportunity for conventional adjustment, may increase the pressure toward further deviance, and has major effects on the labeled person's self concept. Some have even argued that these definitions prompt people to pursue "deviant careers" as the stigmatizing label placed on them limits their options (Becker, 1973; Schur, 1980).

Gusfield (1980) illustrates how the stigmatizing label "sick" can limit the options available to the individual. He argues that defining people who behave strangely as "sick" both changes their role in society and their status as deviants. The sick label causes society to view the object of concern in a different moral light than does sin, preference, or badness. Illness introduces an element of compulsion into the cognitive reality of the phenomenon. To illustrate, back strain is a legitimate reason for not attending class. The "sick" are neither criminally nor morally responsible for their disease. As sick people, they are both obligated and entitled to be helped. They are obligated to be helped because "sickness" is socially defined as an undesirable condition. Once defined as having a medical problem, the sick are appropriate objects of treatment. They are, therefore, entitled to professional help. The onus of
being "bad" is eliminated when the same phenomena are viewed as disease instead of deviance (Gusfield, 1980, p. vii).

Similarly, the social responses to deviance and illness are different. Deviants are punished to alter their behavior in the direction of acceptability. Sick people, in contrast, are treated to alter the conditions that prevent their conventionality. The redefinition of alcoholics from "bad" to "sick" is a case in point. Historically, drinking was defined as an act of free will. The assumption was that people behaved in ways to maximize their pleasure and profit while minimizing unpleasantness. Therefore, being drunk was defined as a matter of free choice and the drunkard was defined as deserving of punishment. As alcoholism became redefined as disease, the societal response of punishment was replaced by treatment as the notion of free will was invalidated in medical cases of addiction (Conrad & Schneider, 1980, p. 78-86). Conrad and Schneider (1980), therefore, suggest that the sick role has four components. First, the sick person is exempt from meeting normal responsibilities to focus on getting well. Second, the individual is not responsible for being sick and cannot be expected to recover through force of will. Third, the person must recognize the undesirability of being sick and must want to recover. Fourth, the sick person is obligated to seek out medical attention and to cooperate with the health care agent (Conrad & Schneider, 1980, p. 32).

It is clear that societal reaction to an individual's behavior has a direct impact on the course of that behavior. If the individual is defined as sick, a variety of responsibilities are removed.
from this person. Likewise, s/he is expected to act in ways that are defined as appropriate when ill. The most important of these behaviors is to seek out and cooperate with health care agents so that the return to health is a swift one.

Although the labeling perspective is generally useful, it is not helpful with the problem at hand. The instrument used in data collection does not allow us to determine societal reaction to the sick label. Nor does it allow us to assess the impact of societal reaction on the individual's behavior. Therefore, the contribution of the labeling perspective can only be appreciated in terms of its larger contribution and relevance to the medical sociology literature.

Social Resources, Stress, and Coping Perspectives

Life event measures and social support models are both utilized within the social resources, stress, and coping perspectives. In this section, we will do two things. We will start by examining the general social resources, stress, and coping perspectives. Subsequently, life event measures and social support models will be discussed in more detail.

Social resources, stress, and coping models may be examined at two different levels: the individual and the institutional. At the individual level, there are models that locate the inability to maintain a conventional life style in "circumstances in which social stress taxes coping efficacy and available supporting resources" (Mechanic, 1974, p. 189). The basic idea is that everyone has a
breaking point. Therefore, illness is a result of an overwhelming accumulation of stressors on the individual.

There are several conceptions of what constitutes stress and the role of life events that direct these models. Holmes and Rahe (1967) and Masuda and Holmes (1967) emphasize the impact of the total number of life events experienced within a particular time period. These researchers take a sort of life "density" notion in that it is not the kinds of events experienced, but the sheer volume of events that taxes the individual's coping mechanisms. Others argue that the accumulation of undesirable events must be emphasized as they are more taxing on the individual's coping mechanisms (Myers et al., 1975; Ross & Mirowsky, 1979; Thoits, 1982). The individual's anticipation and definition of the situation are also thought to play key roles in coping with stress, and may intervene or mediate in the process which produces illness (Lazarus, 1966; Kessler & Cleary, 1980). For example, a person who works very hard with the goal of career advancement in mind will view a promotion favorably. An unexpected promotion is likely to be much more stressful as it was not anticipated. Even though it is a reward, its shock value on the individual will be greater than if it could have been anticipated. In other words, there is less stress associated with an anticipated event than an unanticipated event because the person has time to build up his/r coping resources before the event actually occurs.

At the institutional level, the focus is on how people's capacities, skills, and defenses against stressors have been developed through their interaction in social networks, by societal incentives,
and by the socio-cultural preparation they have received for problematic life events (Mechanic, 1974). Once again, the idea of a tolerance level or a breaking point is used. At this level, an individual who falls ill would be suspected of lacking coping skills or an adequate support system through which to overcome the effects of the stressors and would focus attention on the macro structure that produced it. However, the individual is not the only source of inadequacies. The overall structure and flexibility of social organizations also have an impact. Inefficient and inflexible organizations limit the resources and means for achieving goals available to an individual as it is through organizations that many valued goals are achieved (Thompson, 1967). Conversely, more efficient and flexible organizations provide additional resources and can enhance the individual's pursuit of socially valued goals and thus reduce stress.

The density notion of life events may be a useful one in examining the impact of life events on health. However, the argument made by proponents of the undesirability approach is also persuasive. In this dissertation, we will assess the usefulness of each approach in analyzing the Third Harvard Growth Study data.

**Life Event Measures**

Life event models provide one of the most popular approaches to studying stress. However, a great deal of controversy surrounds the use of these models. The pioneering work by Holmes and Rahe (1967) takes what is referred to as the "total change" approach to life
events. The fundamental assumption of this approach is that change itself is the crucial stressful characteristic of life events (Holmes & Rahe, 1967; Masuda & Holmes, 1967). In short, they argue that it is not the type of change that is important. Rather, any kind of change is disruptive of normal everyday life patterns and must be considered.

Adherents to the total change approach typically create a summary measure of life change for each individual. Within a given time period, all of the desirable, undesirable, and other events experienced by the individual are added together to measure life change. These researchers also frequently add weights to all events prior to summing them (Thoits, 1981). However, it has become accepted practice to use a simple summative score for life event models. (Ross and Mirowsky (1979), Tausig (1982), Thoits (1982) and others, determined that weighted and unweighted scores do not differ in their predictive abilities.)

The other major approach to life events is the "undesirability" approach. Proponents of this perspective argue that undesirable events are better predictors of subsequent illness than either an equal number of positive and negative events or the overall total number of events (Gersten et al., 1974; Myers et al., 1975; Paykel et al., 1975; Vinokur & Selzer, 1975; Ross & Mirowsky, 1979; Thoits, 1981). As with the total change approach, simple summative measures are frequently used, as weighting these measures does not significantly add to their predictive abilities (Ross & Mirowsky, 1979; Tausig, 1982). Thoits (1981) reported that in four of five studies
comparing the predictive powers of the undesirability and total change approaches, the undesirability measures were more highly correlated with psychological disturbance than were total change measures. Moreover, in three of these the correlation between the total number of events and psychological disturbance dropped almost to zero when the effects of undesirable events were partialled out (Thoits, 1981). The conclusion drawn, therefore, is that the relationship between the total number of life events and psychological disturbance can probably be attributed solely to the effects of undesirable events (Thoits, 1981, p. 98).

Whether life events are used as a total change approach or as an undesirability approach should be dictated by the final goal of the research (Dohrenwend & Dohrenwend, 1981). They argue that the more a sample of events used in a particular measurement of life events represents a summed mixture of positive, negative, and ambiguous events, the higher the correlation with health indicators (Dohrenwend & Dohrenwend, 1981). This situation makes it more difficult to assess the etiological implications of a relationship between the measure and various kinds of illness. Therefore, if the goal is to investigate the observed relationship between life events and illness, then all events—positive, negative, and ambiguous—should be put together in the life event measure. However, if the aim is to investigate the etiological role of life events, the various types of events must be separated during the analysis as proponents of the undesirability approach suggest (Gersten et al., 1974; Myers et al.,
In this dissertation, we will take the undesirability approach, yet heed the advice of Dohrenwend and Dohrenwend (1981). We will consider positive, negative, and ambiguous events but we will treat them separately. In essence, we will be testing the major contention of proponents of the undesirability approach. That is, we will add one more comparison of the "total change" and the "undesirability" approaches to the literature as we determine whether undesirable life events are really the best predictors of physiological illness.

**Social Support Models**

Within the larger social resources perspective, many investigators have utilized social support models in conjunction with life event measures (Nyers et al., 1975; Eaton, 1978; Lin et al., 1979; La Rocco et al., 1980; Gore, 1981; Williams et al., 1981; Holahan & Moos, 1982; Thoits, 1982). In the late 1960's, researchers like Kissel (1965) and Michaux et al. (1967) recognized the significance of the presence of a significant other in stressful situations for reducing illness responses. More recently, Lin et al. have noted that:

social support is negatively related to illness .... We may postulate that social support possibly acts as a preceding factor reducing the likelihood of the onset of illness, in providing normative pressure against the likelihood certain events occurring. Or, alternatively, it serves as a buffer against the exacerbation of response to life changes by providing the information needed to reduce or eliminate drastic psychological or physical consequences of life changes (1979, p. 109).
Through its position as an antecedent factor, social support may preclude the occurrence of certain life events (House, 1974; Lazarus & Launier, 1978). For example, if one's religion prohibits or discourages divorce through strong social sanctions, the likelihood of a divorce occurring is reduced for members of the religious group. Alternatively, it may act as a buffer. In this role, the impact of those life events that do occur may be mediated by providing support or helpful information to the individual (Caplan, 1974; Cassel, 1976; Cobb, 1976; Antonovsky, 1979). For example, if a person's religion prohibits divorce but s/he is experiencing marital difficulties, s/he may seek information about how to locate a marriage counselor or how others have successfully dealt with similar problems. In summary, social support may be seen either as an antecedent factor that reduces the likelihood of the occurrence of undesirable life events, or as an intervening factor that influences both the interpretation and the emotional responses to life events that have occurred (Lin et al., 1979).

The main difficulties in using social support with life event measures are discussed by Thoits (1982). She argues that these measures suffer from two major shortcomings. The first is that many researchers have not precisely conceptualized their definition of social support. For instance, research by Brown et al (1975), Myers et al. (1975), and Eaton (1978) simply take items from an available data set, arbitrarily define them as social support, and proceed with their analysis (Thoits, 1982, p. 146). At no time do they attempt
conceptual definitions. This of course, raises the issue of validity. Thoits (1982) further argues that it is essential to realize that social support appears to be a multi-dimensional concept. It is not just the amount of support that is critical; the sources and types of support are equally as important (Thoits, 1982, p. 147). Furthermore, the sources and types of social support may not all be as equally effective against stressors (Eaton, 1978).

The second major shortcoming is both theoretical and methodological in nature. As Thoits (1982) notes, the effect of life events on support and the effect of life events with social support may be confounded. Life events may be identical to changes in social support, and events themselves may create changes in the support system as well. By way of illustration, the death of a spouse deprives the individual of structural supports. However, this event may additionally result in certain family members and friends coming to the survivor's aid while others increase their distance. Other events like illness, moving, promotion, or demotion at work do not appear to be social support changes in themselves. Nevertheless, their occurrence may result in the acquisition of new supporters, the loss of old supporters, or a combination of both. For these reasons, it is imperative that social support be defined as a dynamic variable in that the individual's current support level is likely to be a product of recent life changes (Thoits, 1982). Therefore, studies which measure social support at only one point in time inadequately test the buffering hypothesis suggested by Lin and her associates (1979).
The inadequate conceptualization of what comprises social support is apparent in the literature. However, it is typically thought to work in one of two ways. It is seen by some as an antecedent factor which precludes the occurrence of certain life events. Others view it as a buffer which lessens the effect of life events. It is seldom recognized that all sources and types of social support are not equally effective. Another problem in the literature has to do with confounding its relationship with or on life events. As we only have one measure of social support, we cannot test the buffering hypothesis suggested by Lin and her associates (1979). We can, however, assess the contribution of social support as a coping resource in our theoretically-based model.

Theoretically-Based Models

Each of the major theoretical perspectives discussed in this chapter shares a concern over social resources. However, their foci are slightly different. Our task here is dual in nature. First we will construct a series of models based on each of the previously examined perspectives. Second, we will construct a model integrating elements from each. Our goal is to determine if our model adequately represents the relationship between life events, social support, and health. An additional dimension to our theoretically determined model is that we can begin to ascertain whether desirable health-related events, undesirable nonhealth-related events, undesirable health-related events, the total number of undesirable events, or
some other functions of life events has more predictive power in regard to health.

The first model comes from the social stratification perspective. This theory focuses on how demographic variables like socioeconomic status, marital status, and social structure either limit or enhance the resources available to people as they pursue socially approved goals. We would expect, therefore, that lower-status people have less access to legitimate coping resources. Consequently, illness may be used as a coping response. Using the model in Figure 1 as a guide, we can examine the relationship between demographic variables and other social resource variables like social support on health.

![Figure 1. Stratification Perspective Model](image)

The models constructed within the societal reaction framework expand the view of the stratification perspective. It asks how a label and the reaction it elicits may affect the resources available
to the individual. It further directs us to consider how societal expectations are altered by virtue of a socially imposed label. Figures 2A and 2B are illustrative of this perspective's direction. Figure 2A suggests that demographic variables and health will each have an impact on social support. In consequence, social support will further have an impact on the kinds of life events experienced. Alternatively, Figure 2B suggests that the amount of social support, along with demographic variables, determine one's health adaptation. Furthermore, health will then impact upon the kinds and amount of life events experienced.

![Figure 2A. Societal Reaction Model](image)

![Figure 2B. Societal Reaction Model](image)
As in the stratification and societal reaction perspectives, the social resource perspective is concerned with the resources available to the individual and how health is effected. The relationships of consequence are shown in Figures 3A and 3B. As Figure 3A indicates, demographic variables and life events have an impact on one's social support resources. Furthermore, some life events may overwhelm our social support resources more than others. This, in turn will have an effect on health.

Figure 3B gives another version of how social resources may protect the individual's health. It could be that demographic variables restrict the amount and kind of life events an individual encounters. Subsequently, these events will have an impact on social support. The level of support resources available to the individual for use with these life events determines the health outcome. Demographic variables may also determine the strength of the individual's social support system. In turn, health is affected.

Demographic Variables

Life Events

Social Support

Health

Figure 3A. Social Resources Model
Discussion

It should be apparent that several themes emerge from the medical sociology literature related to life events, social support, and health. First, the social stratification perspective is predicated on the notion that there are class differences in responsiveness to stress. Lower-status people have fewer social and intrapsychic resources than middle- or upper-status people. Therefore, these individuals are more likely to develop an illness in response to stressors as they strive for socially approved goals.

A second perspective, labeling, draws attention to the effect an illness definition has on the societal reaction to the labeled individual and on the individual him/herself. The individual who is labeled "bad" is punished to alter his/r behavior. A person who is
designated as "sick" is not held responsible for his/r condition. Therefore, s/he is entitled to receive treatment and is expected to graciously accept it. As previously noted, the labeling perspective cannot be used in this dissertation because of the nature of the data. However, it would be remiss to ignore or to slight the contribution made by this perspective to medical sociology.

The social resources, stress, and coping perspectives comprise the third major theoretical emphasis in the medical sociology literature. At the individual level, these models make the point that everyone has a tolerance level for stress that must not be exceeded if the person is to remain healthy. If s/he does become ill, it is because the person's coping resources were overwhelmed. At the institutional level, the focus is on how well the individual's capacities, skills, and defenses against stressors have been socially developed. Here the emphasis is on inadequate coping skills and inadequate social support and not on the strength of the stressors as the density notion of life events is held.

Within this larger approach, life event measures have been used to explicate the relationship between life events and illness. Proponents of the total change approach argue that it is not the kind of change that is critical. Rather, change itself is the critical stressful characteristic of life events. In contrast, adherents to the undesirability approach argue that positive, negative, and ambiguous events must be examined separately when the etiological role of life events is investigated.
Social support models are often used in conjunction with life event measures. It is posited that social support may act in one of two ways. It may act as an antecedent factor and thus, preclude the occurrence of certain life events. Alternatively, it may act as an intervening factor that influences both the interpretation and the emotional responses to life events that have occurred.

From these theoretical perspectives, a model has been developed which integrates elements from each (see Figure 4). The influence of the social stratification perspective is evident in the position and use of demographic variables. These variables include sex, income, marital status, and prior health. It is hypothesized that demographic variables have a direct effect on social support, life events, and health. The direct link to these variables is consistent with the social resources perspective. The underlying rationale is that the individual's demographic characteristics determine his/r social resources. Moreover, one's social resources like social support restrict the amount and kind of events experienced.

