To the Graduate Council:

I am submitting herewith a dissertation written by Randolph Leigh Mowry entitled "Social Support, Stressful Life Events, and Psychological Impairment: A Study of Deaf Persons." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

William H. Calhoun, Major Professor

We have read this dissertation
and recommend its acceptance:

Accepted for the Council

Vice Provost
and Dean of the Graduate School

SOCIAL SUPPORT, STRESSFUL LIFE EVENTS, AND PSYCHOLOGICAL IMPAIRMENT: A STUDY OF DEAF PERSONS

A Dissertation

Presented for the

Doctor of Philosophy

Degree

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Randolph Leigh Mowry

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ABSTRACT

This research addressed the issue of the mental health needs of deaf persons by measuring psychological impairment, life events and social support for deaf adults. To accomplish this goal, paper-and pencil tests that were used with hearing groups to measure each of the constructs were selected--the Langner Symptom Checklist, the Dohrenwend Life Event Scale, and the Social Support Index. The scales were rewritten to accommodate the reading level of deaf adults. The revised questionnaires were tested on a small sample of deaf adults and then administered to a larger sample of deaf adults (N=49). The unrevised questionnaires were administered to a sample of hearing adults (N=61).

The results of the comparisons of the deaf and hearing samples revealed that there were no significant differences between the groups for the number of current or past symptoms. Of the nine life event variables, only three showed significant differences (deaf respondents reported more events). Significant differences were found for the three social support variables. Deaf respondents always reported less support.

The relations among the life event variables, the social support variables, and the psychological symptom variables tested the buffering effect of social support. Correlations between symptoms and life events revealed only trivial relationships for each sample. The buffering effect of social support was not supported when examining

the number of symptoms of low and high supported respondents across three levels of life events (low, moderate, and high) for both samples.

The results of the comparisons of the deaf and hearing respondents have limited validity due to the noncomparability of the two groups. First, the samples differed on several demographic characteristics. Second, there is a fundamental experiential difference between deaf and hearing people. The responses of the deaf respondents to the Social Support Index revealed that the concept of social support for deaf persons was not the same as for hearing persons. Future research with deaf persons on the buffering hypothesis should define the concept in terms of the norms of the deaf community.

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CHAPTER I

INTRODUCTION AND LITERATURE REVIEW

This research project was designed to study the psychological status, life events, and social support of deaf persons. This study is important because there are 6.5 million people in the United States who have a significant bilateral hearing loss, of which 1.7 million are classified as deaf (i.e., cannot hear or understand speech) (Schein & Delk, 1974). The basic premise presented is that the mental health needs of deaf persons are not adequately met by the existing system. There are three assumptions which relate to this research area. Assumption one is that deaf persons have unique problems in handling life stressors because of their hearing impairment. Deaf persons are at a disadvantage when it is necessary to deal with a variety of common, and uncommon, situations. A deaf person cannot simply pick up a regular telephone and make a call. To use the telephone requires special equipment, and can only be used with other phones similarly equipped. Therefore, it is very hard to call in sick to work, to cancel an appointment, to make a dinner reservation. In other words, deaf persons have serious disadvantages.

For the deaf person face-to-face communication with hearing people is difficult. Hearing persons often assume that most deaf persons can speech-read well, and will attempt to communicate that way with a deaf person. This belief is wrong (Hoemann & Briga, in press). Face-to-face communication between a deaf and hearing person

normally requires the use of an interpreter or writing notes back and forth. Either method, at the very least, will increase the amount of time necessary to complete the task. Often the hearing person will be hestiant or even unwilling to communicate with the deaf person (Jacobs, 1974), making the task more difficult and unpleasant.

Deaf persons are also disadvantaged when trying to learn how to complete routine tasks. Information is often given only verbally (such as on television or radio), which is of little use to the deaf person. In the end deaf persons do not receive complete information.

Assumption two is that professional mental health services and support are inadequate for deaf persons. For the years 1974-1976, 2.6 billion dollars were spent on handicapped services (United States Department of Health, Education, and Welfare, 1975, 1976, 1977). These monies have had very little impact on mental health services for deaf persons. A recent review of the availability of mental health services for deaf persons revealed that there were only 15 programs for deaf persons in the United States (Sachs, Robinson, & Sloan, 1978). This figure represents less than 1% of all mental health programs in the United States (Taube, 1978), which number 3,500. A more important point was that only three of these 15 programs were fully functional; the remaining programs had only limited operations (Sachs et al., 1978). Goulder (1978) noted that the majority of these programs were located in the northeast region of the United States. Goulder also pointed out that in 1975 only 727 deaf persons

were receiving treatment from programs for deaf persons. This number represents less than 2% of deaf persons estimated to be potentially in need of mental health services.

In addition to the assumed lack of treatment programs for deaf persons, Sachs et al. (1978) reported that there are very few mental health professionals who can sign and who have knowledge of the special needs of deaf persons. Sachs et al. reported that there were only 55 psychiatrists, psychologists, and social workers in the United States who were working with deaf persons; many of these professionals were not fully trained in deafness.

One personal example of a deaf person who had problems in receiving mental health services is given below. (The personal I is used to carry the impact of the story):

> I worked on a treatment unit for behaviorally and emotionally disordered adolescents in a state mental hospital. A teen-age boy was admitted with severe problems. He was described as highly aggressive, lacking impulse control, and unable to learn from experience. The boy was deaf! The direct care staff could not deal with him. Only one staff member, a speech therapist, knew some sign language, but she could see him only once a week. I took a personal interest in the boy, and began learning sign language. My experience with him made it apparent that he had been misdiagnosed, and his history had been misunderstood by the professionals who previously worked with him. He did not show poor impulse control, or fight

> excessively. When he knew what was expected of him, when he could express his feelings and be understood, he behaved in a reasonable manner. It is likely that his previous behavior was a function of the problem he had in communicating his feelings and wishes to others, and in not understanding what was expected of him. That is, the problem behaviors were associated with the communication problems of being deaf rather than being caused by some personality disorder.

It is very probable that the situation presented above is not an isolated case (Robinson, 1978).

Assumption three is that standard paper-and-pencil tests used in research, as written, are inappropriate for the level of English comprehension of the typical deaf person. Currently few tests for personality, intelligence, or psychological impairment are available that are truly appropriate for use with deaf children (Hoemann & Briga, in press); Vernon (1980) made the same statement in relation to deaf adults. A large part of the problem in using the tests stems from the fact that deafness (if onset is prior to the age of 2 or 3) precludes the normal acquisition of the standard, spoken language. Since the instruments used in research and practice are written in English, there is a problem in their use. The typical deaf adult reads at a level much lower than the hearing population (Quigley & Kretschmer, 1982). If paper-and-pencil tests are to be used with deaf persons, they need to be rewritten to a level of English more easily understood by the typical deaf adult. (The rationale for

doing instrument revisions will be discussed in detail in Chapter II.)

Stress and Health

It is necessary to review the research conducted on "stressful events" and their relation to physical and mental health, since an assumption of this thesis is that deaf persons react more strongly to stressful situations.

The impact of stressors on physical health was scientifically formulated by Selye in 1936 (as reported in Selye, 1976). Selye noted that in many cases physical disease could, in retrospect, be traced to the person's experience of stressful situations. From his synthesis of the research, Selye concluded that stress was "the body's nonspecific response to any demand" (1976, p. 1). The body's response to demands was termed the general adaptation syndrome--a three stage reaction--which involved a variety of bodily changes. Examples of these changes included increases in heart rate, blood pressure, and adrenalin production. Prolonged adaptation to demands led to what Selye called the diseases of adaptation (e.g., gastrointestinal ulcers, cardiovascular diseases). Selye made it clear that stress was indicated by the body's nonspecific reaction, and not simply by the occurrence of a demand.

Researchers in the field of psychosomatic medicine also pointed to the stress reaction as important to many diseases. Alexander (1948), for example, noted that unresolved conflicts, such as in business settings or in marriages, can produce nonspecific bodily

reactions indicating stress. In a series of case studies Alexander found that persons who were experiencing intense conflicts often developed peptic ulcers.

Many researchers in psychosomatic medicine had demonstrated that life experiences lead to a variety of nonspecific bodily responses, and therefore show stress (Schottstaedt, Grace, & Wolff, 1956; Hetzel, Grace, & Wolff, 1956). The life experiences were variations or changes in the "routine" activities of the persons. Two example situations given by the authors were: (1) temporary increased responsibilities in a work or home setting and (2) participating in an intense interviewing process. Schottstaedt et al. (1956) in a non-laboratory study investigated the changes in urinary excretion following the experience of these life situations. When subjects experienced one of the situations, subsequent urinary output showed increases in water and sodium excretion.

In similar research, Hetzel et al. (1956) reported general metabolic changes in humans who experienced life situations like those given above. For stressed persons, Hetzel et al. found that oxygen consumption and carbon dioxide elimination increased. Urinary nitrogen excretion increased; and blood ketone levels were elevated. Hetzel et al. pointed out that similar metabolic changes were characteristic of the body's response to surgery, which one would readily agree to be stressful.

The association of stress and mental and physical illness has received renewed emphasis in the past few years (Holmes & Rahe, 1967). In the studies to be presented below, the focus was on life events that are related to stressful reactions. In keeping with Selye's concepts (1973), the life event was a demand on the individual which could cause a nonspecific response by the individual. While Holmes and Rahe did not exactly use Selye's position, the similarity in their concepts can be seen in the following quote:

> . . . The occurrence of each event usually evoked, or was associated with, some adaptive or coping behavior on the part of the involved individual. Thus each item [on the Schedule of Recent Events] was constructed to contain life events whose advent is either indicative of, or requires a significant change in, the ongoing life pattern of the individual. The emphasis is on change from the existing steady state and not on psychological meaning, emotion, or social desirability (p. 46).

The central idea in Holmes and Rahe's definition was the concept of adjustment to external change. However, to be consistent with Selye, one must assume that the events preceding change must produce nonspecific responses. Hence the demand for change in behavior patterns is used to indicate a stressful reaction. Dohrenwend, Krasnoff, Askenasy, and Dohrenwend (1978) also focused on adjustment to external changes in routine patterns as a precondition for stressful reactions.