![Figure 4. Integrated Model](image-url)
The model further hypothesizes a direct effect between life events and health. The greater the number of life events, the greater the anticipated number of health problems. However, this model also allows for other indirect effects. Demographic variables will have an impact on social support. In turn, social support will affect the number and kinds of life events which will further affect physiological health.

As the etiological role of life events is of primary interest, we will take the undesirability approach suggested by Ross and Mirowsky (1979) and Thoits (1981). Moreover, as we are treating the kinds of events separately, we are providing one more comparison of the "total change" and "undesirability" approaches to the literature. Since only one measure of social support is available, we cannot study social support as a mediating factor between life events and health. It will be tested as an antecedent to life events instead.
CHAPTER II

RESEARCH METHODS

The data used in this dissertation are from two follow-ups of the Third Harvard Growth Study (THGS). The THGS was actually one of a series of four related studies that originated at Harvard in 1872. The first was done by H. P. Bowditch, professor of physiology in the Harvard Medical School. Bowditch studied 12 males and 12 females for 25 years to determine the relationship between growth, gender, and age. He found that growth increments occurred up to the age of 25. The second study was conducted between 1910 and 1920 by W. T. Porter, also a physiology professor at the Harvard Medical School. Porter took monthly measurements of height and weight of the same Boston children over a nine year period to construct growth curves (Dearborn & Rothney, 1941).

The Third Harvard Growth Study began in 1922 under the direction of W. F. Dearborn and his associates at the Psycho-Educational Clinic of the Harvard Graduate School of Education. This study was based on approximately 3,600 children: first and second graders in the Medford public school system in 1922, first graders in the Revere public school system in 1922, and first graders in the Beverly public school system in 1923 (Dearborn & Rothney, 1941). On an annual basis, physical measurements were taken, in addition to mental and scholastic tests for as long as these students remained in public school. Since then, two follow-up studies have been conducted, first, in 1968 by Bajema, Damon and DeLong, and by Bajema and Ostroot.
in 1977. The fourth study began in 1930 under the direction of Harold C. Stuart and a staff of collaborators at the School of Public Health. They examined children from birth to explicate the relationship between physical and mental changes for boys and girls. Among their many findings was an association between physical size and age at menarche (Stuart et al., 1939).

Sample

In 1968, Bajema, Damon, and DeLong completed the first follow-up study of THGS participants since the initial work of Dearborn and Rothney (1941). Out of the original 3,600 participants, 2,200 were still accessible and identifiable in 1968. The others either had died or could not be located. Of the 2,200 people who remained out of the original sample, 56 percent (N=1200) cooperated with Bajema and his associates by filling out and returning the mailed questionnaire. This questionnaire focused on the respondent's health, employment history, family background, education, and other related topics (see Appendix A for the 1968 questionnaire). This follow-up provided data which was used to explore natural selection and intelligence. More specifically, he examined the relationship between intelligence and fertility among THGS participants (Bajema, 1971). Damon and Bajema (1974) also used these data to check the accuracy of recall among 143 THGS women as to their age at menarche. Thirty-nine years after the event, they found that menarche was recalled 0.2 years earlier than actual records indicated (Damon & Bajema, 1974).
A second follow-up study of the 1,200 participants in the 1968 study was completed in 1977 by Bajema and Ostroot. Slightly more than one-third of these individuals (N=423) participated again in 1977. The questionnaire distributed in 1977 was similar in design to the one used in 1968, but included some new questions. In particular, it added a section that focused on life event experiences as well as questions related to social support and family interaction (see Appendix B for questionnaire).

The 1977 follow-up was used in conjunction with data from previous follow-ups by Dauphinais (1978) to examine growth curves of mental ability. She administered the Wechsler Adult Intelligence Scale (WAIS) to THGS participants and compared the results to their Stanford-Binet results from grade school. She found that occupational level did not differentiate subjects on IQ change scores. She further discovered that the group as a whole significantly increased in mental ability over time (Dauphinais, 1978).

Description of Respondents

Although a total of 423 useable questionnaires were returned, only 405 were used in this dissertation. Eighteen subjects were lost due to the need for data comparability between 1968 and 1977. Only those who participated in both 1968 and 1977 could be used so that we could see if and how health changed over time. Table 1 contains information about the basic background characteristics of these people.
<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marital Status in 1977</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>89%</td>
<td>69%</td>
</tr>
<tr>
<td><strong>Parenthood as of 1977</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>82</td>
<td>82</td>
</tr>
<tr>
<td><strong>Education as of 1977</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some College or More</td>
<td>56</td>
<td>37</td>
</tr>
<tr>
<td>High School of Less</td>
<td>44</td>
<td>63</td>
</tr>
<tr>
<td><strong>Income in 1977</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$25,000 or More</td>
<td>32</td>
<td>2</td>
</tr>
<tr>
<td>$24,999-9,000</td>
<td>58</td>
<td>48</td>
</tr>
<tr>
<td>$8,999 or Less</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td><strong>Age in 1977</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>64-62</td>
<td>33</td>
<td>26</td>
</tr>
<tr>
<td>61</td>
<td>31</td>
<td>38</td>
</tr>
<tr>
<td>60</td>
<td>24</td>
<td>28</td>
</tr>
<tr>
<td>59-55</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td><strong>Employed in 1977</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>73</td>
<td>48</td>
</tr>
<tr>
<td><strong>Employed in 1968</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>97</td>
<td>99.5</td>
</tr>
<tr>
<td><strong>Spouse Employed in 1968</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>94</td>
<td>88</td>
</tr>
<tr>
<td><strong>Sample N</strong></td>
<td>190</td>
<td>215</td>
</tr>
</tbody>
</table>

*a* Missing data are excluded from all tables unless otherwise noted.

*b* Actually refers to income in 1976.
The combined 1968/1977 THGS sample contains a total of 405 people including 190 males (47%) and 215 females (53%). In 1977, the majority of these people were currently married (N=316) and 318 reported having parented one or more children. In terms of their educational level, 56 percent of the men had college experience versus only 37 percent of the women. Income levels for men and women are consistent with their educational differences. Thirty-two percent of the men reported incomes of $25,000 or more per year while only two percent of the women were able to reach this income level. In fact, half of the women respondents earned less than $9,000 per year. Only 10 percent of the men fell into this income category.

The participants in the 1977 follow-up ranged from 55 to 64 years in age. This range reflects the procedure used in 1922 and 1923 to recruit subjects. First and second graders were selected in 1922 and first graders in 1923 were included in the original sample. Moreover, some children start school early while others begin late because of the time of year in which their birthdays fall. Some others must repeat a grade because their work is not up to the expected level of mastery. The result of these factors is a small range in age. The majority of the subjects, both male and female, were between 60 and 62 years of age. Only 21 percent of the men and 13 percent of the women fell outside of this range.

In 1977 as in 1968, most of the respondents were employed. Ninety-seven percent of the men and 99.5 percent of the women were employed in 1968. Moreover, 94 percent of the married men in this sample reported that their wives worked while 88 percent of the
married women reported that their husbands were employed. Given the traditional cultural expectation that married women do not work outside of the home, this finding is somewhat surprising. However, it is consistent with U. S. Census Bureau figures (1969, p. 221). By 1977, employment figures for men and women dropped to 73 percent and 48 percent respectively. Women clearly showed the greatest decline in employment during this period.

This decline in employment is probably related to the fact that many of the THGS participants were eligible for social security and other retirement benefits in 1977 by virtue of their age. One-third of the men and one-fourth of the women were 62 years of age or older in 1977. Moreover, married women sometimes retire early to take advantage of their husband's retirement.

These data are, of course, not representative of the population at large. Nor are they representative of the original 3,600 THGS subjects. High school graduates and those who pursued higher education are clearly over-represented. Those who did not graduate from high school are especially under-represented as they were the most difficult to locate. Moreover, these people appear to be healthier and heartier than others who were born in 1917 and 1918. Estimates of life expectancy estimates for those born in 1917 were 49.3 years for men and 55.3 years for women (U. S. Bureau of the Census, 1975, p. 55). In 1977, the average age in the THGS sample was 61. Clearly, the THGS participants surpass these estimates and therefore represent the healthiest of the original participants. That is to
say, the 1977 participants are the survivors. For these reasons
generalizations to the population as a whole must be avoided.

Operationalization of Variables

Life Events

Life events refer to those significant things that an individual
experiences during the course of regular activities. They may be
defined by the researcher as positive, negative, or ambiguous. A
problem, of course, is that the same event may be perceived differ­
ently by the individual and the researcher. Moreover, the definition
may change over time as the event is reinterpreted from the vantage
point of a historical perspective. For example, the researcher may
initially define a promotion as positive since the worker's salary
and prestige increase. The worker, in contrast, may initially see
the promotion in a negative light because s/he will have to move to
another city and leave old friends behind. Alternatively, a forced
job move may be perceived by the individual as negative at the time,
but may later be redefined as positive if the move works out for the
better.

A related problem is a result of the retrospective nature of the
data itself. People were asked "Have any of these things happened in
your life the past two years?" Responses to questions of this type
are subject to at least three hazards. First, peoples' memories
fail. They simply do not always remember what has happened to them
in the past (perhaps especially if the events were unpleasant).
Second, even if they remember an event occurred, people do not, with
complete accuracy remember when it happened. Therefore, people may have unintentionally excluded events that should have been reported or included events that should not have been indicated. Third, it is also possible that recall is biased or distorted toward "significant" events as people tend to remember things that make the biggest impact on them. Whether these are positive or negative in character may well vary by the individual.

Another problem derives from the fact that the THGS data are also a secondary data set. That is, the instrument was designed for purposes other than those pursued by this dissertation. Thus, there is a problem in that some items are not as "good" or as relevant as one might wish. For example, respondents were asked if they had a change in their financial state in the past two years. However, the way this question was asked, it does not allow the determination of the direction (i.e., positive or negative) of this change or its magnitude. Therefore, this item is not as useful as it might otherwise have been.

Still another major problem has to do with the time intervals involved. It cannot be determined when, within the two-year period, the respondent experienced the indicated life events. There is no indication as to whether all of the events occurred within a three-month period or whether they were distributed fairly evenly over the two-year time period. Moreover, their order of occurrence is unknown. If this information had been available, the life density notion could be more directly assessed in terms of its relationship to physiological health.
Problems of this sort have led some researchers to argue that the best way to deal with life events is to indiscriminately combine positive, negative, and ambiguous events (Holmes & Rahe, 1967; Masuda & Holmes, 1967). This, of course, is the total events approach. Others have argued that undesirable events are better predictors of illness than the total number of events (Myers et al., 1975; Paykel et al., 1975; Ross & Mirowsky, 1979; Thoits, 1981). Due to the controversy involved with using a single life event measure, we will create and test five measures. The first will indicate desirable events. The second and third measures will focus on undesirable events. These measures will be used to indicate the number of undesirable health-related events and undesirable nonhealth-related events, respectively. The fourth measure will represent the sum of the negative events experienced. The fifth measure will represent the sum of all of the events, both positive and negative. The specific items used are found in the section entitled "Family History" on the 1977 questionnaire (see Appendix B).

In addition to these five measures of life events, a test was made using life event ratios. Since the literature suggests a "density" interpretation of the impact of life events, it seemed reasonable that the ratio of one type of event to another would be a useful measure. Ratios were calculated for all four of the other life event measures to the total number of life events. These measures included desirable events, undesirable nonhealth-related events, undesirable health-related events, and the total number of undesirable events. The findings here were consistent with those of Ross and Mirowsky.
(1979) who tested 23 separate methods of weighting life events in terms of how well they predicted psychiatric symptomatology. They found no significant improvement over the use of a simple summed measure (1979). Similarly, none of the ratios tested for this dissertation demonstrated any significant improvement over the simple summative life event measures in predicting physiological symptomatology.

Table 2 reveals the percentage of respondents that experienced each type of life event by sex. The organization of this table is similar to that used by Ross and Mirowsky (1979) and by Thoits (1981). The top third of the table is concerned with desirable events and includes items like outstanding personal achievement and the birth of grandchildren. The middle third of the table contains those items classified as undesirable nonhealth-related events. Although these items are deemed undesirable, (and in several instances are health-related), they are not directly related to the subject's own health (Thoits, 1981). Undesirable nonhealth-related events are typified by items like the death of a family member or retirement. The bottom third of Table 2 contains undesirable health-related events. Of interest here are items like high blood pressure, personal injury or illness, and rheumatism. The largest category in this section is "other major health problems." This category cannot be broken down to provide more specific information as the respondents' descriptions of these problems were not coded. This is unfortunate in light of the fact that 37 percent of the men and 32 percent of the women indicated that they had experienced a major
Table 2
Life Events Between 1975 and 1977 by Sex

<table>
<thead>
<tr>
<th>Events</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Desirable Events</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marriage of Kids</td>
<td>15.3%</td>
<td>16.7%</td>
</tr>
<tr>
<td>Birth of Grandchildren</td>
<td>26.3</td>
<td>21.4</td>
</tr>
<tr>
<td>Personal Achievement</td>
<td>11.1</td>
<td>4.7</td>
</tr>
<tr>
<td>Marriage-Remarriage</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Once In A Lifetime Vacation</td>
<td>8.4</td>
<td>16.3</td>
</tr>
<tr>
<td>Marital Reconciliation</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Undesirable Events: Nonhealth-Related</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in Health-Family Member</td>
<td>11.6</td>
<td>20.9</td>
</tr>
<tr>
<td>Fired-Laid Off</td>
<td>4.2</td>
<td>2.8</td>
</tr>
<tr>
<td>Retirement</td>
<td>.5</td>
<td>0</td>
</tr>
<tr>
<td>Divorce From Spouse</td>
<td>1.1</td>
<td>0</td>
</tr>
<tr>
<td>Marital Separation</td>
<td>.5</td>
<td>0</td>
</tr>
<tr>
<td>Death of Close Friend</td>
<td>14.7</td>
<td>21.4</td>
</tr>
<tr>
<td>Death of Parent</td>
<td>7.9</td>
<td>10.2</td>
</tr>
<tr>
<td>Death of Child</td>
<td>.5</td>
<td>0</td>
</tr>
<tr>
<td>Death-Other Family Member</td>
<td>17.9</td>
<td>21.9</td>
</tr>
<tr>
<td><strong>Undesirable Events: Health-Related</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Injury-Illness</td>
<td>17.4</td>
<td>20.9</td>
</tr>
<tr>
<td>Diabetes</td>
<td>4.0</td>
<td>4.2</td>
</tr>
<tr>
<td>High Blood Pressure</td>
<td>30.5</td>
<td>27.0</td>
</tr>
<tr>
<td>Stroke</td>
<td>1.6</td>
<td>1.4</td>
</tr>
<tr>
<td>Rheumatism-Arthritis</td>
<td>10.5</td>
<td>23.3</td>
</tr>
<tr>
<td>Cancer</td>
<td>2.1</td>
<td>9.3</td>
</tr>
<tr>
<td>Other Tumor-Growth</td>
<td>3.7</td>
<td>10.2</td>
</tr>
<tr>
<td>Stomach Ulcers</td>
<td>4.7</td>
<td>7.9</td>
</tr>
<tr>
<td>Paralysis</td>
<td>1.1</td>
<td>1.9</td>
</tr>
<tr>
<td>Convulsions</td>
<td>.5</td>
<td>.9</td>
</tr>
<tr>
<td>Nervous Breakdown</td>
<td>1.1</td>
<td>1.9</td>
</tr>
<tr>
<td>Other Major Health Problems</td>
<td>36.8</td>
<td>31.6</td>
</tr>
<tr>
<td><strong>Sample N</strong></td>
<td>190</td>
<td>215</td>
</tr>
</tbody>
</table>

health problem that was not specifically referred to in the previous series of health-related questions. It is possible that specification
of these events would make a significant difference in the health-related findings.

In each section of this table, it is easy to discern the differences in the kinds of events experienced by the male and female respondents. For example, the most frequently indicated desirable event for both men and women was the birth of grandchildren. The second most reported event was the marriage of their children. Here there was virtually no difference between the percentage of men and women who reported this event. The third and fourth most frequently reported events for men were personal achievement and a once in a lifetime vacation. Interestingly, these events were also ranked third and fourth for women. However, their order was reversed for men.

A similar pattern emerges when undesirable nonhealth-related events are examined. Heading the list for both men and women was the death of another family member. This event was closely followed by the death of a close friend. In this case, a greater percentage of females than males reported each of these events. Once again, the third and fourth ranked categories were reversed for men and women. Retirement was the third ranked category for men (13%) and fourth ranked for women (14%), while change in health of a family member was number three for women (21%) and fourth for men (12%).

As in the case of desirable events and undesirable nonhealth-related events, undesirable health-related events follow the same pattern. Approximately a third of both the men and the women reported other major health problems, making it the most frequently
cited category. It is followed by high blood pressure. Personal injury or illness was indicated by 17 percent of the male respondents and by 21 percent of the female respondents. For women, however, this category ranks fourth in terms of percentages. Their third most frequently indicated health-related problem was rheumatism-arthritis (23%). For the men, rheumatism-arthritis (11%) fell into fourth place.

These findings illustrate a gender-linked pattern in the data. There are distinct differences in the frequency that men and women reported particular events. Work-related events are reported more frequently for men than for women. Likewise, women reported family-related events more frequently than men. For example, outstanding personal achievement was the third most frequently noted desirable life event reported for men. This was followed in fourth place by once in a lifetime vacation. For women, the order is exactly the opposite. The same pattern emerges for undesirable nonhealth-related events and for undesirable health-related events. That is, the third and fourth most frequently reported events reverse themselves for women when compared to men.

Unfortunately, in the first follow-up (1968), data were not collected for life event items. Therefore, no comparison can be made to aid us in interpretation. Furthermore, there was not a separate "no problem" category provided for these items. This means simply that the two groups are indistinguishable. Therefore, since there were up to ten percent of the respondents who did not indicate any life events, these could all actually be non-respondents.
Social Support

Social support refers to the social ties a person has with other people, groups, and the community at large. Social support, then, refers to all of the intrapsychic and social resources available to a person. A social support system incorporates a lasting pattern of ties or network of relationships that are an individual's link to necessary coping resources (Caplan, 1974; Sarason, 1976; Holahan & Moos, 1982). As Caplan (1974) further points out, emotional support, assistance, and information are often provided during times of need through this system. Moreover, this system's viability is closely tied to life events such as moving, the loss of a job, or the death of a friend or family member—at least to the degree that the life event directly involves one's sources of social support. In 1977, social support was indicated by the question, "Do you have someone you feel close enough to that you can talk about things that really bother you?" If the respondent answered in the affirmative, s/he was then asked to indicate the relationship of these individuals to him/r. Each respondent then received one point for each reported resource. Thus, the aggregate number of such persons is the indicator of social support not some function of the number and their relationships to the respondent.  

Table 3 indicates the sources of social support by sex. Once again, some interesting sex differences emerged. The main sources of support for married male respondents were their spouses (88%) while 74 percent of the married women indicated their spouses. There is a
14 percent difference between the proportions of men and women who indicated their spouse in a supportive role. Friends were the second most frequently indicated support source for both men and women. Fifty-six percent of the women versus 35 percent of the men indicated friends took this supportive role for them. The third and fourth sources were children and siblings for both men and women. However, in each case, a greater percentage of women than men indicated these categories. It seems that the male respondents in this study rely primarily on their spouses for social support. In contrast, a greater percentage of the female respondents looked to their friends or others. This is a further illustration of gender-related differences.

Table 3
Social Support Sources By Sex

<table>
<thead>
<tr>
<th>Social Support Source</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spouse</td>
<td>88%</td>
<td>74%</td>
</tr>
<tr>
<td>Children</td>
<td>30</td>
<td>49</td>
</tr>
<tr>
<td>Friend</td>
<td>35</td>
<td>56</td>
</tr>
<tr>
<td>Sibling</td>
<td>27</td>
<td>40</td>
</tr>
<tr>
<td>Clergyman</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Doctor</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>Parent</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>9</td>
</tr>
</tbody>
</table>

Physical Health

The final variable of consequence is the dependent variable, physical health. Each respondent was asked a series of questions
about his/r health. In 1968, the respondents were asked if a doctor told them they had one of the health problems listed (see Table 4). For example, they were asked "Did a doctor tell you that you had diabetes?" In 1977, the question differed somewhat. This time the question was "Have you had any of the following health problems in the last 10 years?" In both 1968 and 1977, respondents were asked if they had diabetes, high blood pressure, rheumatism or arthritis, cancer, tumors, cysts or growths, ulcers, convulsions, or a nervous breakdown. Questions about strokes and heart trouble were not addressed consistently.

Each respondent was assigned a score based on the sum of his/r reported health problems for 1968 so that a baseline could be established. The score assigned in 1977 was also summative. Using these two measures of health provides an indication of improvement, decline, or stability in health over time.  

Table 4 indicates the percentage of respondents that indicated each of the health-related problems used in the summative scale by sex and year. Interestingly, there was a change in the kinds of health problems indicated from 1968 to 1977. The percentage of both men and women who reported rheumatism-arthritis, for example, declined substantially. Stomach ulcers, paralysis, and convulsions were also reported less frequently in 1977. By the same token, other conditions were reported more frequently in 1977 than in 1968. Foremost among these were diabetes and high blood pressure, which went from 0 to 58 percent for both males and females (see Table 4).
A variety of possibilities exist that could account for these findings. The decline in the percentage of respondents that reported stomach ulcers could be a result of retirement from a high pressure job. Likewise, the drop in those reporting paralysis may reflect successful rehabilitation or intervention for other medical problems like rheumatism or arthritis that may cause paralysis. A difference in the way these data were gathered could also account for the smaller percentages reported in 1977. In 1968 the problems were doctor diagnosed while in 1977 diagnosis by a doctor was not specified. Likewise, age and increasing public awareness of health problems like high blood pressure and diabetes could account for the increases noted for these variables. It is also possible that diagnostic improvements and other changes in the medical profession had an effect on these findings.

Table 4
Percentage of Health Problems by Year and Sex

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>0%</td>
<td>0%</td>
<td>16%</td>
<td>9%</td>
</tr>
<tr>
<td>High Blood Pressure</td>
<td>0</td>
<td>0</td>
<td>58</td>
<td>58</td>
</tr>
<tr>
<td>Stroke</td>
<td>*</td>
<td>*</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Rheumatism-Arthritis</td>
<td>36</td>
<td>74</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>Cancer, Tumors-Growths</td>
<td>7</td>
<td>18</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>Stomach Ulcers</td>
<td>34</td>
<td>67</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>Paralysis</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Convulsions</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Nervous Breakdown</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Heart Trouble</td>
<td>0</td>
<td>0</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

*Question not asked
Data Preparation Procedures

In an attempt to overcome interpretation problems, both data sets were clearly labeled and all coding was standardized as much as possible. For example, whenever "yes" or "no" responses were called for, a "yes" was consistently designated by a "one" and a "no" by a "zero." Once the coding operation was completed, the data cleaning process began. This cleaning involved the correction of coding errors, the removal of blank or erroneous mark-sense sheets, and the correction of any other errors that resulted during the reading of the mark-sense sheets or magnetic tape.

After the 1977 data were cleaned, and the 1977 participants were matched with their 1968 responses, simple frequency distributions and cross-tabulations were run on the resulting sample of 405 respondents. As a result of these runs, the decision was made to collapse categories for several variables (i.e., social support, age, marital status, life events). The ultimate objective of any collapsing was to increase the number of cases in a given cell and thus allow more meaningful interpretation. Income, for instance, was collapsed from ten categories down to three. In each case the rationale was to produce categories which were more amenable to statistical manipulation by reducing the number of zero cells.

In preparation for the regression and other analyses, "dummy" variables were created for all of the nominal level variables (i.e., sex, employment status, parenthood, spouse's employment status in 1968). In conventional regression analysis, variables are assumed to
be continuous (interval) in nature. However, nominal variables are not continuous, but categorical. This, of course, means that the categories are different from each other, but cannot be hierarchically arranged on the basis of a common attribute which varies in quantity from members in different categories (Lindeman et al., 1980). Thus dummy variables scores have no meaning other than representing a particular category of the original variable (Kerlinger & Pedhazur, 1973). In essence, we are treating nominal variables as interval variables when we dummy them. Dichotomous variables like sex or parenthood were used as predictor variables by coding one category "0" and the other category "1." Each case, therefore, becomes classified as being included (coded 1) or not included (coded 0) in each of the categories. The advantage of using dummy variable analysis is that it permits greater flexibility in the variables used in regression-based analyses and therefore, greater flexibility in the application of this technique (Nie et al., 1975).
CHAPTER III

RESEARCH FINDINGS

The purpose of this chapter is to explicate the relationship between selected social and demographic variables, life events, social support, and health. We will first examine these relationships through the use of crosstabulations. Subsequently, multiple regression and path analysis will be used to evaluate the theoretically derived model presented in Chapter I.

Health

The relationships between health score by year and sex are presented in Table 5. In 1968, 63 percent of the male respondents versus 45 percent of the female respondents reported having none of the health problems indicated on the questionnaire. This, of course, means that just over one third of the males reported one or more of the health problems in contrast to more than half of the females. At that time, the relationship was statistically significant ($\chi^2 = 18.79 = .003$). By 1977, an additional 14 percent of the male respondents reported one or more health problems, resulting in a total of 49 percent. In comparison, the percentage of women reporting one or more health problems only increased 6 percent, resulting in 39 percent reporting none. The end result of these changes is the fact that the ratio of men to women that reported no health problems is slightly smaller in 1977, but essentially the same. The table further shows that those reporting one or more problems declined
consistently for both sexes. However, a greater proportion of women reported two or more of these problems. This relationship was also statistically significant ($\chi^2=10.24, p<.02$). It is also consistent with the findings of Gove (1972) and Folkman and Lazarus (1980) who found that women reported more health-related problems than men.

Table 5
Health Score by Year and by Sex

<table>
<thead>
<tr>
<th>Health</th>
<th>1968</th>
<th>1977</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>No Problems</td>
<td>63.2%</td>
<td>44.7%</td>
</tr>
<tr>
<td>(120)</td>
<td>(96)</td>
<td>(93)</td>
</tr>
<tr>
<td>One Problem</td>
<td>24.2%</td>
<td>32.1%</td>
</tr>
<tr>
<td>(46)</td>
<td>(69)</td>
<td>(79)</td>
</tr>
<tr>
<td>Two Problems</td>
<td>11.1%</td>
<td>14.9%</td>
</tr>
<tr>
<td>(21)</td>
<td>(32)</td>
<td>(12)</td>
</tr>
<tr>
<td>Three or More Problems</td>
<td>1.6%</td>
<td>8.4%</td>
</tr>
<tr>
<td>(3)</td>
<td>(18)</td>
<td>(6)</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>(190)</td>
<td>(215)</td>
<td>(190)</td>
</tr>
</tbody>
</table>

The relationship between health score and marital status is reported in Table 6. The literature indicates that those who are single generally experience more mental health problems than those who are married (Jaco, 1958; Langner & Michael, 1963; Gove, 1972; Eaton, 1978). Berkman and Syme (1979), in fact, argue that it is the lack of social support associated with the status of being single.
which may increase the individual's vulnerability to physiological problems. This is evidenced in their finding that those without social ties and relationships have higher mortality rates (Berkman & Syme, 1979). As might be expected, those THGS participants who are married are somewhat healthier than those who are single. Five percent more married respondents than single respondents reported having no health problems. Similarly, somewhat larger proportions of single persons reported two and three or more health problems than married persons (3.6 percent and 2.3 percent respectively). This finding could be related to sex given the disproportionate number of single women in 1977 and the general tendency for women to report more health problems than men. While this relationship is not statistically significant, it is consistent with the literature.

Table 6

Health Score by Marital Status

<table>
<thead>
<tr>
<th>Health</th>
<th>Single</th>
<th>Married</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Problems</td>
<td>39.5%</td>
<td>44.9%</td>
</tr>
<tr>
<td></td>
<td>(34)</td>
<td>(142)</td>
</tr>
<tr>
<td>One Problem</td>
<td>40.7</td>
<td>41.1</td>
</tr>
<tr>
<td></td>
<td>(35)</td>
<td>(130)</td>
</tr>
<tr>
<td>Two Problems</td>
<td>14.0</td>
<td>10.4</td>
</tr>
<tr>
<td></td>
<td>(12)</td>
<td>(33)</td>
</tr>
<tr>
<td>Three or More Problems</td>
<td>5.8</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>(5)</td>
<td>(11)</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>(86)</td>
<td>(316)</td>
</tr>
</tbody>
</table>
Table 7 depicts the relationship between health and education, the first of our social class indicators. Here we find that the experience of going to college makes a difference in the respondent's reported health. Of those who attended college, 52 percent reported no health problems compared to 37 percent of those who did not attend college. In essence, as education goes up, the probability of avoiding health problems also goes up. Although not statistically significant, it was consistent with the findings of Kessler and Cleary (1980) who apply the social stratification perspective. The thrust of their argument is that higher-status people have more personal and social resources to help them cope with daily activities. Therefore, because they are deprived of these resources, lower-status people are more likely to become ill (Kessler and Cleary, 1980).

<table>
<thead>
<tr>
<th>Health</th>
<th>High School or Less</th>
<th>Some College or More</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Problems</td>
<td>37.1% (72)</td>
<td>52.4% (86)</td>
</tr>
<tr>
<td>One Problem</td>
<td>42.8% (83)</td>
<td>39.0% (64)</td>
</tr>
<tr>
<td>Two Problems</td>
<td>14.9% (29)</td>
<td>6.7% (11)</td>
</tr>
<tr>
<td>Three or More Problems</td>
<td>5.2% (10)</td>
<td>1.8% (3)</td>
</tr>
<tr>
<td>Total</td>
<td>100% (194)</td>
<td>100% (164)</td>
</tr>
</tbody>
</table>

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The relationship between health and income, the second of the social class indicators, is curvilinear (Table 8). The proportion of those with the lowest income had intermediate levels of problems. Middle income respondents, in contrast, experienced the highest proportion of problems. Those with the highest incomes had the lowest proportion of problems. The relationship is consistent except for three or more problems, where the N's are so small as to become problematic. Although this relationship was not statistically significant, it too is consistent with the social stratification perspective (Kessler and Cleary, 1980; Kessler, 1982).

Table 8
Health Score by Income

<table>
<thead>
<tr>
<th>Health</th>
<th>$0-8,999</th>
<th>$9,000-24,999</th>
<th>$25,000 +</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Problems</td>
<td>45.9% (34)</td>
<td>41.2% (61)</td>
<td>64.2% (34)</td>
</tr>
<tr>
<td>One Problem</td>
<td>39.2% (29)</td>
<td>45.3% (67)</td>
<td>30.2% (16)</td>
</tr>
<tr>
<td>Two Problems</td>
<td>13.5% (10)</td>
<td>9.5% (14)</td>
<td>3.8% (2)</td>
</tr>
<tr>
<td>Three or More Problems</td>
<td>1.4% (1)</td>
<td>4.1% (6)</td>
<td>1.9% (1)</td>
</tr>
<tr>
<td>Total</td>
<td>100% (74)</td>
<td>100% (148)</td>
<td>100% (53)</td>
</tr>
</tbody>
</table>
Both Table 7 and Table 8 have a number of missing cases (47 and 130 respectively). There are several explanations that could account for this. The first explanation applies to all "personal" questions. Many people simply will not answer questions that they perceive as too personal or threatening. Questions related to income, that cause embarrassment or are self-incriminatory fall into this category.

Second, because the THGS participants have answered many of these questions several times in the past, they may have skipped them. In this instance, a "no response" could actually indicate "no change" since 1968. Therefore, if we could account for these missing cases, it is possible that different findings would have emerged when income and education were used.

Summary

We have just seen the impact of selected demographic variables on self-reported health problems. Statistically significant relationships emerged for health problems by sex and by year. As expected, we found that the percentage of those experiencing health problems increased over time. Furthermore, this trend was more pronounced among the male respondents than the female respondents.

Other findings in this section indicated that those who were married, those with some college education, and those who earned $25,000 or more per year were among the least likely to report health problems. These findings are all consistent with the social stratification perspective. Furthermore, they support the position that socio-economic resources, or the lack of them, have an impact on
health. Socio-economic constraint may limit the use of preventative measures, thus increasing the likelihood of illness. They may further limit the individual's access to medical treatment. Therefore, illness may be seen as a failure of coping responses which is at least in part affected by socio-economic status (Kessler and Cleary, 1980; Kessler, 1982).

Social Support

The social support measure was designed to discern the number of perceived sources of social support available to the individual. As no improvement in the prediction of health outcomes was made by using a weighted measure of support, a simple summative measure was used. Each respondent was given one point for each source of social support indicated on their questionnaire. Using these categories of social support, we will again turn to some of the demographic characteristics of the respondents to see if any consistent patterns emerge.