Both Holmes and Rahe (1967) and Dohrenwend et al. (1978) developed scales to measure the stress due to life events. These

two life event scales have been used extensively in research on the relationship of events to mental and physical health. The relationship of life events to physical illness has been extensively studied by Holmes and his colleagues; Holmes and Masuda (1974) reviewed this research, and reported on retrospective and prospective studies. The studies involved a heterogeneous collection of groups including resident physicians, hospitalized patients, high school teachers, Naval personnel, football players and Swedes. Holmes and Masuda offered important conclusions from their research. First, the magnitude of change in patterns was highly significantly related to the time of physical and psychiatric disease onset. Second, the probability of disease onset was increased as the magnitude of life change increased. And third, there was a strong positive correlation between the magnitude of life change and the seriousness of the illness.

As with the occurrence of physical health problems, experienced life events have been related to the occurrence of mental health problems. Paykel (1974) reported on studies of persons who were depressed and/or had attempted suicide. Using the Holmes and Rahe scale, Paykel collected data on life events experienced by the depressed persons and a matched sample of nondepressed persons (N for each group = 185). The findings showed that 82 depressed persons reported experiencing at least one undesirable life event prior to the onset of depression. Over a similar time period, only

31 control subjects made such a report. Depressed persons also reported fewer desirable events than did the control subjects, although this difference was slight. These studies must be interpreted cautiously for several reasons. First, the onset of depression is not easily determined. Therefore, the depressed persons may have reacted to the events in a negative manner because of their depression. Second, the depressed persons may remember more undesirable events as a way of explaining their depression. Finally, the fact that the control subjects reported more desirable life events than the depressed persons could suggest that depressed persons may evidence most life events as undesirable. A common symptom of depression is the loss of interest in activities that were previously pleasurable (Teuting, Koslow, & Hirschfeld, 1981). The data presented by Paykel regarding the sample of persons who had attempted suicide were similar to that of the depressed persons. The arguments outlined above are, therefore, applicable to that study.

A study similar to those presented above was conducted by Brown and Birley (1968) using a sample of schizophrenic patients. The patients experienced more life events than the general population control group in the weeks prior to their "episode." The questions of onset of the disorder and the bias in memory raised with the Paykel studies above are also relevant here.

Studies of the relationship of the number of life events to psychological impairment have also been conducted on samples from

the general population from a defined geographic area (called a community sample). In the community samples psychological impairment was defined by having a specific score or greater on a symptom checklist (e.g., Langner's Symptom Checklist). Using a community sample, Myers, Lindenthal, and Pepper (1971) found a strong association between the number of events experienced and the degree of psychological impairment for an individual. The number of symptoms was measured, and then the respondents were classified into one of three groups (very impaired, moderately impaired, and unimpaired). Life events were measured for the past year. The results indicated that a much greater percentage of the very impaired group had experienced three or more life events in the preceding year than either the moderately impaired or unimpaired groups. The findings remained even after controls for race, gender, age, marital status, and other demographic variables were applied.

The negative effects of life events have considerable support from research reports, yet one should not accept the implications of these results uncritically. The majority of studies have been retrospective, asking respondents to report events that happened in a previous time period (e.g., events for the past year) and then to report current symptoms. Given this design one cannot be sure which condition occurred first--the symptoms or the life events. Therefore, inferences about cause and effect are difficult to make. The correlational nature of the research limits causal inference when temporal ordering of events is not clear (Kenny, 1979). Beyond

this criticism some authors have questioned the practical significance of the obtained relationships (Rabkin & Struening, 1976); the correlations are modest, usually hovering around .30. These correlations are often significant but account for less than 10% of the variance in physical or emotional illness. The statistical significance often was achieved on large samples (as in Holmes and Masuda's research). Rabkin and Struening (1976) stated that these modest correlations were possibly due to interactions with other variables. Specifically, they pointed to the interaction of life events and social support, and suggested that the level of social support may influence the relationship of life events to mental status. Therefore, it is necessary to explore the relationship of social support to life events and mental health.

Social Support

Rabkin and Struening (1976) suggested that social support may be an important moderating factor in the response of the individual to demands. Social support can be defined as:

> the degree to which a person's basic social needs are gratified through interaction with others. Basic social needs include affection, esteem . . . belonging, identity and security. These needs may be met by either the provision of socio-emotional aid (e.g., affection sympathy . . . acceptance, and esteem from significant others) or the provision of instrumental aid (e.g., advice, information . . . financial aid) (Thoits, 1982, p. 147).

The basic premise of this dissertation is that persons, whether

deaf or not, will show fewer stressful reactions to external demands when they have strong social support.

The major constructs defined. The major constructs involved in social support research--stress, psychological status and social support--have been defined in a variety of ways.

Stress. The concept of stress was presented earlier (see page 5). Stress is the body's nonspecific reaction to external demands (Selye, 1976). Stress can be inferred when an individual has bodily changes. For the studies presented above, the external demands were life events that are assumed to force changes in the routine behavior patterns of the person who experiences them. To be consistent with Selye's concepts, it must be assumed that these forced changes produced nonspecific bodily reactions in many persons. Hence, the degree of experienced stress is indirectly measured by the number of life events a person has experienced. Two life event scales have received attention--the Holmes and Rahe (1967) scales and the Dohrenwed et al. (1978) scale.

The Holmes and Rahe scales--the Schedule of Recent Events (SRE) and the Social Readjustment Rating Scale (SRRS)--have been widely used in research. They consist of 43 life events. These events were assembled based on the author's clinical experience (Holmes & Rahe, 1967). Each event was weighted for the amount of readjustment required using a technique developed in psychophysics. One item on the list was given an arbitrary weight; subjects were

asked to compare each event with the benchmark event. Then the subjects assigned a weight to the event based on whether or not it required greater or lesser readjustment than the benchmark event. A total life events score could be derived by adding the assigned weights for experienced events. The life events score is assumed to be predictive of the degree of resulting stress.

The SRRS has been negatively criticized on two points. First, Dohrenwend et al. (1978) noted that the item selection procedure may have allowed the inclusion of items that were symptoms or consequences of illness. An example life event from the Holmes and Rahe Scale is a "change in eating habits." A change in eating habits could follow a life event, but also could happen independently of any life event. Second, Rabkin and Struening (1976) pointed out that the reliability coefficients (test-retest) for the SRRS were unacceptably low (ranging from .26 to .90). The poor reliability coefficients do not permit its use as a measure of life events.

The Dohrenwend scale was designed to address some of the above criticisms and is called the Psychiatric Epidemiology Research Interview Life Events Scale (LES). Item selection was based on previous lists and the researcher's experience as well as on two pilot studies. The pilot studies used an interview technique and allowed the respondents to nominate events that they had recently experienced that had for "better or worse, interrupted or changed your usual activities . . ." (p. 209). This procedure resulted in a 102 item scale. Judges to rate the magnitude of change the

events entailed were based on a probability sample. In contrast Holmes and Rahe used samples of convenience to be their judges. The total life stress score for the LES is a sum of the weights assigned to the experienced events.

Being a frequently used construct, psychological impairment has several traditional ways of definition. By far most researchers have used symptom checklists, which are used to distinguish between psychologically well and impaired persons in samples of persons drawn from specific communities (Andrews, Tennant, Hewson, & Vaillant, 1978; Barrera, 1981; Hirsch, 1980; Lin, Ensel, & Simeone, 1979; Mueller et al., 1977; Myers, Lindenthal, & Pepper, 1972; Turner, 1981; Williams et al., 1981; Wilcox, 1981a; Wilcox, 1981b). Several of these studies included a separate measure of mood anxiety, or depression (Barrera, 1981; Hirsch, 1980; Wilcox, 1981a; Wilcox, 1981b). One study also used a measure of self-esteem (Hirsch, 1980).

Social support has only recently appeared in the research literature; definitions of social support have been numerous. Some attempts have been simple; for example, having or not having a confidante or intimate other (Lowenthal & Haven, 1968; Myers, Lindenthal, & Pepper, 1975). Another indicator has been the total number of persons one believes are supportive (Barrera, 1981; Wilcox, 1981a; Wilcox, 1981b). However, current researchers have used several indicators of social support.

Thoits (1982) suggested that social support should be considered a multidimensional concept, including the amount, type and sources

of support. Her definition was presented earlier (see page 11). Several researchers have measured social support in ways consistent with Thoits' definition. Wilcox (1981b) and Hirsch (1980) developed scales based on the presumed functions of social support (such as providing guidance or material assistance). Each of these researchers also included indicators of the amount of support available in their studies.

Types of populations studied. A wide variety of populations have been studied in social support research. Many studies have used general population samples (Mueller et al., 1977; Myers et al., 1971; Myers et al., 1972; Wilcox, 1981b). Other researchers have collected samples of persons from the general population who were experiencing a presumed stressful event, such as divorce, marital separation, birth, or returning to school (older women) (Barrera, 1981; Hirsch, 1980; Turner, 1981; Wilcox, 1981a). Other researchers have investigated special groups, such as ethnic minorities (Lin et al., 1979) or hospitalized or recently discharged psychiatric patients (Tolsdorf, 1976; Turner, 1981). In spite of the extensive research on stressful life events, only one study has included a hearing-impaired sample--an adult-onset hearing loss group (Turner, 1981).

Research findings. Cassel (1974) was one of the first persons to suggest that a person's social support system may reduce or "buffer" the impact of life events. Since publishing his ideas,

numerous researchers have investigated social support and the buffering effect. The basic principle, called the buffering hypothesis, is that social support will buffer the impact of life events on an individual's mental and physical health. With strong social support, a person will exhibit fewer signs of stress due to a life event. Conversely, lack of support will increase the vulnerability of a person to stress in the presence of life events. If a person has not experienced any life events, then social support does not have a buffering effect; there is no significant stress to buffer. Other researchers, however, have suggested that social support may directly affect mental status (Lin et al., 1979; Thoits, 1982; Turner, 1981; Williams et al., 1981). These researchers contend that supported people have, in general, better mental health than unsupported people. Life events are only important in determining the initial level of mental health.

Two major sets of findings related to the issues discussed above have been found from research on social support. The first set of findings comes from Holmes and his colleagues (Holmes & Masuda, 1974; Holmes & Rahe, 1967). These researchers found that life events were only moderately related to impairment (Andrews et al., 1978; Lin et al., 1979; Myers et al., 1972; Wilcox, 1981b; Williams et al., 1981). Similar to the findings of Holmes and his colleagues, Andrews et al. (1978) and Williams et al. (1981) found correlations of .30 between life events and psychological impairment.