The relationships between social support and education (Table 9) and income (Table 10) seem contradictory at first glance. Table 9 reveals the anticipated direct relationship between social support and education. As education increases, social support indeed increases. The relationship between social support and income, as displayed in Table 10, however, is inverse. That is, as income goes up, social support goes down. There is a steady increase in the proportion of those reporting one or fewer sources of support and a decrease for those reporting two or more sources of support as income increases.
These findings are not completely consistent with the expectations created by the literature. Myers et al. (1975) argue that education may be the critical variable by virtue of the options it opens to the individual. The stratification perspective further suggests that upper-status people have more social resources at their disposal than lower- or middle-status people. Therefore, as income and education increase, social support should increase. However, this was not the case in these tables. As in the other tables that examine education and income, Table 9 has 47 missing cases and Table 10 has 130 missing cases. This may account for the seemingly contradictory findings in these tables.

Table 9
Social Support by Education

<table>
<thead>
<tr>
<th>Education</th>
<th>High School or Less</th>
<th>Some College or More</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Support</td>
<td>42.8%</td>
<td>44.5%</td>
</tr>
<tr>
<td>Sources</td>
<td>(83)</td>
<td>(73)</td>
</tr>
<tr>
<td>2 or More</td>
<td>57.2</td>
<td>55.5</td>
</tr>
<tr>
<td>Sources</td>
<td>(111)</td>
<td>(91)</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>(194)</td>
<td>(164)</td>
</tr>
</tbody>
</table>
Table 10

Social Support by Income

<table>
<thead>
<tr>
<th>Social Support</th>
<th>$0-8,999</th>
<th>$9,000-24,999</th>
<th>$25,000 +</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 or Less Sources</td>
<td>35.1% (26)</td>
<td>48.6% (72)</td>
<td>52.8% (28)</td>
</tr>
<tr>
<td>2 or More Sources</td>
<td>64.9% (48)</td>
<td>51.4% (76)</td>
<td>47.2% (25)</td>
</tr>
<tr>
<td>Total</td>
<td>100% (74)</td>
<td>100% (148)</td>
<td>100% (53)</td>
</tr>
</tbody>
</table>

Table 11 further explicates the relationship for education and income on social support. When we control for education, a curvilinear relationship emerges between income and the number of social support sources. Those in the low income category had the middle proportion of support, the middle income level had the lowest proportion of support, and the highest income category had the highest proportion of support. However, when those with some college education or more are examined, an entirely different relationship emerges. In this case, as income increases, social support decreases. When compared to the lowest income category, almost 20 percent fewer individuals report two or more sources of support. Moreover, 25 percent more of the high income college-educated respondents report one or fewer support sources than their high school counterparts. Although not statistically significant, these findings support those of Myers and his associates (1975) that education is the crucial variable.
Table 11
Social Support by Education and Income

<table>
<thead>
<tr>
<th>Social Support</th>
<th>$0-8,999</th>
<th>$9,000-24,999</th>
<th>$25,000+</th>
<th>$0-8,999</th>
<th>$9,000-24,999</th>
<th>$25,000+</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School or More</td>
<td></td>
<td></td>
<td></td>
<td>Some College or More</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 or Less Sources</td>
<td>36.6% (15)</td>
<td>51.5% (35)</td>
<td>28.6% (2)</td>
<td>34.5% (10)</td>
<td>46.4% (32)</td>
<td>54.1% (20)</td>
</tr>
<tr>
<td>2 or More Sources</td>
<td>63.4% (26)</td>
<td>48.5% (33)</td>
<td>71.4% (5)</td>
<td>65.5% (33)</td>
<td>53.6% (37)</td>
<td>45.9% (17)</td>
</tr>
<tr>
<td>Total</td>
<td>100% (41)</td>
<td>100% (68)</td>
<td>100% (7)</td>
<td>100% (43)</td>
<td>100% (69)</td>
<td>100% (37)</td>
</tr>
</tbody>
</table>
Table 12 illustrates social support for the demographic characteristics of marital status and sex. As anticipated, far greater proportions of single respondents (63%) and males (52%) reported one or fewer sources of social support than married respondents (40%) and females (39%). Research by Gurin et al. (1960) complements our findings and helps explain the relationship between marital status, sex, and social support. They suggest that the "master status" of many males and of single people in general is that of job holder. As a result, males and singles alike tend to lack close interpersonal ties and are relatively isolated (Gurin et al., 1960). The relationship for marital status was statistically significant \( \chi^2=13.45 < .0002 \) as was the relationship for social support and sex \( \chi^2=6.35 < .01 \).^6

Table 12
Social Support by Marital Status and by Sex

<table>
<thead>
<tr>
<th>Social Support</th>
<th>Marital Status</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Single</td>
<td>Married</td>
</tr>
<tr>
<td>1 or Less Sources</td>
<td>62.8% (54)</td>
<td>39.9% (126)</td>
</tr>
<tr>
<td>2 or More Sources</td>
<td>37.2% (32)</td>
<td>60.1% (190)</td>
</tr>
<tr>
<td>Total</td>
<td>100% (86)</td>
<td>100% (316)</td>
</tr>
</tbody>
</table>

The final variable which must be examined in relation to social support is health (see Table 13). There is little change in the
proportion of those with no health problems in comparison with those reporting one or two problems across the support categories. In fact, there is less than a three percent change between the proportion of those with one or less sources of support and those reporting two or more sources. Although it is in the anticipated direction, this relationship is not statistically significant. Nor is it as strong as the literature suggests. Simply stated, the literature suggests that social support protects the individual from health problems. The more social support a person has, the fewer the number of health problems expected. This is the basic argument made by Myers et al. (1975), Gore (1978), and Thoits (1982; 1983). Notable exceptions are Nuckolls et al. (1972), Dean and Lin (1977), and Antonovsky (1979). They found that social support was only effective in situations where a high level of life events occurred. Generally

Table 13
Social Support by Health

<table>
<thead>
<tr>
<th>Health</th>
<th>1 or Less Sources</th>
<th>2 or More Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Problems</td>
<td>39.5%</td>
<td>44.7%</td>
</tr>
<tr>
<td></td>
<td>(77)</td>
<td>(44.7)</td>
</tr>
<tr>
<td>One Problem</td>
<td>42.0</td>
<td>40.6</td>
</tr>
<tr>
<td></td>
<td>(76)</td>
<td>(91)</td>
</tr>
<tr>
<td>Two or More</td>
<td>15.5</td>
<td>14.7</td>
</tr>
<tr>
<td>Problems</td>
<td>(28)</td>
<td>(33)</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>(181)</td>
<td>(224)</td>
</tr>
</tbody>
</table>
then, as social support increases, we would expect the number of health problems to decrease.

Summary

In this section we examined the relationship between various social and demographic variables with social support. Two statistically significant relationships were uncovered. Females and married respondents were found to have more social support than males or single respondents. Neither the relationship between support and education nor that between support and income was statistically significant. However, when we controlled for education, the inconsistency between these social status variables could be explained through the social stratification and social resource perspectives and the number of missing cases.

Life Events and Social Support

The last chapter noted the various life events reported by THGS participants between 1975 and 1977 by sex (see Table 2). This section begins to examine the relationship between these events and social support. We will start by attempting to evaluate the argument made by Dean and Lin (1977), Antonovsky (1979), Holahan and Moos (1982), and Thoits (1983) that social support has an impact on the amount and type of life events experienced.

If we look first at Table 14, we see that the proportion of desirable life events declines steadily as the number of events increases. This holds for both categories of social support. More
importantly, though, a larger proportion of the respondents with low levels of social support (either zero or one) report no desirable life events (62.4%), plus smaller proportions report either one or two events (27.6% and 9.9% respectively). Clearly, the higher the level of social support, the greater the likelihood of desirable life events ($X^2=9.14 \approx .01$). This is consistent with the interpretation offered earlier regarding social support and health.

Table 14

<table>
<thead>
<tr>
<th>Social Support</th>
<th>1 or Less Sources</th>
<th>2 or More Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Events</td>
<td>62.4% (113)</td>
<td>49.1% (110)</td>
</tr>
<tr>
<td>One Event</td>
<td>27.6% (50)</td>
<td>32.1% (72)</td>
</tr>
<tr>
<td>Two or More Events</td>
<td>10.0% (18)</td>
<td>18.8% (42)</td>
</tr>
<tr>
<td>Total</td>
<td>100% (181)</td>
<td>100% (224)</td>
</tr>
</tbody>
</table>

Although the relationship between social support and undesirable nonhealth-related events (e.g., retirement or the death of a close friend) failed to reach statistical significance (see Table 15), it is nonetheless interesting. A total of 48 percent of those with low levels of support did not experience any undesirable nonhealth-related events. In comparison, almost 42 percent of those with
higher levels of support avoided these undesirable events. This is not a significant difference, but it does seem contrary to the arguments offered by researchers using the social support perspective (Dean and Lin, 1977; Antonovsky, 1979; Lin et al., 1979; Holahan & Moos, 1982; Thoits, 1983).

Table 15
Undesirable Nonhealth-Related Events by Social Support

<table>
<thead>
<tr>
<th>Social Support</th>
<th>1 or Less Sources</th>
<th>2 or More Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Events</td>
<td>48.1% (87)</td>
<td>41.5% (93)</td>
</tr>
<tr>
<td>One Event</td>
<td>33.1% (60)</td>
<td>32.1% (72)</td>
</tr>
<tr>
<td>Two or More Events</td>
<td>18.8% (34)</td>
<td>26.4% (59)</td>
</tr>
<tr>
<td>Total</td>
<td>100% (181)</td>
<td>100% (224)</td>
</tr>
</tbody>
</table>

The relationship between undesirable health-related events and social support is presented in Table 16. There is little difference in the levels of health-related events regardless of the level of social support. For example, of those who had low levels of support (zero or one source), 27 percent experienced no undesirable health-related events in comparison to 28 percent with higher levels of support. This table is also much different from the previous two tables. In this case, for those at either level of support, the
The proportion of those who reported no events started low and increased with the number of events. In Tables 13 and 14, the opposite was true. This supports Eaton's (1978) argument that all types of social support are not equally effective against life events.7

Table 16
Undesirable Health-Related Events by Social Support

<table>
<thead>
<tr>
<th>Social Support</th>
<th>Health-Related Events</th>
<th>1 or Less Sources</th>
<th>2 or More Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Events</td>
<td>27.1%</td>
<td>28.1%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(49)</td>
<td>(63)</td>
<td></td>
</tr>
<tr>
<td>One Event</td>
<td>34.8</td>
<td>36.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(63)</td>
<td>(82)</td>
<td></td>
</tr>
<tr>
<td>Two or More Events</td>
<td>38.1</td>
<td>35.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(69)</td>
<td>(79)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(181)</td>
<td>(224)</td>
<td></td>
</tr>
</tbody>
</table>

This table is also illustrative of the argument made by Lin and her associates (1979). They raised the issue that measuring social support at only one point in time inadequately tests the buffering hypothesis. That is, if we are to determine whether social support acts as a buffer to illness, it must be measured at two or more points in time. Our findings further lend support to Thoits' (1982) position that life events and social support may be confounded. She argues that this measurement problem is common in the literature (Thoits, 1982).
Thoits (1982) suggests that the problem may be one of measurement. She argues that the causal effect of life events on support and, simultaneously, their interaction with support may be confounded. Changes in life events may be identical to changes in support. Moreover, events themselves may create changes in support. The death of a spouse deprives the individual of structural supports, while at the same time, it may result in other family members and friends coming to the survivor's aid. Other events like moving or illness may not appear to be social support changes in themselves. However, their occurrence may result in the loss of old supporters, the gain of new supporters, or both. Since these measures may be confounded, the buffering hypothesis of Lin and her colleagues (1979) cannot be tested.

Summary

This section examined the relationship between social support and various kinds of life events reported by THGS participants. Interestingly, only the relationship between desirable events and social support reached statistical significance. Basically, the more social support the respondent reported, the greater the number of desirable life events (see Table 14). Although none of the other relationships examined here were statistically significant, the pattern of the results was consistent with the arguments advanced by Lin et al. (1979) and Thoits (1982). Social support must be measured at more than one point in time as Lin and her colleagues (1979)
suggest so that social support can be examined as both an antecedent factor and as a buffer to life events. Thoits' (1982) point that social support and life events may be confounded was also supported as we cannot be sure whether changes in the former were identical to changes in the later, or if life events created changes in social support.

Life Events and Health

This section provides an initial examination of the undesirability and total event controversy in crosstabular form. Table 17 illustrates the relationship between health and the total number of undesirable events (both health- and nonhealth-related events). The relationship here is straightforward and statistically significant ($X^2=152.20 \sim .001$). As the number of undesirable life events increases, the number of health problems increases. Seventy-one percent of those with one undesirable event report no health problems. In contrast, only 39 percent of those with two undesirable events, 20 percent of those with three undesirable events, and only 13 percent of the respondents with four or more undesirable events avoided health problems. This finding supports the argument made by Myers et al. (1975), Ross and Mirowsky (1979), and Thoits (1981) that undesirable events are good predictors of health.
Table 17

Health by Total Undesirable Events

<table>
<thead>
<tr>
<th>Health</th>
<th>One Event</th>
<th>Two Events</th>
<th>Three Events</th>
<th>Four or More Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Problems</td>
<td>70.7%</td>
<td>39.3%</td>
<td>20.5%</td>
<td>13.0%</td>
</tr>
<tr>
<td></td>
<td>(116)</td>
<td>(35)</td>
<td>(17)</td>
<td>(9)</td>
</tr>
<tr>
<td>One Problem</td>
<td>29.3%</td>
<td>48.3%</td>
<td>61.4%</td>
<td>36.2%</td>
</tr>
<tr>
<td></td>
<td>(48)</td>
<td>(43)</td>
<td>(51)</td>
<td>(23)</td>
</tr>
<tr>
<td>Two or More</td>
<td>0%</td>
<td>12.4%</td>
<td>18.1%</td>
<td>50.8%</td>
</tr>
<tr>
<td>Problems</td>
<td>(0)</td>
<td>(11)</td>
<td>(15)</td>
<td>(35)</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>(164)</td>
<td>(89)</td>
<td>(83)</td>
<td>(69)</td>
</tr>
</tbody>
</table>

The relationship between the sum of the desirable, undesirable nonhealth-related, and undesirable health-related events with health (the total events approach) is presented in Table 18. The relationship between health and the total number of events is direct. As the number of events increases, the number of health problems also increases. Seventy-four percent of the respondents that report one or fewer life events also report no health problems. In comparison, only 42 percent of those reporting two life events and 28 percent of those indicating three or more events had no health problems to report. This relationship is also statistically significant ($X^2=77.65<.001$) and is supportive of the claims made by proponents of the total change approach like Holmes and Rahe (1967) and Masuda and Holmes (1967). However, this relationship is not quite as strong.
(Cramer's V = .310) as the one reported for the relationship between health and total undesirable events (Cramer's V = .434).

Table 18
Health by Total Number of Life Events

<table>
<thead>
<tr>
<th>Total Number of Events</th>
<th>Health 1 or Less Events</th>
<th>Health Two Events</th>
<th>Health Three or More Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Problems</td>
<td>74.1% (86)</td>
<td>42.3% (33)</td>
<td>27.5% (58)</td>
</tr>
<tr>
<td>One Problem</td>
<td>25.9% (30)</td>
<td>46.2% (36)</td>
<td>47.9% (101)</td>
</tr>
<tr>
<td>Two or More Problems</td>
<td>0% (0)</td>
<td>11.5% (9)</td>
<td>24.6% (52)</td>
</tr>
<tr>
<td>Total</td>
<td>100% (116)</td>
<td>100% (78)</td>
<td>100% (211)</td>
</tr>
</tbody>
</table>

Summary

An initial examination of the claims made by advocates of the undesirability and total change approaches was made. In both instances, as the number of life events increased, the number of reported health problems increased. Both of these relationships were found to be statistically significant. However, Cramer's V, a measure of association, was better for the undesirability approach (see Table 17). Thus, in our preliminary test of the undesirability and total change approaches, the undesirability approach was slightly stronger than the total change approach.
Correlation and Regression Analyses

In order to properly employ most correlation and regression techniques like path analysis, several assumptions must be met. In path analysis, for example, we are assuming a temporal order exists between the variables and that there are causal connections (Nie et al., 1975). However, several other assumptions must be met in addition to that of causal or temporal ordering. Of primary importance is the assumption that all variation in the independent variable is explained by endogenous and exogenous variables (Nie et al., 1975). The other main assumptions appropriate to path analysis as well as most other correlation and regression techniques are stated by Asher (1976). They are:

1. The relations among the variables are linear in character;
2. The data are at an interval level of measurement;
3. The independent variables are measured without error;
4. The mean error term is zero;
5. The error term has constant variance for different values of the independent variable (homoscedasticity);
6. Pairs of the error terms are uncorrelated;
7. The error term and independent variables are uncorrelated; and
8. The error term is normally distributed (Asher, 1976, p. 25).