The second set of findings relates to the effects of social support on the life events-psychological status relation. Studies indicated that the negative effects of experienced life events were reduced by the presence of social support (Barrera, 1981; Gore, 1978; Hirsch, 1980; Wilcox, 1981a; Wilcox, 1981b). These studies showed a significant buffering effect. However, other studies have failed to find the buffering effect. These studies found that social support was directly and positively correlated with mental health, and this correlation did not change with changes in life events (Andrews et al., 1978; Lin et al., 1979; Turner, 1981; Williams et al., 1981).

The conflicting results relating to the buffering effect of social support may have several bases. Thoits (1982), in a recent critical review of the research on the buffering effect, discussed the problems with the research. The first problem was inadequate definition and conceptualization. Poor definition has resulted in researchers using indicators that were directly related to social support (e.g., dissatisfaction with community or too many responsibilities, as in the research of Lin et al. (1979). Therefore, the possibility of finding a buffering effect was reduced.

The second problem relates to the methods of research. Thoits suggested that the cross-sectional, one-time measurement designs that have characterized the majority of social support research produced results biased in favor of the buffering effect. This problem involved the relationship of measures of social support

to measures of life events. Thoits pointed out that the measurement of support often is done after life events have occurred. Several problems happen with this measurement technique. If a life event involved an undesirable event (e.g., death of a loved one or divorce), then the level of support will be lowered. If a life event involved a desirable event (e.g., marriage or addition of a family member to the household), then the level of support will be raised. Without control over these changes in support due to life events, a systematic classification bias of respondents will occur. Comparisons of respondents classified in this way seems to bias results in favor of the buffering effect. Thoits demonstrated, in a reanalysis of some data from a study of social support of married and unmarried persons, that the buffering effect was considerably reduced when one partialled out the confounding due to changes in support related to life events. She suggested that a more appropriate (i.e., less biased) test of the buffering effect should involve comparisons of persons who have different levels of support that have remained relatively stable over the time period of interest. It must be concluded, therefore, that the buffering hypothesis is tentative, and that further careful research is necessary to substantiate its effect.

Social Support and Deafness

The deaf community represents a cultural group within the larger American society (Baker & Cokely, 1980; Nash & Nash, 1981; Padden, 1980). Based on a 1971 census of hearing-impaired persons, Schein

and Delk (1974) reported that over 6.5 million persons in the United States had a significant bilateral hearing loss. Over 1.7 million were classified as deaf (i.e., could not hear or understand speech). Many of these deaf pesons consider themselves to be members of the deaf community and culture. Members of the deaf community share a language, and a set of values, behaviors, and experiences. As Nash and Nash (1981) pointed out, the deaf community is:

> a symbolic community, a network of associations that places a premium on values. These include values toward ASL as a "noble" language and negative values toward the "talk" of "hearies" and educators, as well as strong social ties, . . . (p. 101).

A deaf person has to deal with many of the same problems of living as do other people (getting and keeping a job, becoming married, getting loans, getting medical care, etc.). There is an important difference nonetheless; completing these tasks is generally more difficult due to the communication problems and negative attitudes of the hearing majority. As Robinson (1978) stated:

> . . . The hearing reader should have no difficulty at this point in imagining the frustrations which deaf people experience in ordinary social intercourse. How, for example, does a deaf person with language difficulties consult experts regarding his insurance and financial security? If he is accused of breaking the law and taken into court, how can he consult properly with his defense counsel? If he is in need of medical help, how can he be sure that his doctor or nurse really understands him through the communication barrier? What about privacy when a third-party interpreter is present? Is he or she being short-changed? Deaf persons can tell many stories about situations in which they or their deaf friends were too intimidated or ashamed to confess their confusion. It

> therefore not surprising that many deaf people face everyday contacts with hearing people with a certain degree of uncertainty (p. 13).

Deaf persons are often viewed in negative ways in terms of skills and intelligence. For example, a common misconception about deaf persons relates to their ability to perform in work settings. Deaf persons are often seen by their hearing supervisors or potential employers as not capable of handling various jobs and responsibilities (Schroedel & Jacobsen, 1978). Therefore, deaf pesons are many times underemployed or passed over for promotions.

The frequently discriminatory, and paternalistic, actions and attitudes of hearing persons have tended to bind the deaf community together more tightly (Baker & Cokely, 1980; Jacobs, 1974). There is a strong emphasis on family and social ties (Jacobs, 1974; Padden, 1980). Jacobs stated:

> it is not surprising that the average deaf family home usually shows much more activity than their hearing neighbors; there are more visiting automobiles in front of their house than any other home in the neighborhood, and they are more frequently invited out than their hearing neighbors (p. 72).

Social ties are also maintained through many other activities and organizations for deaf persons. Many cities have clubs for the deaf, and there are numerous organized athletic groups for deaf persons. Other social groups are local chapters of state or national associations of the deaf, religious groups and private social gatherings. As Padden pointed out:

> Deaf people enjoy the company of other like-minded Deaf people. They feel they gain support and trusting companionship from other Deaf people who share the same cultural beliefs and attitudes (p. 97).

The deaf community, therefore, seems to be based on well-developed social ties stemming from the shared experiences of participating in a hearing world.

The deaf community seems to provide a situation in which stress from life events is experienced in a context of strong social support. The deaf community has not been studied in relation to social support and stress. Only one study has included a hearing impaired sample (Turner, 1981). Turner's sample consisted of persons with adult-onset hearing loss. These persons grew up hearing and probably have retained hearing attitudes and values. Therefore, they are not representative of the deaf community. This study focused on deaf persons who are members of the deaf community.

Purpose of the Study

The purpose of this study was to measure life events, social support and mental health in a sample of deaf adults. To conduct research on these constructs, several phases were completed. The first phase was the selection of instruments currently used with hearing persons which reliably and validly measure life events, social support, and mental health.

Phase two involved rewriting the instruments for use with deaf persons. The median reading level for deaf persons is between the

fourth and fifth grades (Ouigley & Kretschmer, 1982). The instruments, as currently written, would be too easily misunderstood. To rewrite these instruments to a level of English more likely to be understood by a majority of deaf persons, a bilingual, deaf adult was consulted.

In the third phase the rewritten questionnaires were used with a small sample of deaf adults. The purpose of this step was to provide an indication of the functioning of the questionnaires. This step helped indicate if words or phrases for questionnaire items were clear, and if the instructions were understood. Appropriate changes to items and instructions were made as needed. The fourth phase expanded the study to a larger deaf population. For comparison purposes a sample of hearing persons was also included in the study.

This dissertation represents a study in an area of great importance to the deaf community. As discussed earlier, mental health services are limited for deaf persons. Therefore, the mental health needs of deaf persons are probably not well-served. This study will address several research issues that relate to the mental health status of deaf persons:

Research issue 1: To ascertain the number of self-reported psychological symptoms in the deaf subjects and compare it to hearing subjects. It has been speculated by some authors (e.g., Schlesinger, 1978) that the percentage of deaf persons who would be classified as "psychologically impaired" would be higher than

the percentage of hearing persons so classified. However, to date there has been little data-based research to support this contention. For this study psychologically impaired will be defined as exceeding a specific score on Langner's Symptom Checklist (LSC). (The LSC will be described in the next chapter.)

Research issue 2: To ascertain the number of experienced life events for deaf subjects and compare it to the number of experienced life events for hearing subjects.

Research issue 3: To measure the perceived availability of social support for deaf subjects and compare it with the availability of social support for hearing subjects. The earlier discussion of social support in the deaf community suggested that social support should be high, possibly surpassing the support available in the hearing community. However, there are two reasons for questioning this assertion. First, 90% of deaf persons have hearing parents, which generally means that intra-familial communication is poor (Robinson, 1978; Schlesinger & Meadow, 1972). Many hearing parents do not learn to communicate well with their deaf child. Second, as adults, deaf persons are a minority in work settings. Most hearing co-workers cannot communicate efficiently with a deaf co-worker (Robinson, 1978). Therefore, social support may actually be more limited, involving more non-family persons and restricted to non-work hours.

Research issue 4: To assess the effects of social support and life events on the perceived number of psychological symptoms

in the two samples. (a) The research cited earlier indicated that perceived level of social support should correlate negatively with the number of symptoms, and the number of life events should correlate positively with the number of symptoms. (b) Previous research also suggested that the number of psychological symptoms should be predicted by social support, the number of life events, and the interaction of social support and the number of life events (representing the buffering effect).

CHAPTER II

THE RESEARCH INSTRUMENTS AND THEIR REVISIONS

Virtually all commonly used test instruments for research and practice in psychology were developed for hearing populations. Hearing children start learning language soon after birth; by the time they enter school, they already have a skilled command of their language. Deaf children (the majority of whom have hearing parents) do not develop verbal skills due to their inability to hear speech. These children begin to learn American Sign Language (ASL) and/or English when they enter school at ages 6 or 7 (Baker & Cokely, 1980). The end result is that deaf persons often have major deficiencies in their verbal skills (Quigley & Kretschmer, 1982).

Need for Scale Revision for Use with Deaf Persons

As mentioned above, deaf persons are substantially deficient in English skills. However, competence in language skills in general varies considerably in the deaf population. Much of the variation is a function of the age of onset of deafness and the type of parents (hearing parents vs. deaf parents) of the deaf child. For the deaf child of hearing parents, acquisition of either English or American Sign Language (ASL) does not usually occur until the child enters school at age 6. At this age the important period of rapid language learning has passed.

The deaf child of deaf parents often has a better early language environment than the deaf child of hearing parents. The

parents, if they sign freely and openly, create a language situation that seems similar to a hearing child's situation. From the limited observations available, Meadow (1980) and Quigley and Kretschmer (1982) noted that the acquisition of ASL by a deaf child of deaf parents seems similar to the acquisition of a spoken language by a hearing child. Deaf children of deaf parents, therefore, would seem to have a stronger language base upon which to build English as a second language than the deaf child of hearing parents. Indeed this apparently is the case. In comparative studies of deaf children of hearing parents and deaf children of deaf parents, the latter group generally out-performed the former group on the Test of English as a Foreign Language (TOEFL) (Meadow, 1980). Deaf children of deaf parents also performed better on a variety of English-based tests of academic achievement and communication skills (Quigley & Kretschmer, 1982).

The English skills of a post-lingually deaf child are also better than the pre-lingually deaf child of hearing parents. Post-lingual deafness means that the age of onset of deafness was after the spoken language had been basically acquired. These children generally have a better academic adjustment than the pre-lingually deaf child of hearing parents since they have already acquired a working command of English (Hoemann & Briga, in press). The degree of facility with written English by deaf persons, therefore, is variable. Post-lingually deaf persons and deaf persons of deaf parents (if they receive good academic training) will generally

have greater facility with written English than pre-lingually deaf children of hearing parents (Meadow, 1980).