While the violation of certain of these assumptions have been found to have a major impact on an analysis, others are less critical. The assumption that measurement of the independent variables is without error is very important. If there is random (let alone
systematic) measurement error in the independent variables, then the partial r's and partial betas will be reduced, making estimates more conservative. It may also cause certain coefficients to be more biased than others, and in turn, create problems in making inferences about the effects of the independent variables. This is particularly problematic for multivariate analysis (Asher, 1976). The assumption of temporal or casual ordering is also important. A path model which violates this assumption will lack theoretical meaning. This is especially true for nonrecursive systems that are treated as though they are recursive. The presence of such feedback loops makes results uninterpretable at best. At worst, they can produce misleading results.

In contrast, some of the other assumptions are more robust, and therefore have less impact if violated. The assumption of interval level data is one such example. Labovitz (1970) and Bohnstedt and Carter (1971) have argued that it is not inappropriate to use ordinal and even dummied nominal level variables in model testing. Similarly, the assumption that the independent variables are measured without error is unrealistic given the state of social science measurement (Asher, 1976). All the researcher can do is to measure variables the best s/he is able.

One difficulty often encountered in regression analysis is that of multicollinearity. Multicollinearity is the linear correlation of two or more independent variables appearing as predictors in the same regression equation. In other words, multicollinearity occurs when some or all of the independent variables are intercorrelated.
Indeed, extreme multicollinearity (intercorrelations in the .8 to 1.0 range) does not even allow the researcher an acceptable way to perform regression analysis. Van de Geer (1971) suggests, though, that we should not be overly concerned with multicollinearity unless correlations exceeding .85 exist. Table 19 contains the correlations for the variables used in the regression and path analyses. The largest correlation is between these two variables. Keeping this in mind, we may cautiously proceed with our regression analyses.

Multiple regression analysis was used to determine if the relationship between undesirable events and physical health is attributable to the effects of health-related life events. To establish the nature of the relationship between undesirable events and physical health, health at Time 2 was regressed on socio-demographic variables and on each individual's health score at Time 1. Each equation includes the Time 1 health score (1968) as a predictor of the Time 2 (1977) health score. The first regression equation is:

\[
\text{Health} = a_0 + b_1x_1 + b_2x_2 + b_3x_3 + \ldots + b_nx_n + e
\]

where \(a_0\) is a constant, the \(b\)'s are coefficients, and \(e\) is a random error term. The variables are respectively, sex \((x_1)\), marital status \((x_2)\), employment status \((x_3)\), parenthood \((x_4)\), education \((x_5)\), income \((x_6)\), and age \((x_7)\) all at Time 2. The rest of the variables are health score \((x_8)\), employment status \((x_9)\), and spouse's employment status \((x_{10})\) all at Time 1. The effect of desirable events is estimated by \(x_{11}\). This equation explains only 16 percent of the
Table 19

Correlation Matrix of Variables Used in Multivariate Analyses

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Health</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Undesirables Health-Related</td>
<td>0.78564</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Health in 1968</td>
<td>0.34449</td>
<td>0.34541</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Social Support</td>
<td>-0.03703</td>
<td>-0.03859</td>
<td>-0.01756</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Education</td>
<td>-0.15018</td>
<td>-0.13884</td>
<td>-0.06052</td>
<td>0.00665</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Marital Status</td>
<td>-0.06906</td>
<td>-0.12248</td>
<td>-0.09341</td>
<td>0.24406</td>
<td>0.09191</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Sex</td>
<td>-0.13604</td>
<td>-0.09008</td>
<td>-0.20269</td>
<td>-0.10081</td>
<td>0.24502</td>
<td>0.24226</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Employed 1977</td>
<td>-0.10184</td>
<td>-0.05208</td>
<td>-0.15767</td>
<td>-0.01544</td>
<td>0.12166</td>
<td>-0.03274</td>
<td>0.24687</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Income in 1977</td>
<td>-0.11746</td>
<td>-0.13561</td>
<td>-0.17960</td>
<td>-0.07673</td>
<td>0.28443</td>
<td>0.10542</td>
<td>0.49861</td>
<td>0.29553</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Age 1977</td>
<td>-0.01065</td>
<td>0.06606</td>
<td>0.02705</td>
<td>-0.08923</td>
<td>0.04029</td>
<td>-0.01716</td>
<td>0.00183</td>
<td>-0.17714</td>
<td>-0.08844</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Parenthood</td>
<td>0.00904</td>
<td>0.00510</td>
<td>0.02220</td>
<td>0.24323</td>
<td>-0.03957</td>
<td>0.22570</td>
<td>0.00171</td>
<td>-0.02930</td>
<td>-0.04285</td>
<td>0.01947</td>
<td>1.00000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Employed 1968</td>
<td>0.00600</td>
<td>0.01698</td>
<td>0.06298</td>
<td>0.07228</td>
<td>-0.07698</td>
<td>-0.06933</td>
<td>-0.10453</td>
<td>0.00665</td>
<td>-0.13698</td>
<td>-0.04756</td>
<td>-0.01366</td>
<td>1.00000</td>
<td></td>
</tr>
<tr>
<td>13. Spouse employed 1968</td>
<td>-0.06902</td>
<td>-0.08448</td>
<td>-0.06111</td>
<td>0.21052</td>
<td>-0.05325</td>
<td>0.35267</td>
<td>0.10017</td>
<td>-0.03889</td>
<td>0.01350</td>
<td>0.02334</td>
<td>0.35875</td>
<td>-0.04394</td>
<td>1.00000</td>
</tr>
</tbody>
</table>
unexplained variation. Moreover, desirable events add very little to the explained variation (see Table 20).

Table 20
Regression of Desirable Events

<table>
<thead>
<tr>
<th></th>
<th>R²</th>
<th>Increase in R²</th>
<th>Significant at Final Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health 1968</td>
<td>.12999</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Education</td>
<td>.14832</td>
<td>.01834</td>
<td>Yes</td>
</tr>
<tr>
<td>Spouse Employed in 1968</td>
<td>.15268</td>
<td>.00436</td>
<td>No</td>
</tr>
<tr>
<td>Income</td>
<td>.15534</td>
<td>.00266</td>
<td>No</td>
</tr>
<tr>
<td>Age in 1977</td>
<td>.15571</td>
<td>.00037</td>
<td>No</td>
</tr>
<tr>
<td>Employed in 1968</td>
<td>.15606</td>
<td>.00035</td>
<td>No</td>
</tr>
<tr>
<td>Employed in 1977</td>
<td>.15630</td>
<td>.00024</td>
<td>No</td>
</tr>
<tr>
<td>Marital Status</td>
<td>.15643</td>
<td>.00013</td>
<td>No</td>
</tr>
<tr>
<td>Desirable Events</td>
<td>.15651</td>
<td>.00008</td>
<td>No</td>
</tr>
</tbody>
</table>

The second regression equation is in the form:

\[ \text{Health} = a_0 + b_1 x_1 + b_2 x_2 + b_3 x_3 + \ldots + b_n x_n + e \]

where a constant is represented by \( a_0 \), the \( b \)'s are coefficients, and \( e \) represents a random error term. The Time 2 variables included are sex \( (x_1) \), marital status \( (x_2) \), employment status \( (x_3) \), parenthood \( (x_4) \), education \( (x_5) \), income \( (x_6) \), and age \( (x_7) \). The variables from Time 1 are health score \( (x_8) \), employment status in 1968 \( (x_9) \), and spouse's employment status in 1968 \( (x_{10}) \). In this case, \( x_{11} \) repre-
sents the sum of the undesirable events. That is, it includes both undesirable nonhealth-related events and undesirable health-related events.

The literature as well as our findings lead us to anticipate that the total undesirable events will have a significant effect on health (Myers et al., 1975; Ross & Mirowsky, 1979; Thoits, 1981). Therefore, the more undesirable events experienced, the greater the amount of illness reported. This is precisely what we found. Forty-three percent of the unexplained variation is accounted for in this equation. Thirty-seven percent of it is explained by the total number of undesirable events measure. As the literature suggests, the total number of undesirable events has a significant effect on health (see Table 2).

To further clarify the effect of undesirable events, another regression is required. Myers et al. (1975), Ross and Mirowsky (1979), and Thoits (1981) argue that undesirable events have a significant effect on health. This is indeed what we found in the previous regression. Thoits (1981) further argues that the undesirable health-related events alone account for more of the unexplained variation than the combined undesirability measure. To test her assertion, the following equation will be used.

\[
\text{Health} = a_0 + b_1x_1 + b_2x_2 + b_3x_3 + \ldots + b_nx_n + e
\]

The variables are sex \((x_1)\), marital status \((x_2)\), employment status \((x_3)\), parenthood \((x_4)\), education \((x_5)\), income \((x_6)\), and age \((x_7)\) all at Time 2. Variables included from time 1 are health score \((x_8)\), employment status \((x_9)\), and spouse's employment status \((x_{10})\). To
test Thoits' (1981) assertion, $x_{11}$ is used to represent undesirable health-related events while $x_{12}$ represents undesirable nonhealth-related events. A constant is represented by $a_0$, the b's are coefficients, and $e$ is a random error term.

Table 21
Regression with Total Number of Undesirable Events

<table>
<thead>
<tr>
<th></th>
<th>$R^2$</th>
<th>Increase in $R^2$</th>
<th>Significant at Final Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Undesirable Events</td>
<td>.36639</td>
<td>------</td>
<td>Yes</td>
</tr>
<tr>
<td>Health 1968</td>
<td>.41781</td>
<td>.05142</td>
<td>Yes</td>
</tr>
<tr>
<td>Age in 1977</td>
<td>.42255</td>
<td>.00472</td>
<td>No</td>
</tr>
<tr>
<td>Employed</td>
<td>.42507</td>
<td>.00252</td>
<td>No</td>
</tr>
<tr>
<td>Education</td>
<td>.42689</td>
<td>.00183</td>
<td>No</td>
</tr>
<tr>
<td>Marital Status</td>
<td>.42855</td>
<td>.00165</td>
<td>No</td>
</tr>
<tr>
<td>Spouse Employed in 1968</td>
<td>.43238</td>
<td>.00384</td>
<td>No</td>
</tr>
<tr>
<td>Employed in 1968</td>
<td>.43334</td>
<td>.00095</td>
<td>No</td>
</tr>
<tr>
<td>Sex</td>
<td>.43400</td>
<td>.00066</td>
<td>No</td>
</tr>
<tr>
<td>Income</td>
<td>.43405</td>
<td>.00005</td>
<td>No</td>
</tr>
<tr>
<td>Parenthood</td>
<td>.43407</td>
<td>.00002</td>
<td>No</td>
</tr>
</tbody>
</table>

As Table 22 clearly shows, undesirable health-related events significantly increase with the number of health problems. Fifty-two percent of the unexplained variation is accounted for in this equation. Undesirable nonhealth-related events have small nonsignificant effects on health. These findings support the hypothesis that
undesirable health-related events contribute the most to the overall relationship between undesirable events and health.

Table 22
Regression Using Undesirable Health-Related Events and Undesirable Nonhealth-Related Events

<table>
<thead>
<tr>
<th></th>
<th>R^2</th>
<th>Increase in R^2</th>
<th>Significant at Final Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health-Related Events</td>
<td>.47862</td>
<td>---</td>
<td>Yes</td>
</tr>
<tr>
<td>Health in 1968</td>
<td>.50955</td>
<td>.03094</td>
<td>Yes</td>
</tr>
<tr>
<td>Age in 1977</td>
<td>.51360</td>
<td>.00404</td>
<td>No</td>
</tr>
<tr>
<td>Spouse Employed in 1968</td>
<td>.51446</td>
<td>.00086</td>
<td>No</td>
</tr>
<tr>
<td>Education</td>
<td>.51508</td>
<td>.00062</td>
<td>No</td>
</tr>
<tr>
<td>Employed in 1968</td>
<td>.51548</td>
<td>.00040</td>
<td>No</td>
</tr>
<tr>
<td>Income</td>
<td>.51589</td>
<td>.00041</td>
<td>No</td>
</tr>
<tr>
<td>Marital Status</td>
<td>.51626</td>
<td>.00037</td>
<td>No</td>
</tr>
<tr>
<td>Parenthood</td>
<td>.51667</td>
<td>.00041</td>
<td>No</td>
</tr>
<tr>
<td>Sex</td>
<td>.51680</td>
<td>.00013</td>
<td>No</td>
</tr>
<tr>
<td>Nonhealth-Related Events</td>
<td>.51689</td>
<td>.00009</td>
<td>No</td>
</tr>
<tr>
<td>Employed in 1977</td>
<td>.51692</td>
<td>.00003</td>
<td>No</td>
</tr>
</tbody>
</table>

A comparison of the R^2 in Table 22 with the final R^2 in Table 21 neatly supports Thoits' (1981) argument. Separating undesirable events into health-related and nonhealth-related measures explains nine percent more of the unexplained variation than when undesirable
events are combined. It also illustrates the suppressor effect created by combining these two different kinds of undesirable events.

Next we will assess the effect of social support by adding this variable into the equation (social support will be represented by $X_3$). Research by Dean and Lin (1977), Gore (1978), Kessler and Cleary (1980), and Holahan and Moos (1982) supports the hypothesis that physical health is directly related to social support. However, the addition of the social support variable adds very little to the final $R^2$ (see Table 23). Nuckolls et al. (1972), Dean and Lin (1977) and Antonovsky (1979) argue that this is because social support is not effective unless a great deal of life events occur. Evidently this is so as 52 percent of the variation is explained once again. The increase in explanatory power over that in Table 22 is insignificant, however.

Social support is still a variable of consequence even though it did not reach statistical significance. It is meaningful in that it suggests that an alternative measure of social support may be more appropriate. It is possible that our social support measure simply is not sensitive enough to be as effective as it might be. In light of our findings, however, the hypothesis that this social support indicator is an adequate antecedent to health problems cannot be supported.

The following regression equation tests the assertions of Holmes and Rahe (1967) and Masuda and Holmes (1967). They posit that the total number of life events is the best predictor of health. To test
Table 23
Regression of Undesirable Health-Related and Undesirable Nonhealth-Related Events and Social Support

<table>
<thead>
<tr>
<th>Event</th>
<th>$R^2$</th>
<th>Increase in $R^2$</th>
<th>Significant at Final Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health-Related Events</td>
<td>.47862</td>
<td>---</td>
<td>Yes</td>
</tr>
<tr>
<td>Health in 1968</td>
<td>.50955</td>
<td>.03094</td>
<td>Yes</td>
</tr>
<tr>
<td>Age in 1977</td>
<td>.51360</td>
<td>.00404</td>
<td>No</td>
</tr>
<tr>
<td>Spouse Employed in 1968</td>
<td>.51446</td>
<td>.00086</td>
<td>No</td>
</tr>
<tr>
<td>Education</td>
<td>.51508</td>
<td>.00062</td>
<td>No</td>
</tr>
<tr>
<td>Employed in 1968</td>
<td>.51548</td>
<td>.00040</td>
<td>No</td>
</tr>
<tr>
<td>Income</td>
<td>.51589</td>
<td>.00041</td>
<td>No</td>
</tr>
<tr>
<td>Marital Status</td>
<td>.51626</td>
<td>.00037</td>
<td>No</td>
</tr>
<tr>
<td>Parenthood</td>
<td>.51667</td>
<td>.00041</td>
<td>No</td>
</tr>
<tr>
<td>Sex</td>
<td>.51680</td>
<td>.00013</td>
<td>No</td>
</tr>
<tr>
<td>Nonhealth-Related Events</td>
<td>.51689</td>
<td>.00009</td>
<td>No</td>
</tr>
<tr>
<td>Social Support</td>
<td>.51695</td>
<td>.00006</td>
<td>No</td>
</tr>
<tr>
<td>Employed in 1977</td>
<td>.51699</td>
<td>.00003</td>
<td>No</td>
</tr>
</tbody>
</table>

their assertion, all of the desirable events, undesirable health- and undesirable nonhealth-related events were added together. Then, this composite measure was substituted into the regression equation:

\[
\text{Health} = a_0 + b_1 x_1 + b_2 x_2 + b_3 x_3 + \ldots + b_n x_n + e
\]

where $a_0$ is a constant, the b's are coefficients, and e is a random error term. The variables from Time 2 are sex ($x_1$), marital status ($x_2$), employment status ($x_3$), parenthood ($x_4$), education ($x_5$),

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income ($x_6$), and age ($x_7$). Time 1 variables are health score ($x_8$), employment status ($x_9$), and spouse's employment status ($x_{10}$). The total number of events is represented by $x_{11}$. Table 24 contains the results.