Given the variation in facility with written English, it should be clear that the expected reading level for the deaf population as a whole is low. In surveys of 20 year old deaf students, it was found that the median reading level was 4.5 (grade equivalent) (Quigley & Kretschmer, 1982). However, the overall reading level is not the whole problem. Even when the vocabulary is understood, the English syntax may produce difficulty (Quigley and Kretschmer, 1982). Especially troublesome are sentences using the passive voice (The cat was chased by the dog.) and sentences using dependent clauses (The boy who kissed the girl ran away.).

These characteristics of the reading abilities of deaf persons indicate that to use the research instruments developed for hearing groups as currently written would produce highly inaccurate results with deaf persons. To get the most accurate results possible, it was necessary to adapt the instruments to a level of English more likely to be understood by the greatest number of deaf persons. Changes should not be limited to vocabulary and syntax, but should include also idioms and idiom-like words and phrases. Items that include idioms or idiom-like words or phrases should be reworded. Idioms and idiom-like words or phrases are easily misunderstood or are nonsensical when interpreted literally. For example, one item on the Langner Symptom Checklist (to be described later in this chapter) is: "Do you feel somewhat apart even among friends?"

The use of the word "apart" in this item means "emotionally alone," not "physical separation." It is possible that some deaf persons might apply the "physical separation" meaning to the item.

Instruments

The four instruments used in this study were:

1. the Langner Symptom Checklist (LSC)--a 22 item checklist of psychological symptoms used in community-wide epidemiological surveys of symptomology (Langner, 1962);

2. the Psychiatric Epidemiology Research Interview Life Events Scale (LES)--a 102 item checklist used to assess which life events had been experienced during the last 12 months (B. S. Dohnrenwend et al., 1978); the LES was shortened for this study to 46 items;

3. the Social Support Index (SSI)--a 30 item scale used to assess respondents' perceptions of the availability of supportive acts given by supporters (Wilcox, personal communication); for this study the SSI was shortened to 25 items; and

4. a form for gathering descriptive and demographic information about the respondents and their supporters (developed by this author).

Langner Symptom Checklist. The Langner (LSC) was chosen because it is short and has a simple response format. The LSC has been widely used in epidemiological studies of psychological symptoms in populations (e.g., Mueller et al., 1977; Seiler & Summers, 1974; and Wilcox, 1981b). Its original use was in the Midtown Manhattan Mental Health Study of residents, and was designed to provide an

indication of the degree of impairment in life functioning due to psychiatric symptoms (Langner, 1962). (Information on scoring procedures for all scales will be provided in Chapter III, Variables section.)

The LSC, however, should not be considered a measure of clinical psychiatric disorder. That is, a diagnosis cannot be given based on the responses to the Langner. Dohrenwend, Oksenberg, Shrout, Dohrenwend, and Cook (1979) suggest that it measures a form of psychological distress that Jerome Frank called "demoralization." Frank (1973) stated that most persons seeking professional psychological help, regardless of diagnostic label, were in a demoralized state. He defined this state as one in which individuals were:

> conscious of having failed to meet their own expectations, or those of others, or of being unable to cope with some pressing problems. They feel powerless to change the situation or themselves. . . . To various degrees, the demoralized person feels isolated, hopeless, and helpless, and is preoccupied with merely trying to survive (p. 314).

Psychiatric Epidemiology Research Interview Life Events Scale. The Life Events Scale (LES) was chosen as a measure of life events. Dohrenwend et al. (1978) addressed several criticisms put forth about Holmes and Rahe's Social Readjustment Rating Scale (SRRS) in developing the LES. The improved features include better item selection procedures and clarification of event desirability. The scale is long (102 items) and was shortened to 46 items for use with deaf persons.

Social Support Index. The Social Support Index (SSI) is a new instrument designed by Wilcox (personal communication). The scale taps the dimensions suggested to be involved in social support (Thoits, 1982). The three classes of social support resources included in the scale are emotional/appraisal support, belonging support, and tangible support. An earlier, 18 item version of this scale (Wilcox, 1981b) formed the basis for the revised scale. Wilcox (personal communication) reported that the three subscales on the new version show good stability (test-retest reliabilities of .79 to .84) and good internal consistency (Cronbach's alphas of .71 to .77). The SSI is short and easy to use (a true-false format).

Descriptive Information Form. The descriptive information form gathered information relating to the types of supporters (friends, family, relatives, clergy, etc.), number of supporters and level of contact, number of community involvements (social activities, membership in organizations, etc.) and demographic information about the respondents.

The first three instruments were originally developed for use with persons with normal hearing, and have been used in epidemiological studies in specific communities. To use the scales effectively with deaf persons, it was necessary to revise them.

Scale revision process. Initial revision of the items and instructions for each scale was done with the help of a bilingual (fluent in ASL and English) deaf person who has a linguistics

background. The intent of the revisions was to choose English words and syntactic structures that would convey the content or meaning of the original item to a deaf person with low reading abilities. In other words, the words and syntactic structures used should be those that a deaf person with low reading skills would readily understand, and still reflect the original item's content.

With the aid of the deaf adult, each set of instructions and each item individually were reviewed. The instructions for the deaf version questionnaires were generally shortened to the basic elements (e.g., the response format, and the time frame the questionnaire covered). The purpose of each questionnaire was presented in sign language. To explain a questionnaire's purpose the following format was used. First the questionnaire was described. Then the respondent was asked to complete the questionnaire in order. For example, for the SSI the instructions were:

> The statements listed describe different ways people can help other people. Read each statement and imagine you are in the situation. Then decide if the help described is available to you.

To reword the scales the following procedure was used. The meaning of the item was explained to the deaf consultant, and alternative vocabulary and phrasings were discussed until an acceptable version was written. Depending on the type of changes made, the item may, to an English-speaking person, seem somewhat awkward or even ungrammatical. For example, one item on the LSC is:

Would you say your appetite is poor, fair, good, or too good?

This item was revised to read:

Is your eating poor, fair, good, or too good?

A simpler question syntax was used, and the word "eating" was substituted for "appetite" to make the sentence more understandable for deaf persons with low reading skills. Several changes were made to the following item:

In general, would you say that most of the time you are in high (very good) spirits, good spirits, low spirits, or very low spirits?

Revised, the item reads:

Do you feel very happy, happy, sad, or very sad most days?

The original anchors using the word "spirits" were judged to be too idiomatic. Therefore, "happy" and "sad" were used as the anchors. Similar vocabulary and syntax changes were made on the remaining items (see Appendix A).

In all but three of the LSC items, the sentence-type of the original item was used for the revised item. That is, if the item was originally phrased as a question, it was rewritten as a question. However, three items were changed from questions to declarative sentences. This change required modification of the responses. For example, the following item was rewritten as a declarative sentence:

Have you ever been bothered by "cold sweats?" Would you say: often, sometimes, or never?

The rewritten version is:

Often I become and feel cold and wet (sweaty) fast.

The response format was changed to a "yes-no-don't know" format. In this case an understandable question form could not be written. In the original item the response, "often," was the only one scored as indicating impairment, therefore that word became the anchor for the item (see Appendix A, items 12 and 19, for the two other items that needed sentence-type revisions).

For the Life Events Scale (LES) the revisions were made similar to the LSC. Some items were judged to be clear as originally written. For example, the items, "married" and "divorced," were not changed. However, the item, "miscarriage or stillbirth," was changed to read "lost baby before birth or baby born dead." Syntax was less of a concern for revising the LES since the items generally were phrased simply. Appendix B shows the original and revised forms of the LES.

Wilcox's Social Support Index (SSI) was the most difficult questionnaire to revise. The syntax of the items was complex; many items use dependent clauses (e.g., "There is someone who will . . ."). In addition, some of the vocabulary used is complex or requires subtle interpretations of meaning (e.g., "objective feedback," "handling hassles," or "on the fringe"). The changes made to this questionnaire were extensive. Most items were broken into two statements. The first statement describes a situation or condition. The format is as follows:

Suppose . . . [situation or condition].

The second statement probed for the respondent's perceptions of support availability given the particular situation or condition. A complete example of the revisions follows. The original SSI item was:

If a family crisis arose few of my friends would be able to give me good advice about how handling it.

The revised version was:

Suppose a bad family problem happened. I could ask a friend to help me with it.

Seventeen of the revised items used the above format. Eight items were worded as declarative sentences. Appendix C has the original and revised versions of each item.

Five items were not included on the revised questionnaire. Appendix D lists the excluded items. Four of the items not retained could not be effectively reworded. The vocabulary of these items could not be made simpler without extensively changing the meaning of the item. The fifth item represented a difficult situation for a deaf person. The item was:

If I got stranded 10 miles out of town, there is someone I could call to come get me.

A deaf person, who does not have a portable telecommunication device for the deaf (TDD), cannot use public telephones. To get the help this item suggested requires enlisting the aid of a hearing person (to make the call), writing notes back-and-forth, and calling a

hearing friend or relative. A deaf person's response to the situation is likely to be influenced by his or her willingness to interact with a hearing stranger more than by the availability of the support from family or friends.

Initial Use of the Scales

Survey research methods are not frequently used with deaf persons. This situation is partially based on the reading skills of the average deaf person. Deaf persons are aware of their reading abilities and are somewhat apprehensive when asked to read a lot of material. The purpose of this step of the study was twofold. First, it indicated whether or not the revised questionnaires were appropriately understandable. Second, based on those results, it demonstrated the efficacy of using surveys with deaf persons. It was hoped that careful attention to the wording of the questionnaires would result in a usable method of conducting research with deaf persons.

The revised questionnaires were used with a small sample of deaf persons. The respondents for this phase of the study were recruited from the Knoxville area. Respondents were deaf adults, 21 years or older, and volunteered to participate. One source of respondents was the Tennessee School for the Deaf. Several deaf employees, including teachers, were asked to complete the questionnaires. Other persons were recruited by asking people involved in deafness for names of potential volunteers.

The author administered the questionnaires individually or in small groups of two or three persons. The author answered questions relating to procedures, confidentiality and so forth, but did not explain any words or items. Each respondent was asked to indicate any questions that were hard to understand, and what was confusing about them (vocabulary, syntax, etc.).