Table 24
Regression with Total Number of Events

<table>
<thead>
<tr>
<th></th>
<th>$R^2$</th>
<th>Increase in $R^2$</th>
<th>Significant at Final Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Events</td>
<td>.32931</td>
<td>---</td>
<td>Yes</td>
</tr>
<tr>
<td>Health in 1968</td>
<td>.39006</td>
<td>.06075</td>
<td>Yes</td>
</tr>
<tr>
<td>Age in 1977</td>
<td>.39609</td>
<td>.00603</td>
<td>No</td>
</tr>
<tr>
<td>Marital Status</td>
<td>.39965</td>
<td>.00356</td>
<td>No</td>
</tr>
<tr>
<td>Employed in 1968</td>
<td>.40226</td>
<td>.00261</td>
<td>No</td>
</tr>
<tr>
<td>Education</td>
<td>.40523</td>
<td>.00297</td>
<td>No</td>
</tr>
<tr>
<td>Employed in 1977</td>
<td>.40755</td>
<td>.00232</td>
<td>No</td>
</tr>
<tr>
<td>Employed in 1968</td>
<td>.40846</td>
<td>.00091</td>
<td>No</td>
</tr>
<tr>
<td>Sex</td>
<td>.40899</td>
<td>.00053</td>
<td>No</td>
</tr>
<tr>
<td>Income</td>
<td>.40928</td>
<td>.00029</td>
<td>No</td>
</tr>
<tr>
<td>Parenthood</td>
<td>.40943</td>
<td>.00015</td>
<td>No</td>
</tr>
</tbody>
</table>

This regression accounts for 41 percent of the unexplained variation. Almost three quarters of it is explained by the total number of events. As expected, the total number of events has a positive effect on health. This effect is consistent with the
literature (Holmes & Rahe, 1967; Masuda & Holmes, 1967). However, the use of the undesirable health-related events measure explains more of the variation. As indicated in Table 22, the equation using undesirable events explains 52 percent of the variation. It also has a stronger effect on health than the total events measure. These findings are consistent with those indicated by researchers who take an undesirability approach (Myers et al., 1975; Paykel et al., 1975; Ross & Mirowsky, 1979; and Thoits, 1982).

The Issue of Measurement

The results uncovered through the preceding regression analyses suggest that there may be a measurement problem. That is, undesirable health-related events are being used to predict health outcomes in the undesirability and total change approaches used here. If confounding is occurring, then adding the undesirable health-related events to the dependent variable should cause the $R^2$'s to drop to zero. This would provide a clear indication that confounding is present.

To test this hypothesis, we will use two different regression equations. The first equation is:

$$\text{Combined Health} = a_0 + b_1 x_1 + b_2 x_2 + b_3 x_3 + \ldots + b_n x_n + e$$

where combined health is the sum of health-related events and health problems, $a_0$ is a constant, $e$ is a random error term, and the $b$'s are coefficients. The variables are sex ($x_1$), marital status ($x_2$), employment status ($x_3$), parenthood ($x_4$), education ($x_5$), income ($x_6$), and age ($x_7$) all at Time 2. The other variables are all from
Time 1. These variables are health score \((x_9)\), employment status \((x_9)\), and spouse's employment status \((x_{10})\). Undesirable nonhealth-related events are represented by \(x_{11}\).

Table 25 shows the results of eliminating undesirable health-related events as a predictor variable and adding it to the dependent variable. The final \(R^2\) for this equation accounts for only five percent of the explained variation; such a small amount could be attributed to chance. Moreover, the majority of the variation that is explained is due to health in 1968. These results are very likely indicative of another measurement problem.

<table>
<thead>
<tr>
<th>Variable</th>
<th>(R^2)</th>
<th>Increase in (R^2)</th>
<th>Significant at Final Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health in 1968</td>
<td>.03135</td>
<td>---</td>
<td>Yes</td>
</tr>
<tr>
<td>Age in 1977</td>
<td>.04107</td>
<td>.00972</td>
<td>No</td>
</tr>
<tr>
<td>Education</td>
<td>.04524</td>
<td>.00417</td>
<td>No</td>
</tr>
<tr>
<td>Employed in 1968</td>
<td>.04648</td>
<td>.00124</td>
<td>No</td>
</tr>
<tr>
<td>Nonhealth-Related Events</td>
<td>.04738</td>
<td>.00089</td>
<td>No</td>
</tr>
<tr>
<td>Employed in 1977</td>
<td>.04844</td>
<td>.00107</td>
<td>No</td>
</tr>
<tr>
<td>Spouse Employed in 1968</td>
<td>.04923</td>
<td>.00078</td>
<td>No</td>
</tr>
<tr>
<td>Marital Status</td>
<td>.05101</td>
<td>.00178</td>
<td>No</td>
</tr>
<tr>
<td>Sex</td>
<td>.05178</td>
<td>.00077</td>
<td>No</td>
</tr>
<tr>
<td>Income</td>
<td>.05183</td>
<td>.00005</td>
<td>No</td>
</tr>
</tbody>
</table>
To see whether confounding is also as problematic in the total events approach, we will employ a second regression equation.

Combined Health = a₀ + b₁x₁ + b₂x₂ + b₃x₃ + ... + bₙxₙ + e

The Time 2 predictor variables are sex (x₁), marital status (x₂), employment status (x₃), parenthood (x₄), education (x₅), income (x₆), and age (x₇). The predictor variables from Time 1 are health score (x₈), employment status (x₉), and spouse's employment status (x₁₀). The life events variable is represented in the equation by x₁₁ and is the sum of the desirable events and the undesirable nonhealth-related events.

The final R² for this equation accounts for only five percent of the explained variation (see Table 26). As in the previous instance, the variation explained here could easily be due to chance. Furthermore, in both instances, the only predictor variable that achieves statistical significance is health in 1968. However, this is probably the result of autocorrelation. Once again, the hypothesis that confounding accounts for our findings is supported.

Summary

The regression analyses in this research proved to be quite illuminating. We discovered that the undesirable health-related events measure explained more of the variation in the 1977 health score than either nonhealth-related events or the total number of events. Therefore, these findings support the arguments made by advocates of the "undesirability" approach.
Table 26
Regression Testing for Confounding From the Total Change Approach

<table>
<thead>
<tr>
<th></th>
<th>R^2</th>
<th>Increase in R^2</th>
<th>Significant at Final Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health in 1968</td>
<td>.03135</td>
<td>---</td>
<td>Yes</td>
</tr>
<tr>
<td>Age in 1977</td>
<td>.04107</td>
<td>.00972</td>
<td>No</td>
</tr>
<tr>
<td>Education</td>
<td>.04524</td>
<td>.00417</td>
<td>No</td>
</tr>
<tr>
<td>Employed in 1968</td>
<td>.04648</td>
<td>.00124</td>
<td>No</td>
</tr>
<tr>
<td>Spouse Employed in 1968</td>
<td>.04725</td>
<td>.00077</td>
<td>No</td>
</tr>
<tr>
<td>Marital Status</td>
<td>.04937</td>
<td>.00212</td>
<td>No</td>
</tr>
<tr>
<td>Employed in 1977</td>
<td>.05010</td>
<td>.00073</td>
<td>No</td>
</tr>
<tr>
<td>Sex</td>
<td>.05063</td>
<td>.00053</td>
<td>No</td>
</tr>
<tr>
<td>Total Number of Events</td>
<td>.05087</td>
<td>.00024</td>
<td>No</td>
</tr>
<tr>
<td>Income</td>
<td>.05093</td>
<td>.00006</td>
<td>No</td>
</tr>
</tbody>
</table>

An interesting finding emerged from the regression analysis concerning the social support measure. When added to the regression equation, it was found to have an insignificant effect on health. In fact it added less than one percent to the final R^2 for the equation. Therefore, the hypothesis that social support is an adequate antecedent to protect the individual against health problems could not be supported. In addition, Thoits' (1982) argument that social support is difficult to measure was strengthened somewhat.

The most important finding from this section, however, has to do with the issue of measurement. When the undesirable health-related
events were added to health problems and treated as the dependent variable in the regression analysis, very little of the variation could be explained. Indeed, health in 1968 accounted for three-fifths of the explained variation. This was probably due to the effect of autocorrelation, since past health was used to predict future health. More importantly though, these findings indicate that confounding is present between an independent variable (health-related events) and the dependent variable (health in 1977). That is, our findings support the interpretation that health-related events are not independent of health problems. Therefore, we must conclude that it is inappropriate to use one to predict the other.

Path Analysis

The general purpose of path analysis is to portray the interrelationships of a number of independent variables to one dependent variable in a causal sequence or network. Path analysis partials out the components of correlation coefficients into direct and indirect systems of equations. In this section we will pursue our finding that the life events and health measures are confounded in the literature. To do this, we will first present the path model based on the literature which uses undesirable health-related events in the identified system. Subsequently, this variable will be removed to illustrate the confounding effect that is present when this type of a life events measure is used.

Starting first with the fully identified system, we determined which paths were insignificant and eliminated them. Paths are
generally considered insignificant if their $t$ values are less than 2.0 or if they have coefficients that are not at least twice the size of the standard error (Van de Geer, 1971). After removing the insignificant paths, all of the remaining path weights are then recalculated. The path weights which remain thus represent the relative contributions of the various independent variables in the prediction equation. The straight arrows in the diagram represent the direct effects of each preceding variable on each consequent variable, and the curved arrow represents an unanalyzed correlation. The encircled numbers represent the residuals or the amounts of variation that remain unexplained by the variables included in this model. Figure 5 is the resultant path model.

Figure 5. Model With Significant Paths
This figure indicates that three of the variables do not have any direct or indirect paths linking them to undesirable health-related life events or to health in 1977. These variables are social support, marital status, and age. For example, there is a direct path from sex to social support as well as two indirect paths which pass through marital status and income. However, no paths go through social support. A path is also missing from sex to life events. Moreover, the individual's age had no paths to any other variable in the model. The model that results after these insignificant paths and variables are removed is illustrated in Figure 6.

Figure 6. Final Path Model

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We may begin assessing the completeness of each relevant subsystem in this model by examining the path coefficients from the unidentified endogenous variables. Examination of the latent influences on health in 1977 reveals that 29 percent of the variation in this variable remained unexplained by the causal relations explicitly included in the model. Similarly, 74 percent of the variation in the number of undesirable health-related events, 49 percent of that for income, and 79 percent of the variation for health in 1968 was left unexplained. This indicates that there are some additional variables that could be included in this model which would increase its explanatory power.

By squaring the coefficient of multiple regression, we find that sex explains less than one percent of the variation in the dependent variable. Health in 1968 explained four percent. Twenty-three percent of the variation in income, however, is accounted for by sex. In the case of health-related life events, sex and income explained six percent and one percent of the variation respectively. The variation explained by undesirable health-related events was nearly 41 percent.

The model illustrates the nature of the measurement problem. The largest path weight (.64) is between undesirable health-related events and health in 1977. (This, of course, is consistent with the findings reported in the regression analyses.) However, the high correlation between these two variables (.79) is indicative of the
problem of confounding. Therefore, it is appropriate to use health-related events as a predictor variable in the path model.

Figure 7 illustrates the path model that removes the confounding effect of undesirable health-related events. In this figure, four of the variables do not have any direct or indirect paths linking them to the health outcome measure. There are no paths from age or income to any of the other variables in the model. There is a direct path from sex to social support as well as an indirect one which passes through marital status to social support. Once again, no paths go through social support to link it to the dependent variable.

Figure 7. Path Model Eliminating the Confounding Life Events Measure
Figure 8 is the model that results when all of the insignificant paths and variables are removed from the model. Of the six predictor variables we began with, only two are left. These variables are sex and health in 1968. This model indicates that men experienced fewer health problems than women in 1968. Likewise, those with few health problems in 1968 experience few health problems in 1977. The direct effect of sex on health indicates that men overall had better health in 1977 than women. This model, like the one presented in Figure 5, is obviously of little value in terms of explaining the interrelationships between the independent and dependent variables. Its value lies in explicating the problem of confounded variables.

\[ \text{Sex} \rightarrow \text{Health} \rightarrow \text{Combined Health} \]

\[ \begin{align*}
\text{Sex} & \rightarrow \text{Health in 1968} \\
\text{Health in 1968} & \rightarrow \text{Health in 1977} \\
\text{Combined Health in 1977} & \rightarrow \text{Combined Health in 1977}
\end{align*} \]

Figure 8. Revised Path Model

Summary

Path analysis of the originally proposed model indicated that revisions were needed. According to the literature, the social resources perspective suggests that social support and marital status should be good predictors of health. Likewise, the social stratification perspective indicates that age would be a good predictor.
However, path analysis indicated no significant paths from any of these variables to the rest of the model. Therefore, they were dropped from the model and path weights were recalculated. The resultant path model indicated that the general situation of men is better than that for women. Moreover, men, by virtue of their larger incomes, experienced fewer undesirable health-related events.

When undesirable health-related events were combined with health problems, all of the predictor variables except sex and health in 1968 dropped out. That is, when the theoretical and methodological tautology is eliminated, only sex and health in 1968 have reasonable explanatory power. Moreover, since health in 1968 itself is questionable due to the problem of autocorrelation, it too must be eliminated. Thus, the only remaining variable with any explanatory power is sex, which is demographically supportable. None of the other variables explains anything.
DISCUSSION AND RECOMMENDATIONS

Summary

Throughout the previous analyses, the relationships between various socio-demographic variables, life events, social support, and health were examined. Crosstabulations provided additional descriptive information about the THGS respondents in relation to the main variables of interest. Among these variables, several statistically significant relationships emerged. One such relationship was found for health by year and by sex. The number of health problems by education and by income were not. Nevertheless, these findings provided some support for the social stratification perspective. The basic argument is that upper-status individuals have more social resources to use to combat illness than do lower-status individuals (Kessler & Cleary, 1980). The difference in health problems by sex is illustrative of their argument. The idea is men have more social resources available to them than women. In fact, if married, some women must depend on their husband's resources as they have few of their own. As Gove (1972) argues, these women take the role of "housewife" to the exclusion of others. Once again, the number of resources available to them is limited. Research by Gove (1972) and Folkman and Lazarus (1980) indicated that women, but particularly married women, reported more health problems than men.

Social support had statistically significant relationships with marital status and sex. However, this was not the case for education or income. Neither of these relationships was significant. The
failure to attain statistical significance could be the result of the large number of missing cases for these two variables. Of the relationships between life event measures and social support, the only one reaching statistical significance was the desirable events measure.

An initial test of the undesirability and total change approaches to predict health was also made. In both cases, as the number of life events increased, the number of health problems increased. Although both relationships were statistically significant, the relationship between health and undesirable events was slightly stronger. It is suggested that these relationships are the result of intercorrelation between undesirable health-related events and the dependent variable.

A correlation matrix was computed in preparation for the regression and path analyses. Examination of this matrix revealed a high correlation between undesirable health-related events and health in 1977 (.79), plus a moderate correlation between health in 1968 and health in 1977 (.34). These raised concerns about multicollinearity between undesirable health-related events and health in 1977 and autocorrelation between health in 1968 and health in 1977.

Multiple regression analysis allowed further testing of the theoretically-based model. Through this analysis, we were able to provide a test of the total change approach and the undesirability approach. Fifty-two percent of the variation was explained by using separate indicators of undesirable events. Undesirable health-related events explained 48 percent of the variation by themselves.
Inclusion of undesirable health-related events added less than one percent to the final $R^2$. Similarly, the addition of social support to this equation did not make a significant contribution to the final $R^2$.

When the total number of life events were put into the regression equation, 41 percent of the variation was explained. Using separate undesirable health-related and undesirable nonhealth-related events measure explained 11 percent more of the unexplained variation than did the total number of events measure. These findings are similar to the undesirability approach advocated by Myers et al. (1975), Vinokur and Selzer (1975), Ross and Mirowsky (1979), and Thoits (1981).

The findings in the regression analyses suggest that there is a measurement problem with the life events indicators used here and elsewhere in the literature. That is, health-related events are tautologically used to predict health problems. Therefore, since the correlation matrix showed that these variables are fairly strongly correlated, two additional regressions were run in which undesirable health-related events were added to the dependent variable and were no longer used as a predictor variable. In each case, the final $R^2$ was so small that it could be attributed to chance alone. That these variables are confounded is clearly indicated.

In light of these findings, two separate path analyses were done. Eight variables were originally selected for inclusion in the path models. These variables were selected on two criteria. The
first criterion was theoretical relevance. The second criteria was past performance.

The first path analysis provided a test of the theoretically-based model. In spite of these criteria, marital status, social support, and age had to be deleted from the path model. The resulting model indicated that men had few health problems in 1968; few undesirable health-related events in 1977, and were likely to be in good health in 1977. The same was true for income and health-related events. As income increased, undesirable health-related events decreased, and health increased. Although it was theoretically-based, this model turned out to be of little value.