Seven deaf persons participated in this phase of the study. This sample admittedly was small. Deaf persons constitute a small percentage of the population in any geographical region. In addition, identification of deaf persons who could participate was difficult. For the general population there are a variety of sources one can use to select respondents (e.g., the local telephone directory or a city directory of addresses). However, for a special population, such as deaf persons, those sources are of little use since people are not identified on the list by handicap or other special characteristics. Other methods of recruiting respondents are necessary with a deaf population, such as working through settings known to have deaf persons as participants (e.g., some churches, some businesses, local communication centers for the deaf, etc.). These types of settings are not common, and the deaf persons participating in them are not numerous. Therefore, it was feared that if a larger sample was used in this initial phase, securing enough respondents for the larger deaf sample would become too difficult.

The initial respondents completed each of the revised questionnaires. The educational attainment of these respondents varied considerably, ranging from attending, but not graduating from, high school to completing an advanced degree. They were asked to indicate any questions, items, words or phrasings that were unclear or hard to understand.

The respondents reported very few difficulties with understanding the questions or items on the scales. Only minor changes were made to several of the items. Three of the respondents indicated difficulty with items on the Langner. Each person was unsure of the meaning of a word in an item. Based on their problems, the phrasing of the items was altered slightly. Two respondents had difficulty with one item each on the SSI: again the problem related to the meaning of a word.

The LES presented the most difficulty; the problem was with the time period covered by the questionnaire. The respondent was supposed to indicate only events that happened during the past year. The respondent was to indicate if the event happened from 0-6 months ago or from 7-12 months ago. Two respondents answered as if the questionnaire covered their entire life; two other respondents specifically asked if the time frame was the past year. These two then suggested that the dates be more clearly spelled out, using months and years (e.g., June 1982-November 1982 and December 1982-May 1983). This suggestion was accepted.

As mentioned earlier, part of the instructions for the questionnaires were signed. Several times respondents indicated that the instructions as signed were not clear. This author then re-explained the instructions until they were understood. Between administrations this author would practice the modified instructions for use with subsequent respondents.

Based on these trials of the questionnaires, it seemed feasible to expand their use to a larger sample of deaf persons.

CHAPTER III

APPLICATION OF THE REVISED INSTRUMENTS

Following the testing of the questionnaires with the small sample of deaf persons, the next phase of this research used the questionnaires to measure the constructs with a larger sample of deaf adults. A sample of hearing adults was selected. This phase of the study attempted to make comparisons of deaf persons with hearing persons on each of the constructs.

Method

Design. LIFE EVENTS and the degree of available SOCIAL SUPPORT (respondents' perceptions of the availability of social support, the number of persons considered supporters, and the level of contact with supporters) were measured, along with one index of PSYCHOLOGICAL STATUS (self-reported psychological symptoms) in a sample of deaf adults. These constructs were measured for the time period immediately preceding the administration of the questionnaires (the "current measurement time"). In addition, for PSYCHOLOGICAL SYMPTOMS AND LIFE EVENTS, respondents were asked to recall the time period six to twelve months previous to the administration of the questionnaires (the "retrospective measurement time"). The constructs were also measured in the sample of hearing adults.

Respondents. Deaf respondents were recruited from three areas--the Knox County area, Morganton, North Carolina, and Asheville,

North Carolina. These areas were selected due to the location of services for deaf persons. Most of the deaf respondents were identified through the Knoxville Area Communication Center for the Deaf (KACCD), using a directory of deaf persons with telecommunication capabilities. A pairing procedure was used to recruit the comparison group of hearing respondents. When a deaf person in the KACCD directory agreed to participate, a hearing person was recruited from the same general area. The hearing person was selected at random using the Knoxville City Directory (1982) from the same street as the deaf person. Respondents volunteered to participate in the study.

Demographic characteristics of the samples. The final sample had 49 deaf respondents and 61 hearing respondents. Of the 61 hearing participants, 31 were female and 30 were male. For the deaf sample there were 20 females and 29 males. Table 1 shows the distribution by gender and hearing status.

Information on age was collected in 10-year categories (21-30, 31-40, etc.). Table 2 shows the distribution by age. The hearing sample had most respondents in the 21-30 category; the second most frequent category was the 31-40 age group. The most frequent category for the deaf sample was the 31-40 age group; two categories were tied for the second most frequent (21-30 and 41-50).

Occupational categories were established based on Hollingshead's index (Hollingshead, 1957). A category was added for college students. Table 3 presents the occupational information. For the

TABLE 1

FREQUENCIES AND PERCENTAGES OF HEARING AND DEAF RESPONDENTS BY GENDER

Gender	Hearing N	Hearing (%)	Deaf N	Deaf (%)
Males	30	(49)	29	(59)
Females	31	(51)	20	(41)
Totals	61	(100)	49	(100)

TABLE 2

FREQUENCIES AND PERCENTAGES OF HEARING AND DEAF RESPONDENTS BY AGE IN TEN YEAR INCREMENTS

Age	Hearing N	Hearing (%)	Deaf N	Deaf (%)
21-30	28	(46)	8	(16)
31-40	13	(21)	20	(41)
41-50	11	(18)	8	(16)
51-60	6	(10)	4	(8)
61-70	1	(2)	3	(6)
71 and older	2	(3)	6	(12)
Totals	61	(100)	49	(100)

TABLE 3

FREQUENCIES AND PERCENTAGES OF HEARING AND DEAF RESPONDENTS BY OCCUPATION

Occupation Type	Hearing N	Hearing (%)	Deaf N	Deaf (%)
Professional	4	(7)	0	(0)
Managerial	13	(21)	1	(2)
Administrative	10	(16)	1	(2)
Clerical/Technical	5	(8)	10	(20)
Skilled Manual	4	(7)	8	(16)
Semi-skilled	6	(10)	14	(29)
Unskilled	0	(0)	2	(4)
Student	14	(23)	0	(0)
Retired	4	(7)	8	(16)
No response	1	(2)	5	(10)
Totals	61	(100)	49	(100)

hearing sample 44% were in professional, managerial, or administrative positions. Twenty-three percent were college students. Clerical/ technical and skilled manual occupations were held by 16% of the hearing sample. There were no unskilled workers.

Only 5% of deaf respondents were in the professional, managerial, or administrative occupations. Forty-one percent were classified in clerical/technical and semi-skilled jobs. There were no students represented.

Employment status for the two sample is shown in Table 4. Both samples were composed mostly of employed persons (72% for hearing persons; 76% for deaf persons). Retired persons made up 16% of the deaf respondents and 7% of the hearing respondents.

Table 5 presents the marital status for the two samples. In the hearing sample the majority (56%) were married. The second largest group was composed of single persons (38%). The remaining 6% were distributed across the widowed, separated, or divorced categories. The deaf sample consisted of a majority (65%) of married persons. Single persons made up 18% of the sample. Seventeen percent were widowed, separated, or divorced.

Each sample was predominantly white. Ninety-seven percent of the hearing sample and 94% of the deaf sample were white.

Educational attainment for the hearing sample was high with 79% having at least some college training. For the deaf sample, only 45% had some college or better education. Classification by educational level is presented in Table 6.

TABLE 4

FREQUENCIES AND PERCENTAGES OF HEARING AND DEAF RESPONDENTS BY EMPLOYMENT STATUS

Employment Status	Hearing N	Hearing (%)	Deaf N	Deaf (%)
Employed	44	(72)	37	(76)
Unemployed	11	(18)	3	(6)
Retired	4	(7)	8	(16)
No response	2	(3)	1	(2)
Totals	61	(100)	49	(100)

TABLE 5

FREQUENCIES AND PERCENTAGES OF HEARING AND DEAF RESPONDENTS BY MARITAL STATUS

Marital Status	Hearing N	Hearing (%)	Deaf N	Deaf (%)
Single	23	(38)	9	(18)
Married	34	(56)	32	(65)
Separated	0	(0)	1	(2)
Divorced	2	(3)	4	(8)
Widowed	2	(3)	3	(6)
Totals	61	(100)	49	(100)

TABLE 6

FREQUENCIES AND PERCENTAGES OF HEARING AND DEAF RESPONDENTS BY EDUCATION

Educational Attainment	Hearing N	Hearing (%)	Deaf N	Deaf (%)
Attended/completed elementary school	1	(2)	0	(0)
Attended high school	1	(2)	4	(8)
Graduated high school	5	(8)	14	(29)
Attended vocational school	1	(2)	2	(4)
Graduated vocational school	5	(8)	6	(12)
Attended college	21	(34)	15	(31)
Graduated college	16	(26)	5	(10)
Attended/graduated graduate school	11	(18)	2	(4)
No response	0	(0)	1	(2)
Totals	61	(100)	49	(100)

For deaf respondents additional data on characteristics related to deafness were collected. This information included age-of-onset of deafness, hearing status of parents, and type of pre-college school setting. Most deaf respondents lost their hearing very early in life. Thirty-seven percent were born deaf; 31% had onset between birth and 2 years of age. Three percent did not know the age-of-onset of their deafness. The remaining 29 percent had onset after age 2.

Regarding the hearing status of the parents, most of the deaf respondents (88%) had parents with normal hearing. Only four respondents (8%) were children of parents both of whom were

were deaf. For one respondent, one of the parents was deaf.

The pre-college school setting for the majority of the deaf respondents was a state school for the deaf; 59% of the sample attended that school setting. Twenty-six percent attended school at both a state school for the deaf and a public school. Twelve percent attended only public schools for their pre-college education.

Measures. Four questionnaires were used in this study--the Langner Symptom Checklist (LSC), the Life Events Scale (LES), the Social Support Index (SSI), and the descriptive information form used to collect demographic and additional social support information. The LSC consists of 22 items considered to be psychological symptoms. The LSC was administered twice. Symptoms were reported for the 30 days prior to the administration of the questionnaires, and again for the 30 days six months earlier.

The LES was a shortened version of the Dohrenwend et al. scale (1978). The LES has 46 life events involving family, jobs, health, finances and other areas. Respondents completed this scale twice--once covering the six month period preceding the administration of the questionnaires, and again for the period seven to twelve months prior to administration.

The SSI has 25 items measuring the respondents' perceptions of support availability. This scale was given only once, measuring support at the time of questionnaire administration.. The descriptive information form was used to collect data on the types of supporters (friends, family, clergy, etc.) and degree of contact with

supporters. Contact with each supporter was determined on a six-point scale. For each listed supporter the respondent would rate his/her contact from daily to less than once per month.

Setting. Respondents completed the questionnaires at the site from which they were recruited or in their homes. Administration of the questionnaires was done individually or in small groups (two to ten persons). The author distributed the questionnaires and answered questions concerning procedure (instructions, confidentiality, etc.). The author did not explain or define items or words.

Undergraduate students were recruited and trained to collect the data for the hearing respondents. These students received academic credit through The University of Tennessee Department of Psychology.

Variables. Composite scores for all scales were made additively using simple counts. That is, the number of endorsed items on each scale was tallied to create the composite score for the index.

Life events. For the LES life event scores were made in three ways. All experienced undesirable life events for the six-month periods were tallied to get an undesirable life event score. All experienced desirable life events for the six-month periods were added to obtain a desirable life event score. Finally, a general life change (or total life event score) for the six-month periods was obtained by adding all experienced life events, regardless of

desirability. The life events happening during the six months prior to the interview were called "recent events"; events happening from seven to twelve months previous to the interview were called "past events."

Life events were also counted over the entire year (ignoring the six-month periods). This strategy, therefore, would assign a value of 2 to an event if it happened between seven and twelve months ago, and then occurred again zero to six months ago. As above, undesirable and desirable life event scores were generated using this above strategy. These variables were referred to as "life events for one year."

Psychological symptoms. The psychological sympton score was made by adding all responses indicating symptomatology on the LSC. Two scores were derived; one for "current symptoms" (during the 30-day period prior to questionnaire administration), and one for "past symptoms" (the 30-day period six months prior to the interview).

Social support. Three social support variables were created: (1) perceived support availability, derived by adding the responses indicating support on the SSI, (2) number of supporters, derived by counting the number of persons reported as supporters, and (3) level-of-contact with supporters, derived by averaging the ratings on a six-point scale of the reported degree of contact across all listed supporters.

Analysis. Analysis of the data proceeded through several phases. First, the rank-orders of the items were determined. For the LSC, the items were ranked based on a simple tally of the number of respondents checking a symptom. The LES was ranked based on the number of respondents indicating that a life event had been experienced. Finally, the SSI was ranked using the number of respondents indicating that a particular support item was not available to them. A rank order correlation between the rankings for the deaf and hearing samples on each scale was calculated.

In the second stage the relationships of the demographic variables to the major study variable were investigated. The analyses were done to see if the deaf and hearing samples showed similar patterns of relationships to the demographic variables. The analyses used the Chi-square test.

As noted earlier, the deaf sample had several demographic variables that were unique to deaf persons. Chi-square tests were also conducted to see if these variables were associated with the major study variables.

By inspection of Tables 2, 3, and 6, it was clear that the samples differed considerably on these three variables. These variables (age, education, and student/non-student status) were analyzed further using a correlation procedure. For each major study variable an eta correlation ratio was calculated with the demographic variable.

The next phase involved comparisons of the hearing and deaf samples on each of the major study variables. Comparisons were conducted using the Chi-square test for a relationship. For the Chi-square tests rspondents were categorized into groups using the following criteria. For the LSC respondents were classified into low and high symptom groups. Persons with a score of 3 or less were placed in the low symptom group; persons with a score of 4 or more were put in the high symptom group. The Life Events variables were divided into low or high event groups based on a median split. The Social Support variables were categorized into three levels--low, moderate, and high. The cut-offs occurred at the 25th and 75th percentiles.

For particular major study variable-demographic variable combinations, it was necessary to conduct analyses that took into account the relationship of the demographic variable to the major study variable within each sample. A parametric approach was used (analysis of variance).

The last phase of analysis involved investigating (a) the relationship of social support with psychological symptoms, (b) the relationship of life events with symptoms, and (c) the interacting effects of life events and social support on symptoms. Parts A and B were analyzed using rank-order correlation techniques. Part C was studied by inspection of graphs and by the use of non-parametric procedures. The graphs were set up by classifying the respondents into low, moderate, and high life events groups, and

by classifying them again into low and high social support groups. The classification into low or high support was accomplished using median splits within each sample. The significance of differences in symptoms at each level of life events was tested by using the Mann-Whitney U test.

CHAPTER IV

RESULTS: RANK ORDER ANALYSES

The rank order analyses were used to indicate the degree of similarity in responding to the different scales by each of the samples. Low correlations would indicate that the hearing and deaf respondents did not respond to the scales in similar ways. Although no students were represented in the deaf sample, they were retained in the hearing sample for these and all subsequent analyses. Retaining the students in the sample was justified for two reasons. First, including the students did not change significantly the basic characteristics of the frequency distributions. That is, when the students were included the modes, medians, means and standard deviations, and the ranges for the major variables were virtually unchanged (see Table 7). Second, it improved the sample size for the hearing group. With students the sample size was 61; without students the sample size was 47. For the following analyses the items on each scale were ranked from the most commonly reported item to the least commonly reported item. For each scale a correlation between the ranks for each sample was calculated.

Langner Symptom Checklist

Table 8 presents for each sample the most frequently endorsed symptoms for the current time period. As can be seen, seven of the items for the deaf respondents were replicated on the list for

TABLE 7

COMPARISONS OF THE CENTRAL TENDENCY AND VARIATION MEASURES FOR THE HEARING SAMPLE WITH AND WITHOUT STUDENTS

Variable	Mode	Median	Mean	S.D.	Range
Current Symptoms					
with students	0	3	3.78	3.16	13
without students	0	4	3.97	3.36	13
Past Symptoms					
with students	0	2	3.36	3.02	13
without students	0	3	3.51	3.23	13
Support Availability					
with students	25	22	21.10	4.36	18
without students	25	22	20.43	4.74	18
Level-of-Contact					
with students	4	4.4	4.35	0.78	5
without students	4	4.4	4.32	0.86	5
Number of Supporters					
with students	9	7	6.98	2.68	12
without students	4	6	6.36	2.58	12
Recent Total Life Events					
with students	4	4	3.87	2.34	11
without students	4	4	3.89	2.49	11
Recent Undesirable Life Events					
with students	0	2	1.85	1.77	7
without students	0	1	1.83	1.82	7
Recent Desirable Life Events					
with students	1	2	1.92	1.31	5
without students	1	2	1.98	1.44	5
Past Total Life Events					
with students	1	2	2.22	1.98	11
without students	1	2	2.31	2.08	11
Past Undesirable Life Events					
with students	0	1	1.36	1.53	7
without students	0	1	1.45	1.59	7

TABLE 7 (continued)

Variable	Mode	Median	Mean	S.D.	Range
Past Desirable Life Events					
with students	0	1	.85	.93	4
without students	0	1	.85	.98	4
Total Life Events for One Year					
with students	4	5.5	6.17	3.17	17
without students	4	5.5	6.26	3.36	17
Undesirable Life Events for One Year					
with students	3	3	3.24	2.42	10
without students	3	3	3.28	2.46	10
Desirable Life Events for One Year					
with students	1	3	2.78	1.53	7
without students	1	3	2.84	1.67	7

TABLE 8

FREQUENCIES AND PERCENTAGES OF THE MOST COMMONLY REPORTED CURRENT PSYCHOLOGICAL SYMPTOMS AS MEASURED BY THE LANGNER SYMPTOM CHECKLIST FOR DEAF AND HEARING RESPONDENTS

Deaf (N=49)			Hearing (N=61)		
Symptom	f	(%)	Sympton	f	(%)
Restlessness	20	(41)	Worrying type	28	(46)
Can't get going	16	(33)	Can't get going	25	(41)
Become sweaty fast*	14	(29)	Nothing worthwhile	25	(41)
Fullness in head/nose	13	(26)	Restlessness	21	(34)
Suddenly feel hot*	12	(24)	Feel apart from friends*	16	(26)
Nothing turns out right	11	(22)	Fullness in head/nose	14	(23)
Worrying type	10	(20)	Worry, become ill*	14	(23)
Trouble sleeping*	10	(20)	Low spirits*	13	(21)
Acid stomach	10	(20)	Acid stomach	11	(18)
Memory poor*	9	(18)	Nothing turns out right	11	(18)
Nothing worthwhile	9	(18)			

*Items not replicated in the corresponding list.

hearing respondents. Items most frequently endorsed for deaf persons and not replicated on the list for hearing persons included "suddenly becoming sweaty," "suddenly feeling hot," "trouble sleeping," and "poor memory." Items on the hearing respondents' list not included on the deaf respondents' list included "feeling apart from friends," "worrying and becoming ill," and "being in low spirits." Correlating the rankings for all items on the Langner, a rank order correlation of .55 ($p<.01$) was found between the ranks for the deaf and hearing samples.

Past symptoms were also ranked for the two groups (see Table 9). Eight of the ten most commonly reported past symptoms were common to both lists. The two items frequently endorsed by deaf respondents and not appearing on the list for hearing persons were "suddenly becoming sweaty" and "having headaches." Hearing respondents listed "being a worrier" and "worrying and becoming ill." The correlation between the rankings for past symptoms was .52 ($p<.02$).

Life Events Scale

For both samples the most commonly reported recent life event was "vacation." Five other events among the most common were reported by both samples (see Table 10). Using the rankings for the entire list of recent events (excluding those events which were never experienced by either deaf or hearing respondents), a rank order correlation of .71 ($p<.001$) was found. The most commonly occurring past life events are presented in Table 11. As with recent events

TABLE 9

FREQUENCIES AND PERCENTAGES OF THE MOST COMMONLY REPORTED PAST PSYCHOLOGICAL SYMPTOMS AS MEASURED BY THE LANGNER SYMPTOM CHECKLIST FOR DEAF AND HEARING RESPONDENTS

Deaf (N=49)			Hearing (N=61)		
Symptom	f	(%)	Symptom	f	(%)
Restlessness	20	(41)	Worrying type*	28	(46)
Can't get going	16	(33)	Can't get going	24	(39)
Become sweaty fast*	14	(29)	Nothing worthwhile	21	(34)
Fullness in head/nose	13	(26)	Restlessness	20	(33)
Suddenly feel hot	12	(24)	Feel apart from friends	19	(31)
Nothing turns out right	11	(22)	Worry, become ill*	14	(23)
Trouble sleeping	10	(20)	Suddenly feel hot	12	(20)
Nothing worthwhile	9	(18)	Fullness in head/nose	12	(20)
Feel apart from friends	8	(16)	Trouble sleeping	10	(16)
Have headaches*	8	(16)	Nothing turns out right	8	(13)

*Items not replicated in the corresponding list.