Due to the problem of confounded variables, health-related events were added to the dependent variable and removed from the model as independent variables. Also, in this case, age, marital status, income, and social support had to be removed as there were no paths linking them to the dependent variable. The only independent variables that remained in the model were sex and health in 1968. The importance of this model is obvious. It clearly indicates the impact of measurement error.

Discussion

The findings presented in this dissertation have serious implications for the life events literature. Whenever physical health-related events are used to predict physical health there is a problem with measurement error. These two variables are related to one another and cannot be used to predict one another. To do so would
violate the assumption of the independence of error terms. Therefore, after we eliminate the tautology, the current life events approach which routinely incorporates health-related life events in an effort to predict health problems appears invalid.

There are other forms of error that could result in these findings in addition to measurement error. It could be due to the sample. It should be remembered that the THGS sample was one of convenience and was not randomly drawn. It is clearly overrepresented by high school graduates and those with higher education. Moreover, these people surpassed the life expectancy figures given by the U.S. Census Bureau (1975) and can be considered the healthiest of their original birth cohort. Nevertheless, these data are not substantially different from the other data sets that have been reported in the literature.

It has also been argued that many of the events presented on life events checklists are either irrelevant to certain groups or that these groups experience far fewer changes than are usually reported (Rabkin & Struening, 1976). Holmes and Masuda (1967) found, for example, that young adults (20 to 30 years of age) reported twice as many life changes as those over 60. They also noted that throughout the age range a significant inverse relationship prevailed (Holmes & Masuda, 1967). As Rabkin and Struening (1976) point out, it is not clear whether this finding is due to the character of the scale or to greater degrees of stress in early adulthood.

Dohrenwend (1974) attempted to evaluate the adequacy of item selection by asking convicts, community leaders, community residents,
and psychiatric patients an open ended question regarding the last major event in their life that changed their usual activities. They then were asked to respond to the standard Holmes and Rahe (1967) checklist of life events for the preceding year. He found that few of the events reported on the checklist were previously described by the respondents in the open ended question. Moreover, his four different samples indicated different kinds of events thereby indicating the necessity of choosing events appropriate to the population being studied. Validity is clearly an important issue here.

As noted previously, there are some problems in the THGS data. One problem has to do with the participants themselves and the fact that they are not representative of the original 3,600 participants nor of the population at large. On this basis, generalizations about the relationships uncovered in this dissertation should not be made. To do so would be to ignore the special characteristics of the remaining THGS participants.

The THGS data are a secondary data set. For this reason alone, there is a problem in that some items are not as good as we might wish. For example, the measure of social support was rather crude. It is possible, therefore, that a more sensitive measure would have netted different results. As social support was only indicated at one point in time, we were restricted to treating it as an antecedent factor; its hypothesized role as a buffer could not be addressed. Furthermore, some of the life event items had to be excluded as they could not be categorized as desirable or as undesirable. For example, respondents were asked if they had experienced a change in
their financial state over the past two years. However, there is no indication as to whether this condition improved or deteriorated. Moreover, we cannot tell whether the individual experienced these events all at once or if they were relatively dispersed over the two-year period. Therefore, we cannot address the density question that was raised earlier.

It is obvious that the THGS data suffer from the same limitations. Some of the life event items are more appropriate to younger people. Those in their sixties, after all, are less likely to report work-related events than younger people as many of them have already retired. The point is, events more relevant to people in their sixties should have been included.

The other explanation is measurement error. The total events approach uses all events—desirable, undesirable, and ambiguous—to predict health. The undesirability approach uses undesirable health-related events and undesirable nonhealth-related events to predict health outcomes. The problem with these approaches is that they both include health-related items to predict health outcomes. According to Hudgens (1974, p. 119), 29 of 43 events on the Social Readjustment Rating Scale and 32 of the 61 events on the expanded list constructed by Paykel et al. (1975), are often the symptoms or consequences of illness. Therefore, such measures are both theoretically and empirically confounded. Indeed, they are blatantly tautological in that they are part and parcel of one another.

The confounding of life events and social support measures also creates measurement problems. Nuckolls et al. (1972) found that
social support scores were irrelevant in the absence of high life change scores. However, when they were considered jointly, significant findings emerged. The findings of Nuckolls and her colleagues (1972) as well as those reported in this dissertation document the need for more carefully designed analytical approaches.

Future Research and Conclusions

This dissertation represents an attempt to deal with the relationship between demographic variables, social support, life events, and health. To help overcome some of the limitations discussed previously in this chapter, some new areas for future research are suggested.

Due to the widespread use of life events checklists by researchers and practitioners alike, it is essential to undertake an urgent program to explicate the relationship between life events, social support, and health. In light of the dynamic nature of these variables, it is inappropriate to continue to do only cross-sectional research. Data must be collected longitudinally so that temporal change can be detected and measured. It is also important to use a representative sample to establish social and demographic differences (e.g., age, sex, race) that can be utilized in policy making. Critical to this effort is careful conceptualization and operationalization of the life events, social support, and health variables. Imprecise operationalization is partially responsible for the previously noted problems in the literature.
Embarking upon a rigorous research program that heeds this advice should prove useful in policy determinations. For example, research by Myers et al. (1975) suggests that education is a critical variable in maintaining health. Education provides access to information, assistance, and social support. Moreover, it generally presents the individual with improved life chances. For example, providing lower-status individuals greater access to the educational system would probably have a significant impact on health. Likewise, making programs available which focus on health education and which are specifically targeted to these individuals (e.g., blood pressure and diabetes) would appear to improve the likelihood of early detection and successful treatment.

Before these kinds of policy decisions can be made, however, it is obvious that the instruments used to measure life events and social support must be improved. Currently accepted devices such as the Schedule of Recent Events developed by Holmes and Rahe (1967) and its various adaptations tend to be confounded with social support measures, but especially with health itself. Therefore, alternative measures must be developed and tested.

A promising instrument constructed by Kanner et al. (1981) focuses on "daily hassles and uplifts" instead of major life events. The Hassles Scale includes 117 items like transportation problems, filling out forms, having to wait, and inconsiderate smokers. It also allows the respondent to add hassles to the list that were omitted. Each hassle is rated by the respondent in terms of its severity on a three point scale. Items in the Uplifts Scale are
ranked on a three point scale by the respondent to indicate frequency of occurrence. The 135 uplifts include saving money, giving a present, and feeling healthy. As with the Hassles Scale, respondents are given the opportunity to add to the Uplifts Scale.

Kanner and his associates (1981) found that the Hassles Scale was a better predictor of concurrent and subsequent psychological symptoms than were life event scores. Furthermore, this scale shared most of the variance in symptoms accounted for by life events. Hassles and symptoms remained significantly correlated even when the effects of life events were removed. Hassles and uplifts were found to be only moderately related to positive and negative effect. It remains to be seen whether the Hassles and Uplifts Scales will be good predictors of physical health as well. Therefore, testing these scales should be a priority in life events research.

Similarly, alternative measures of social support that recognize its dynamic nature must also be developed and refined so that the problems discussed earlier can be avoided. Holahan and Moos (1982) report some success using the Quantitative Social Support Index (QSSI). This index provides a quantitative measure of social support in the areas of family, job, friends, and community involvement. Items are scored according to the number of these contacts or associations. The final index is derived by summing over the separate item scores.

In addition to the QSSI, Holahan and Moos (1982) also used an index of the quality of social relationships in the family environment and an index of quality in the work environment. Measuring the
quality of social support helped to predict psychosomatic complaints and depression after the variance due to negative life chances and the quantitative measure of support was accounted for (Holahan & Moos, 1982, p. 411). These qualitative measures accounted for a substantial increase in the predicted variance on the dependent measures. This supports the view that it may be the quality of support rather than the quantity that is important in predicting health outcomes. It is, therefore, suggested that these measures of the quality of social support undergo rigorous testing.

The theoretically derived model has interesting implications for future research. This research should be structured to better explain the relationship between life events, social support, and health through more precise conceptualization and operationalization. Specific questions about the time frame in which these events occur is a must. By taking multiple measurements of life events, we can test the density notion as well as detect change over time. Multiple measurements of social support are also appropriate. This procedure would allow the examination of social support as both an antecedent and a buffering factor as well as recognize the dynamic nature of social support (Thoits, 1982). A variety of research questions might be raised to create a body of literature that is more appropriate to theorists, researchers, and practitioners alike but without the previously described measurement problems.

Although it is obvious that more sensitive social support measures and life event indicators must be developed before this can be done, it would also be illuminating to test all five of the
theoretically-based models presented in Chapter I. Doing so would help identify those models that make the most significant contributions to the medical sociology literature. It would further indicate which models are the weakest.

Another recommended area for study is specifically directed to the THGS data. As these data are longitudinal and include a vast array of information, it is possible to explore the relationship of childhood growth or development to adult health. This is one possibility that was not available for use in the present research. However, it is likely that childhood growth and development are important endogenous variables effecting variables in the path model. This would represent an opportunity to use a life history approach and make a unique contribution to the literature.

Other research in this area should address the assertions made by advocates of the labeling perspective. We must attempt to determine what impact, if any, the "sick" label has on people. It could be that individuals who suffer from chronic disease experience fewer life events of all sorts. Or, perhaps they experience more undesirable events than any other kind. Moreover, social support should be examined in conjunction with the "sick" label. This would allow the researcher to discern differences in support between the sick and the well. Furthermore, support could be examined for the chronically sick in comparison to the acutely sick so that similarities and differences can be described.

In summary, given the current state of the literature and the reliance on life event checklists, the issue of measurement raises
the possibility that inappropriate use exists. Misdiagnoses, inappropriate treatment, and inaccurate depiction of the relationship between life events and health may well result. Moreover, this potential for misuse will continue to exist until the literature can be supported without qualification.
FOOTNOTES

1It is likely that lower-status individuals simply have different kinds of social support. The fact that these sources are different does not necessarily make them inferior.

2Due to the phraseology used in some items, it was impossible to determine whether they were positive, negative, or both. Therefore, these items were not used.

3The respondent was given two points for each social support source that was also a family member. One point was assigned for each additional source. Again, however, no improvement in prediction occurred using a weighted measure indicating the number and relationship of the social support source to the respondent.

4Chronic problems like diabetes and high blood pressure were assigned a weight of two. Acute problems like convulsions and strokes were assigned a weight of one. The weighted measure was not an improvement over the simple summative measure.

5Although not shown in the table, this finding holds until the respondent has completed five or more years of higher education. At this point, the probability of experiencing one or more health problems rises slightly. Perhaps this is an artifact of pursuing a rigorous graduate program and stressful professional career.

6An examination of social support by sex and marital status was done before the categories of never married, separated, widowed, and divorced were combined. A greater proportion of women than men reported two or more sources of support regardless of marital status. In each case, a greater percentage of the married respondents than non-married respondents reported two or more sources of social support.

7Although the table is not presented here, the same relationship occurred between the total number of life events and social support. In neither case, however, was statistical significance achieved.
APPENDIX A

THIRD HARVARD GROWTH STUDY
QUESTIONNAIRE

Name: ________________________________________________________
(last) (middle) (first) (maiden)

Correct Address: ________________________________________________

Date of Birth: ___________ Place of Birth: ________________

Check one:  ____ Male  ____ Female

1. How many brothers and sisters do you have (include those who lived past age one but who are now deceased)? ____

2. Is your father still living?  ____ Yes  ____ No

   IF NO, please give his:

   Date of death: _________________
   Place of death: _________________
   Cause of death: _________________
   Age at death: _________________

3. Is your mother still living?  ____ Yes  ____ No

   IF NO, please give her:

   Date of death: _________________
   Place of death: _________________
   Cause of death: _________________
   Age at death: _________________
4. What is your religious preference?
   ___ Catholic
   ___ Jewish
   ___ Protestant
   ___ Other (specify) ____________________

5. Have you ever been married?
   ___ No, never.
   ___ Yes, once only.
       (date of marriage: ____________)
   ___ Yes, more than once.
       (dates of marriage: ____________)

IF YES, what is your present marital status?

   ___ Married
   ___ Divorced (date of divorce: ________)
   ___ Widowed (date of death of spouse: ____________)

Please give your place of residence when you were married (first marriage, if married more than once):

   ____________________________ (city)  ____________________________ (state)

6. How many children have you ever had?
   (include any child who died in infancy) ___

EDUCATIONAL AND OCCUPATIONAL HISTORY

What was the highest grade you completed in school:

   6 or 7 8 9 10 11 12
   Grades less 1-12

   College 1 2 3 4 5 or more

What was the name of the high school you attended?

""
If you attended college, what was the name of the college you attended?

______________________________________________________________

What college degrees have you received?

<table>
<thead>
<tr>
<th>Degree</th>
<th>Date</th>
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</tbody>
</table>

Have you attended any of the following schools?

___ Yes

- Technical institute
- School of nursing
- (3-year program)
- School of practical nursing
- Business or secretarial school
- Trade, apprentice or vocational school
- Armed forces school
- Other (specify) __________________________

How Long

9. Describe the job held by your father (or male head of household) when you were about 16 years old. What kind of work did he do?

______________________________________________________________

What kind of business or industry was this?

______________________________________________________________

10. Please describe the first full time job you had after you left school. (Do not count part-time jobs or jobs during school vacation. Do not count military service.) What kind of work were you doing?

______________________________________________________________

What kind of business of industry was this?

______________________________________________________________

How old were you when you began this job? _____
11. If you had a paid job as of December 31, 1967: what kind of work were you doing?

What kind of business or industry was this?

How long have you held this job?

(years) (months)

12. Are you self-employed?  
___ Yes  
___ No

13. If currently unemployed, please describe the last job you held.  
What kind of work did you do?

What kind of business or industry was this?

How long has it been since you worked?

---

14. What was your yearly rate of pay for 1967?

___ not in labor force (housewife, retired, etc.)
___ less than $3,000
___ $3,000-$4,999
___ $5,000-$6,999
___ $7,000-$8,999
___ $9,000-$11,999
___ $12,000 and over

15. Have you made any important decisions that you are sorry about now? (Mark as many as apply.)

___ I wish I had taken additional educational training after high school to prepare me for a better job.
___ I wish I had graduated from high school instead of dropping out.
___ I'm sorry I didn't go to college.
___ I'm sorry I dropped out of college.
I'm sorry I didn't select a different college from the one I attended.
I wish I had chosen a different major field in college.
I'm sorry about the kind of work I decided to do.
I wish I hadn't been so young when I got married.
Other (specify) __________________________
No, I am not sorry about any important decisions I've made.

16. Are you a veteran? __ Yes __ No

If YES, what is your military service serial number? __________

SECTION TO BE FILLED OUT BY INDIVIDUALS WHO ARE OR WHO HAVE BEEN MARRIED

17. What was the highest grade your husband (or wife) completed in school?

Grades  6 or 1-12 less 7 8 9 10 11 12

College  1 2 3 4 5 or more

What was the name of the high school he (or she) attended?

__________________________________________________________

If he (or she) attended college, what was the name of the college and what degree(s) did he (or she) receive?

__________________________________________________________

18. What is his (or her) religious preference?

__ Catholic
__ Jewish
__ Protestant
__ Other (specify) ____________________________
19. Please describe the job your husband's (or wife's) father held when your husband (or wife) was about 16 years old. What kind of work did he do? __________________________

What kind of business or industry was this?

______________________________

Family Information: Please fill in the following information about your children. Include any who died in infancy.

Name: ________________________________

Date of Birth: ________________________________

Sex: __________

Birthplace
City and State ________________________________

If Deceased:
Age at Death: __________
Place and Cause of Death: ________________________________

Education:
Last Grade Completed: __________
Name of Last School Attended ________________________________

Present Occupation: ________________________________

Marital Status: ________________________________

Present Residence:
City and State ________________________________

HEALTH HISTORY

Space is provided at the end of this section for further explanation of some questions and for any additional comments you wish to make concerning your health.

20. What is your height?  __________ feet

________ inches

Is this without shoes?  __________ Yes

________ No
21. What is your present weight? ___ lbs.
   Is this with clothing? ___ Yes ___ No

22. What is your usual weight? ___ lbs.
   (If your present weight is different from your usual weight by more than five lbs. please explain in the space provided at the end of the Health History section.)

23. What is the most you have ever weighed? (Note to women: do not include weight during pregnancy.) ___ lbs.

24. Are you troubled with a serious bodily disability or deformity? (IF YES, please explain in the space provided.) ___ Yes ___ No

25. Have you lost more than half your teeth? ___ Yes ___ No
   IF YES, by what age? _________

26. Are you always ill and unhappy? ___ Yes ___ No

27. Are you constantly made miserable by poor health? ___ Yes ___ No

28. Do you have any reason to think you have diabetes (sugar disease)? ___ Yes ___ No
   IF YES, did a doctor tell you that you had diabetes? ___ Yes ___ No
   How long ago did you start having it?
   ___ Within 1 year
   ___ 1-5 years
   ___ Over 5 years

29. Have you ever had any reason to think you may have high blood pressure? ___ Yes ___ No
   IF YES, did a doctor tell you it was high blood pressure? ___ Yes ___ No
How long ago did you first start having it?
   ___ Within 1 year
   ___ 1-5 years
   ___ Over 5 years

Have you had it in the past 12 months?  ___ Yes  ___ No

Do you take any pills or medicine for it? ___ Yes ___ No

30. Have you ever had any reason to think you may have heart trouble? ___ Yes ___ No

   If YES, did a doctor tell you it was heart trouble? ___ Yes ___ No

   If YES, what did he call it? ________________________

How long ago did you first start having it?
   ___ Within 1 year
   ___ 1-5 years
   ___ Over 5 years

Have you had it in the past 12 months?  ___ Yes  ___ No

Do you take any pills or medicine for it? ___ Yes ___ No

31. Have you ever had any reason to think you may have rheumatism or arthritis? ___ Yes ___ No

   IF YES, did a doctor tell you it was rheumatism or arthritis? ___ Yes ___ No

How long ago did you first start having it?
   ___ Within 1 year
   ___ 1-5 years
   ___ Over 5 years

Have you had it in the past 12 months?  ___ Yes  ___ No

Do you take any pills or medicine for it? ___ Yes ___ No

32. Have you ever had cancer? ___ Yes ___ No

   IF YES, have you had it in the past 12 months? ___ Yes ___ No
How old were you when it was first detected? __________

33. Have you ever had any other tumor, cyst or growth? ______ Yes ______ No

34. Has a doctor ever said you had stomach ulcers? (peptic, gastric, duodenal) ______ Yes ______ No

IF YES, when was it first detected? ______

Is it currently active? ______ Yes ______ No

35. Was any part of your body ever paralyzed? ______ Yes ______ No

36. Did you ever have a fit or convulsion (epilepsy)? ______ Yes ______ No

37. Did you ever have a nervous breakdown? ______ Yes ______ No

38. Were you ever a patient a hospital for a mental or nervous condition? ______ Yes ______ No

39. Were you ever under treatment outside of a hospital for your nerves? ______ Yes ______ No

40. Do you suffer from any chronic or long-standing disease? (If yes, please explain in the space provided.) ______ Yes ______ No

41. Did you ever have a major operation? (If yes, explain in the space provided) ______ Yes ______ No

42. Have you ever had any health condition or hospitalization other than those covered by previous questions? (If yes, please explain in space provided.) ______ Yes ______ No
43. Do you have any current health concern?   
   (If yes, please explain in space provided.)   
   ___ Yes    ___ No

44. Do you usually take two or more alcoholic drinks a day?   
   ___ Yes    ___ No

   IF YES, what type of alcoholic drink is this?   
   ___ beer   ___ wine   ___ spirits (whiskey, gin, etc.)

45. Please indicate how much you smoke.   
   ___ I have never smoked.   
   ___ I did smoke heavily (at least one pack of cigarettes a day) but have stopped completely.   
   ___ I did smoke heavily but have cut down to less than half a pack a day.   
   ___ I did smoke heavily but have cut down to between half a pack and a pack of cigarettes a day.   
   ___ I was never a heavy smoker, and now I have stopped completely.   
   ___ I have never been a heavy smoker.   
   ___ I now smoke less than a half a pack and a pack of cigarettes a day.   
   ___ I have never smoked more heavily than that.   
   ___ I smoke more than a pack of cigarettes a day.   
   ___ I primarily smoke cigars.   
   ___ I primarily smoke a pipe.

   At what age did you start smoking?   
   _____

   If you no longer smoke, at what age did you stop smoking?   
   _____

THE FOLLOWING IS TO BE FILLED OUT ONLY BY WOMEN

46. How old were you when your periods started?   
   (year)   (month)

47. Have you stopped having periods?   
   ___ Yes    ___ No
IF YES, how old were you when your periods stopped?

(year) (month)

Was this due to an operation or x-ray therapy?  Yes  No

IF NO, have they begun to stop?  Yes  No

48. How many babies have you ever had who were born alive? _____

49. Have you had any pregnancies not resulting in a live birth?  Yes  No

IF YES, how many? _____

50. Please use this space for further explanations and for any comments you wish to make concerning your physical health.
APPENDIX B

THIRD HARVARD GROWTH STUDY
1977 QUESTIONNAIRE

Name: ______________________________________________________
 (first) (middle) (maiden) (last)

Address: ____________________________________________________
( zip)

Date of Birth: _____________________
 month/day/year

FAMILY HISTORY

Have any of these things happened in your life in the past 2 years?
( Check any that apply)

__ Marriage of children ________________________ Retirement
__ Birth of grandchildren ________________________ Death of spouse
__ Outstanding personal achievement ____________ Divorce from spouse
__ Significant promotion for spouse _____________ Marriage/remarriage
__ Change in health of family member ____________ Marital separation
__ Personal injury or illness ________________ Marital reconciliation
__ Change in residence ________________________ Death of a close friend
__ Change in financial state __________________ Death of a parent
__ Spouse began or stopped work ______________ Death of a child of yours
__ New job ________________________________ Death of other close family
__ Fired at work/laid off ____________________ member
__ "Once in a lifetime" vacation

What is your PRESENT marital status?

Single, never married
Married: date of marriage ____________
Widowed: date of death of spouse __________
Divorced: date of divorce ____________
Separated: date of separation ____________

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If you have EVER MARRIED, please indicate the number of marriages:
___ One only  
___ Two  
___ Three or more

How many children have you ever had? (Include any child who died in infancy) ______

Were any of these children born AFTER January 1, 1968? ___ Yes
   If YES, please list the name, sex, and birth date: ___ No
   (Circle child's sex)

Name: _______________________ M F Date of birth: _______
                   _______________________ M F
                   _______________________ M F

Did you rear any other children? (Stepchildren, foster children, adopted children, grandchildren, etc.?) ___ Yes
   ___ No

   If YES, how many such children lived with you at LEAST ONE YEAR? _______

   Do you ever wish you were a different age from what you are? ___ Yes
   ___ No

   If YES, what age would that be? ______

HEALTH HISTORY

How is your health compared to other people your own age?

Much better ___  
Somewhat better ___  
About the same ___  
Not as good ___

Have you had any of the following health problems the last 10 years? Check as many as apply:

<table>
<thead>
<tr>
<th>Health Problem</th>
<th>When did it start?</th>
<th>Have you been treated by a physician?</th>
<th>Are you being treated for it now?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Diabetes?</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>High blood pressure?</td>
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<td></td>
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<tr>
<td>Stroke?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rheumatism or arthritis?</td>
<td></td>
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</tr>
</tbody>
</table>
Cancer? (specify type) __ __ __ __ __ __
Other tumor, cyst, or growth? __ __ __ __ __ __
Stomach ulcers (peptic gastric, duodenal)? __ __ __ __ __ __
Paralysis of any part of your body? __ __ __ __ __ __
Convulsions (epilepsy)? __ __ __ __ __ __
Nervous breakdown? __ __ __ __ __ __

Have you had any other major health problems or injuries the last 10 years?
  No
  Yes (please describe) ________________________________
  (Additional space is available at the end of the questionnaire)

What is your present weight? __________ pounds

Would you say that you're underweight, just about right, or overweight?
  UNDERweight __
  Just about right __
  OVERweight __

How many cups of coffee do you usually drink a day? (Circle)
  None 1-2 3-4 5 or more

How many cups of tea do you usually drink a day? None 1-2 3-4 5 or more

How many glasses of cola beverage (cola, pepsi, etc.) do you drink a day?
  None 1-2 3-4 5 or more

Do you usually take 2 or more alcoholic drinks a day? ___ Yes ___ No
  If YES, what type of alcoholic drink is this?
    Beer ___ Wine ___ Spirits (whiskey, gin, etc.) ___

Please indicate how much you smoke nowadays:
  ___ I have never smoked.
  ___ Less than half a pack of cigarettes a day
  ___ Between one half and a pack a day.
  ___ One pack of cigarettes a day.
  ___ More than one but less than two packs a day
  ___ Two packs or more a day
  ___ I primarily smoke a pipe
  ___ I primarily smoke cigars
At what age did you start smoking? ____________
If you no longer smoke, at what age did you stop smoking? ______

TO BE ANSWERED BY WOMEN ONLY

Have you stopped having menstrual periods? ______ Yes ______ No
If YES, how old were you when your periods stopped? ______ (years) (months)

Was this due to an operation or X-ray therapy? ______ Yes ______ No
If NO, have they begun to stop? ______ Yes ______ No

Have you ever taken medication containing estrogen? ______ Yes ______ No ______ Don't Know

If YES: Have you taken an oral contraceptive ("The Pill")? ______ Yes ______ No

Have you taken estrogen replacement therapy? ______ Yes ______ No

Have you been employed outside the home since your first child was born? ______ Yes ______ No

If YES, how old was your OLDEST child when you started work? ______
How old was your YOUNGEST child? ______

EDUCATION & EMPLOYMENT

Have you taken any courses since January 1, 1968? ______ Yes ______ No

If YES, check as many as apply:

___ Primarily for recreation
___ Toward a degree or certificate
___ Applicable to my job at the time
___ To qualify for another job
___ Community service (life saving, first aid, emergency medical training, etc.)
___ Other (specify) __________________________

Have you earned any diplomas or degrees since January 1, 1968? ______ Yes ______ No
If YES, what were they and when were they granted?

____ High School Diploma date: 
____ College degree (B.A. or B.S.) date: 
____ Professional certificate (L.P.N, C.P.A., etc.) date: 
____ Advanced academic degree (M.A., M.S. Ph.D.) date: 

Circle the highest grade you completed in high school:

Grades 1-12  6 or less  7  8  9  10  11  12

College  Less than 1 year  1  2  3  4  5 or more

Did you have a paid job as of June 1, 1977?  Yes  No

If YES:

What is/was your job title? 
What kind of work are/were you doing? 
What kind of business or industry was this 
How long have you held this job? (years) (months)

If you have been working at this job less than one year, what was your previous job? 

Are you self-employed?  Yes  No

If YES, how long have you been self-employed? (years) (months)

Generally speaking, how satisfied are you with your job? Are you:

Very satisfied 
Somewhat satisfied 
Somewhat dissatisfied 
Very dissatisfied 

What would you say was the total amount of your wages and salaries including second job, overtime, and bonuses in 1976?

____ Not in labor force (housewife, retired, etc.)
____ Less than $3,000
____ $3,000 - $4,999
____ $5,000 - $6,999
____ $7,000 - $8,999
____ $9,000 - $11,999
____ $12,000 - $14,999
____ $15,000 - $19,999
____ $20,000 - $24,999
____ $25,000 and over
Did you have income from investments (stocks, real estate), social security, pensions, etc. in 1976? _____________________________

If currently unemployed, please describe the last job you held.

What kind of work did you do? ______________________________
What kind of business or industry was this? __________________
How long has it been since you were employed? _________________

If you had a regular volunteer (unpaid) job as of June 1, 1977:

What kind of work were you doing? __________________________
What kind of business or industry was this? ____________________
How long have you held this job? _____________________________
(years) (months)

On the average, how many hours per WEEK do you spend at this job? ______________

FAMILY BACKGROUND

In addition to the biographical data which has already been collected, we would appreciate some additional information about you and your brothers and sisters. Specifically, we would like to know the birth order, sex, and dates of birth of all the children in the household in which you grew up. This information will be used to study how family patterns may influence growth, career choice, and plans for one's own family.

What is your birth order? Are you the oldest child (first born), second child, third child, or what?

CIRCLE the number below that indicates your birth order:

1 (oldest) 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

If you are the OLDEST child, are you also an ONLY child?

_____ Yes, I was the only child in my family
_____ No, I had younger brothers and sisters

Please indicate the sex and the year and month of your own birth and the birth of your sister(s) and your brother(s), to the best of your recollection:
<table>
<thead>
<tr>
<th>ORDER OF BIRTH</th>
<th>CIRCLE YEAR &amp; MONTH OF BIRTH</th>
<th>ORDER OF BIRTH</th>
<th>CIRCLE YEAR &amp; MONTH OF BIRTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st born</td>
<td>M F</td>
<td>7th born</td>
<td>M F</td>
</tr>
<tr>
<td>2nd born</td>
<td>M F</td>
<td>8th born</td>
<td>M F</td>
</tr>
<tr>
<td>3rd born</td>
<td>M F</td>
<td>9th born</td>
<td>M F</td>
</tr>
<tr>
<td>4th born</td>
<td>M F</td>
<td>10th born</td>
<td>M F</td>
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<tr>
<td>5th born</td>
<td>M F</td>
<td>11th born</td>
<td>M F</td>
</tr>
<tr>
<td>6th born</td>
<td>M F</td>
<td>12th born</td>
<td>M F</td>
</tr>
</tbody>
</table>

Did any other children live in your household for at least a year before you were 16 years old? (Cousins, stepbrothers or stepsisters, half-sisters or half-brothers, nieces, nephews, boarders, etc.)?

--- Yes ___ No

How many adults (excluding sisters and brothers) lived in the same household as you while you were growing up:

1 2 3 4 5 6 7 or more

To the best of your recollection, who were the adults in your household when you were under 5 years old?

Mother ___ Grandmother(s) ___ Aunt(s) ___ Other (specify)

Father ___ Grandfather(s) ___ Uncle(s) ___

Who were the adults in your household when you were between the ages of 5 and 10?

Mother ___ Grandmother(s) ___ Aunt(s) ___ Other (specify)

Father ___ Grandfather(s) ___ Uncle(s) ___

Who were the adults in your household when you were between the ages of 11 and 16?

Mother ___ Grandmother(s) ___ Aunt(s) ___ Other (specify)

Father ___ Grandfather(s) ___ Uncle(s) ___

FRIENDS AND FAMILY NOW

Do you have any living . . .

children? ___ Yes ___ No

brothers or sisters? ___ Yes ___ No

parents? ___ Yes ___ No

close friends? ___ Yes ___ No

grandchildren? ___ Yes ___ No

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If YES, please check when you last saw any of your . . .

<table>
<thead>
<tr>
<th></th>
<th>Within last day or so</th>
<th>Within last week or two</th>
<th>A month ago</th>
<th>Two to three months ago</th>
<th>Longer than that</th>
</tr>
</thead>
<tbody>
<tr>
<td>children</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>brothers or sisters</td>
<td></td>
<td></td>
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<tr>
<td>parents</td>
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<tr>
<td>close friends</td>
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<tr>
<td>grandchildren</td>
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</tbody>
</table>

Do you have someone you feel close enough to that you can talk about things that really bother you? ___ Yes ___ No

If YES, who is this person? If NO, how do you feel about it?
(Check as many as apply.)

- Husband
- Child(ren)
- Friend(s)
- Sister, brother
- Clergyman
- Doctor
- Parent(s)
- Other (please specify)

How happy would you say you are these days?

- Very happy ___
- Pretty happy ___
- Not too happy ___

LOOKING BACK & LOOKING AHEAD

Have you made any important decisions that you are sorry about now? (Check as many as apply.)

Do you wish you had:

- Taken additional training to prepare for a better job?
- Chosen a different field of employment?
- Been employed outside the home?
- Not had to work outside the home?
- Settled in a different part of the country?
- Not been so young when you married?
- Not been so old when you married?
- Married someone else?
- Not married at all?
- Had more children?
- Not had so many children?
Not been so young when your first child was born?
Not been so old when your last child was born?
Other (please specify) _______________________

In preparing for your later years, how important do you feel each of these various steps will be?

<table>
<thead>
<tr>
<th>Step</th>
<th>Very Important</th>
<th>Somewhat Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop hobbies and other leisure time activities</td>
<td></td>
<td></td>
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<tr>
<td>Make sure you'll have medical care available</td>
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<td></td>
<td></td>
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<tr>
<td>Plan new part-time or full-time jobs</td>
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<tr>
<td>Prepare a will</td>
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<td></td>
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<tr>
<td>Decide whether you want to move or continue to live where you are</td>
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<td></td>
</tr>
<tr>
<td>Build up your own savings</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Enroll in retirement counselling or preparation programs</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Buy your own home</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Talk to older people about what it's like to grow old</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learn about pensions and social security</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Make new friends</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Move in with children or other relatives</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

If you have an afternoon or evening to spend doing whatever you like, what do you usually want to do? ______________________________________

Use this space for any additional comments: ______________________________________

____________________________________

____________________________________

____________________________________

____________________________________

____________________________________

____________________________________
Thank you for your cooperation. Please use the enclosed envelope to return this questionnaire to: THIRD HARVARD GROWTH STUDY Department of Anthropology Harvard University Cambridge, Massachusetts 02138
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