TABLE 10

FREQUENCIES AND PERCENTAGES OF THE MOST COMMONLY REPORTED RECENT LIFE EVENTS AS MEASURED ON THE LIFE EVENTS SCALE FOR DEAF AND HEARING RESPONDENTS

Deaf (N=49)		Hearing (N=61)	
Life Event	f (%)	Life Event	f (%)
Vacation	23 (47)	Vacation	35 (57)
Physical health improved	14 (29)	Major credit purchase	19 (31)
New hobby/craft	13 (26)	New hobby/craft	16 (26)
Family death (not spouse)*	9 (18)	Injured	13 (21)
Major credit purchase	8 (16)	Broke up with friend*	12 (20)
Expected raise not received*	8 (16)	Bad family argument (not spouse)*	11 (18)
Moved, better place	6 (12)	Physical health improved	10 (16)
Good friend died*	6 (12)	Moved, better place	8 (13)
Problems with spouse*	5 (10)	Promoted*	8 (13)
Pet died*	5 (10)	Problems in school*	8 (13)
Injured	5 (10)	Physical illness*	8 (13)

*Items not replicated in the corresponding list.

TABLE 11

FREQUENCIES AND PERCENTAGES OF THE MOST COMMONLY REPORTED PAST LIFE EVENTS AS MEASURED ON THE LIFE EVENTS SCALE FOR DEAF AND HEARING RESPONDENTS

Deaf (N=49)		Hearing (N=61)	
Life Event	f (%)	Life Event	f (%)
Vacation	28 (57)	Vacation	16 (26)
Physical health improved	11 (22)	Broke up with friend	15 (25)
Broke up with friend	10 (20)	Expected raise not received	11 (18)
Expected raise not received	10 (20)	New hobby/craft	9 (15)
Major credit purchase	10 (20)	Physical illness*	9 (15)
Good friend died*	10 (20)	School problems*	8 (13)
Bad family argument (not spouse)	8 (16)	Physical health improved	6 (10)
New hobby/craft	8 (16)	Bad family argument (not spouse)	6 (10)
Received raise*	7 (14)	Moved, better place*	5 (8)
Promoted*	6 (12)	Major credit purchase	5 (8)

*Items not replicated in the corresponding list.

both samples reported "vacation" most frequently. Six additional events were common to both lists. The correlation of the rankings (also excluding events never endorsed by either sample) was .51 ($p<.01$).

Social Support Index (SSI)

Table 12 presents the items ranked for the complete scale by group; items were ranked from high to low based on the number of respondents indicating that the specific support was unavailable. Inspection of Table 12 illustrates major differences between the two samples. For hearing respondents only two support items were reported by 40% or more of the sample as being unavailable. In contrast, 40% or more of deaf respondents reported that the support described in 13 items was not available (note that for one item over 70% of the deaf sample reported it as being not available. For 20 of the 25 items, 20% or less of the hearing respondents reported that the support was unavailable. However, for deaf respondents the number of items fitting that criterion was nine. Even with the differences in endorsement of items, there was a moderate correlation between the rankings of the items ($r=.53$, $p<.01$).

Results: Crosstabulations Using Demographic Variables

The rank order correlations in the previous section indicated that there were moderately strong similarities between the hearing and deaf samples on the rankings of the items for each of the scales. In this section the relationships of the demographic variables to

TABLE 12

FREQUENCIES AND PERCENTAGES FOR DEAF AND HEARING RESPONDENTS REPORTING SUPPORT ITEMS ON THE SOCIAL SUPPORT INDEX AS NOT AVAILABLE

Deaf (N=49)			Hearing (N=61)		
Support Item	f	(%)	Support Item	f	(%)
Trust people to help solve problems	35	(71)	Trust people to help solve problems	31	(51)
Sick, someone to help with chores	26	(53)	Family crisis, friends for advice	28	(46)
Someone for advice on sexual problems	26	(53)	Going on day trip, sometone to go with me	20	(33)
People enjoy my favorite activities	25	(51)	People enjoy my favorite activities	16	(26)
Family crisis, friends for advice	24	(49)	Someone for advice on sexual problems	16	(26)
In jail, someone to pay bail	22	(45)	Sick, someone to help with chores	12	(20)
Need to borrow a car, someone to loan	21	(43)	Someone to share private worries/fears	11	(18)
Need quick loan, someone to give	21	(43)	Feel lonely, people to talk to	11	(18)
Mail important letter, someone to do	21	(43)	Someone for advice about job change	10	(16)
Not often invited out	21	(43)	Meet regularly with family, friends	9	(15)
Someone to share private worries/ fears	20	(41)	Need ride to airport, someone to give	8	(13)
Feel lonely, people to talk (sign) to	20	(41)	Not often invited out	8	(13)
Feedback on problems, someone to give	20	(41)	Feedback on problems, someone to give	8	(13)
Someone for advice about job change	15	(31)	Eat lunch, someone to join me	7	(12)
Need ride to bus station, someone to give	15	(31)	Need quick loan, someone to give	7	(12)
Eat lunch, someone to join me	13	(26)	Moving to new home, someone to help	7	(12)
Ideas for handling a problem, someone to give	10	(20)	Ideas for fun/recreation, someone to give	6	(10)
Going on day trip, someone to go with me	9	(18)	Ideas for handling a problem, someone to give	6	(10)
Need ride to doctor, someone to give	8	(16)	Mail important letter, someone to do	5	(8)
Meet regularly with family, friends	7	(14)	Several people, enjoy spending time with	4	(7)
Several people, enjoy spending time with	7	(14)	Need to borrow a car, someone to loan	3	(5)
Ideas for fun/recreation, someone to give	6	(12)	Moving to new home, someone to help	2	(3)
Moving to new home, someone to help	6	(12)	One person, trust for advice	1	(2)
One person, trust for advice	5	(10)	In jail, someone to pay bail	1	(2)
Going out of town, someone to watch house	3	(6)			

the major study variables were investigated. Three demographic variables showed marked differences between the two samples; these variables were age (see Table 2, page 41), occupation (see Table 3, page 42), and educational attainment (see Table 6, page 45). For the remaining demographic variables, the deaf and hearing samples were similar (gender, marital status, employment status, and number of voluntary associations). Since the great majority of respondents in both samples were white, no analyses using race were conducted.

A series of crosstabulations were conducted to study the relationships among the major study variables and the demographic variables. The crosstabulations were within group analyses. Where expected cell frequencies permitted, the Chi-square test was used to indicate the existence of the relationship. The strength of the reltionship was indicated by the phi-coefficient (ϕ), the contingency coefficient (C), or the lambda index of predictive association (L) where appropriate. There were seven demographic variables and 14 major study variables, making a total of 98 crosstabulations per sample. With this number of tests at an alpha of .05, one would expect to find five significant relationships strictly by chance.

Hearing Sample

For the hearing sample a total of four significant associations were found between demographic and major study variables. These relationships were between past psychological symptoms and employment status; perceived support availability and age; past desirable life

events and voluntary associations; and undesirable life events for one year and voluntary associations.

The Chi-square for past symptoms and employment status was 4.76 ($p<.03$). There was a tendency for non-working hearing respondents to be found in the high symptom cell; employed respondents were more likely to occur in the low symptom cell (see Appendix E, Table E-1). This tendency was slight ($\phi=.32$). Support availability was associated weakly with age ($\chi^2=6.10$, $p<.05$; $C=.30$). Young respondents (21-30 age group) were more likely to be found in the high support cell; older respondents (31 or older) were more common in the low support cell (see Appendix E, Table E-2).

The relationship of past desirable events with the number of volunteer associations was significant ($\chi^2=6.26$, $p<.03$). Hearing respondents with one or less voluntary associations tended to be classified in the high event category. Respondents with two or more voluntary associations were more often found in the low event category (see Appendix E, Table E-3). This relationship was slight ($\phi=.36$).

Undesirable events for one year were also associated with the number of voluntary associations (see Appendix E, Table E-4). A Chi-square of 5.88 ($p<.03$) was found. Hearing respondents with one or less voluntary associations were overrepresented in the low event category. Hearing respondents with two or more voluntary associations were more likely to be found in the high event category. A phi coefficient of .31 indicated a weak relationship.

Deaf Sample

In the deaf sample there were four significant relationships between demographic and major study variables. Age was associated with past undesirable events (χ^2=7.21, p<.01). Deaf respondents aged 21-40 occurred more frequently in the high event category: deaf respondents older than 41 were more likely to be classified in the low event cell (see Appendix E, Table E-5). A lambda of .39 was found, indicating that by knowing age the error in prediction of the level of past undesirable events could be reduced by 39%.

Employment status was related to three major study variables (past undesirable events, total events for one year, and desirable events for one year). Table E-6 (Appendix E) presented the relationship of past undesirable events to employment status. There was a tendency for unemployed respondents to be in the low event category, and for employed persons to be in the high event category (λ=.39; χ^2=5.68, p<.03).

Total life events for one year showed a moderate relationship to employment status (see Appendix E, Table E-7). The Chi-square was 8.45 (p<.005); the lambda statistic for predictive association was .39. Deaf respondents who were unemployed were underrepresented in the high event cell; employed respondents were overrepresented in the high event category. The relationship of desirable events for one year with employment status displayed the same pattern as total events (see Appendix E, Table E-8). The Chi-square was 4.25 (p<.05) with a phi of -.35.

Deaf-related demographic variables. Several demographic variables included in this study were unique to the deaf sample. These variables included age-of-onset of deafness, type of pre-college educational setting (public school vs. state school for the deaf), and the hearing status of the parents. Since 88% of the deaf respondents parents were hearing, hearing status of the parents was excluded from the analyses.

Across all the major study variables (psychological symptoms, life events, and social support), no relationships between these variables and the deaf-related demographic variables were found.

Summary of demographic relationships. In general for both samples, there were few relationships of demographic variables to major study variables. The relationships that were evidenced were slight. For the hearing sample this statement applied to the relationships of employment to past psychological symptoms, age to support availability, and the number of voluntary associations to past desirable events and past undesirable events for one year.

The deaf sample showed a significant association of age to past undesirable life events. Employment status was also associated with several life events variables--past total life events, past undesirable life events, and total life events for one year. The strength of these relationships was somewhat stronger than the strength for the hearing sample.

Too much emphasis, however, should not be placed on the relationships for either sample. As noted earlier, there were 98

crosstabulations per sample. The number of significant relationships found in each sample fell within the number of relationships expected strictly by chance. Therefore, in general it can be concluded that the demographic variables were unrelated to the major study variables.

Results: Correlational Analyses with Demographic Variables

The previously described crosstabulation analyses collapsed the data into dichotomous or trichotomous categories. This strategy could obscure the potential relationships. Therefore, further analyses were conducted using the three demographic variables that showed the largest differences between the deaf and hearing samples. These variables were age, occupation (defined as student vs. non-student), and educational attainment. The correlation ratio, eta (unsquared), was used to indicate the degree of relationship of the demographic variables to the major study variables. These correlations were calculated for the combined sample, and then for the hearing and deaf samples separately. The eta values for the major variables with age are presented in Table 13. The correlations with education are shown in Table 14. The correlations with student/non-student status are shown in Table 15.

Combined Sample

As can be seen in Table 13, age was significantly associated with each of the social support variables. Age also correlated with recent total life events and recent desirable events. However, there were no significant correlations with the past life event

TABLE 13

THE RELATIONSHIP OF AGE WITH THE MAJOR STUDY VARIABLES USING THE ETA CORRELATION RATIO (UNSQUARED)

Variable	Sample		
	Combined	Hearing	Deaf
Current psychological symptoms	.12	.21	.18
Past psychological symptoms	.09	.02	.23
Perceived support availability	.30*	.26	.19
Number of supporters	.34*	.41*	.19
Level-of-contact	.37**	.19	.52*
Recent total life events	.39**	.27	.53**
Recent undesirable life events	.24	.17	.46*
Recent desirable life events	.38**	.29	.47*
Past total life events	.22	.10	.39
Past undesirable life events	.21	.01	.42*
Past desirable life events	.12	.19	.23
Total life events for one year	.38**	.25	.55*
Undesirable life events for one year	.26	.11	.49**
Desirable life events for one year	.34**	.37	.43*

*$p < .05$

**$p < .01$

TABLE 14

THE RELATIONSHIP OF EDUCATION WITH THE MAJOR STUDY VARIABLES USING THE ETA CORRELATION RATIO (UNSQUARED)

Variable	Sample		
	Combined	Hearing	Deaf
Current psychological symptoms	.19	.25	.20
Past psychological symptoms	.26	.27	.25
Perceived support availability	.45***	.55***	.18
Number of supporters	.40***	.42**	.27
Level-of-contact	.16	.19	.12
Recent total life events	.06	.10	.11
Recent undesirable life events	.13	.21	.19
Recent desirable life events	.08	.16	.04
Past total life events	.21	.30	.15
Past undesirable life events	.19	.36	.11
Past desirable life events	.15	.13	.12
Total life events for one year	.13	.19	.07
Undesirable life events for one year	.12	.22	.08
Desirable life events for one year	.14	.18	.06

*$p<.05$

**$p<.01$

***$p<.001$

TABLE 15

THE RELATIONSHIP OF STUDENT/NONSTUDENT STATUS WITH THE MAJOR STUDY VARIABLES USING THE ETA CORRELATION RATIO[1] (UNSQUARED)

Variable	Sample	
	Combined	Hearing
Current psychological symptoms	.08	.12
Past psychological symptoms	.05	.02
Perceived support availability	.33**	.26
Number of supporters	.44***	.46
Level-of-contact	.17	.02
Recent total life events	.01	.03
Recent undesirable life events	.05	.03
Recent desirable life events	.06	.10
Past total life events	.19	.11
Past undesirable life events	.16	.12
Past desirable life events	.13	.02
Total life events for one year	.09	.07
Undesirable life events for one year	.05	.04
Desirable life events for one year	.12	.09

[1]The deaf sample contained no students; therefore the student/non-student correlations could not be conducted.

*$p<.05$

**$p<.01$

***$p<.001$

variables. Total life events for one year and desirable events for one year were also related to age. The correlations were moderate to weak in strength.

Education was significantly associated with perceived support availability and the number of supporters (see Table 14). These correlations were moderately strong. The student/non-student variable was also associated with support availability and the number of supporters (see Table 15). None of the three demographic variables influenced the number of current or past psychological symptoms.

Hearing Sample

In the hearing sample age was related to one variable (number of supporters). The eta value was .41 ($p<.05$). Older hearing respondents reported less supporters than younger respondents. The eta correlation of the student/non-student variable with the number of supporters was also significant ($\eta=.46$, $p<.05$). Education correlated with support availability ($\eta=.55$, $p<.001$); the eta correlation with the number of supporters was .42 ($p<.05$). No other major study variables were significantly related to the demographic variables in the hearing sample. As with the cross-tabulations, a large number of correlations were conducted. Therefore, the obtained relationships could be considered to have occurred by chance.

Deaf Sample

Of the three demographic variables used in these analyses, only age was significantly related to several of the major study variables in the deaf sample. Educational attainment was not related to any of the major study variables. Age correlated significantly with one social support variable and several life events variables. The eta correlation between age and level-of-contact with supporters was .52 ($p<.05$). As age increased, there was a tendency for the level-of-contact to be lower in the deaf sample.

Age was related to seven life event variables in the deaf sample. The eta correlations with each of the life events variables are presented in Table 13. Age was significantly correlated with each of the recent event variables (total, undesirable, and desirable). With increasing age there was a tendency to report fewer life events. Age correlated significantly with one of past life event variables--past undesirable events. The direction of the relationship was the same as with recent life events. Each of the correlations of age to total events for one year was significant. As before, older respondents reported fewer events. The strength of the age-life events relationship was moderate.

Summary of the correlational demographic analyses. Using the eta correlation ratio as an indicator of relationship, it was apparent that the demographic variables were not related to current or past symptoms in either the hearing or deaf sample. For the hearing sample support availability was related to educational level; however,

neither age nor student/non-student status were associated with support availability. Each of the demographic variables was significantly related to the number of supporters in the hearing sample. The relationships of social support variables with demographic variables were moderate for the hearing sample. Only one of the social support variables in the deaf sample was related to a demographic variable. Level-of-contact was related to age; this relationship was moderate.

For the deaf sample, however, age had the strongest association with the life event variables. Each of the recent event variables and each of the total events for one year variables were significantly and moderately related to age. For past events, only past undesirable events related to age. The pattern of this relationship was for older respondents to report fewer events.

CHAPTER V

RESULTS: COMPARISONS OF THE MAJOR STUDY VARIABLES BY HEARING STATUS

A major aspect of this research was to determine if deaf and hearing people differed on the major study variables. In this section the results of analyses to test for these differences are presented. The sample size for each group was small. Also the frequency distributions of scores on each major study variable were skewed. Even though it has been common practice to treat the scales used in this research at an interval or ratio level of measurement, it was felt that the sample size and distribution characteristics warranted a non-parametric approach. Therefore, tests for nominal and/or ordinal data were primarily used. However, in selected instances parametric analyses were performed. These analyses were used for the three demographic variables that were previously shown to be related to major study variables (see Tables 13, 14, and 15). An analysis of variance technique was used with the particular demographic variable(s) entered first; hearing status (deaf or hearing) was entered after the demographic variable(s).

Psychological Symptoms

Research Issue 1 focused on comparing the deaf and hearing samples with respect to psychological symptoms. Some authors (e.g., Schlesinger, 1978) had suggested that deaf persons should show higher levels of impairment than hearing persons. However, for this sample

this speculation was not supported. Using a cut-off score on the LSC to classify each sample into a low symptom or high symptom group, a Chi-square test was conducted. Based on this classification, the groups did not differ in the proportions of respondents falling into the two categories for either current or past psychological symptoms.

Life Events

Comparisons of the two samples on the number of experienced life events was addressed in Research Issue 2. Comparisons were made for each of the life event variable organizations (recent life events, past life events, and life events for one year). Within each of those groupings additional comparisons were made for undesirable and desirable events. Each variable was categorized into low, moderate, and high event levels for the Chi-square analyses.

Recent life events. For recent total life events, the Chi-square was non-significant; deaf and hearing respondents did not differ in the proportions classified into low, moderate, or high event levels. Recent desirable and recent undesirable life events were also not related to hearing status.

However, as noted in Chapter IV, age was significantly associated with recent total events and recent desirable events for the combined sample. Therefore, the analysis of variance technique described above was used. Table 16 presents these results for recent total events. Age, as an independent variable, was significantly related

TABLE 16

ANALYSIS OF VARIANCE RESULTS FOR RECENT TOTAL LIFE EVENTS BY AGE AND HEARING STATUS

	Mean Square	df	F	p
Age	30.79	3	6.09	.001
Hearing Status	1.24	1	.25	.621
Age by Hearing Status	7.55	3	1.49	.221

to the number of recent total events. With the variation due to age accounted for, there was no effect for hearing status on the number of recent total events; the interaction of age with hearing status was also not significant. Similarly no differences were found for recent desirable events by hearing status when the variation due to age was accounted for (see Table 17); the interaction of age with hearing status was also not significant.

Past life events. Past total life events were associated with hearing status (χ^2=13.65, p<.01). Deaf respondents were more likely to be classified in the moderate or high events categories. Hearing respondents, on the other hand, tended to be classified in the low events cell. The relationship, however, was not strong (C=.33). Table 18 presents the Chi-square.

Hearing status was not related to past undesirable life events. The Chi-square test was not significant. However, past desirable life events were significantly associated with hearing status. Deaf

TABLE 17

ANALYSIS OF VARIANCE RESULTS FOR RECENT DESIRABLE LIFE EVENTS BY AGE AND HEARING STATUS

	Mean Square	df	F	p
Age	8.58	3	5.53	.001
Hearing Status	.07	1	.04	.83
Age by Hearing Status	.46	3	.30	.83

TABLE 18

CROSSTABULATION OF PAST TOTAL LIFE EVENTS BY HEARING STATUS (N=110)

Past Total Events Observed f (Expected f)	Hearing Status		χ^2	C
	Hearing	Deaf		
Low	28 (20.0)	8 (16.0)		
Moderate	21 (21.6)	18 (17.4)		
High	12 (19.6)	23 (15.6)	13.65*	.33

*$p < .005$

respondents again were more likely to be located in the high events categories; hearing respondents were more likely to be found in the low events cells, as is shown in Table 19. The Chi-square was significant (χ^2=13.55, p<.01), but the relationship was not strong (C=.33).

Since the eta correlations were not significantly associated with past life events for the combined sample, the analysis of variance tests were not conducted for these variables.

Life events for one year. When considering life events for one year, it was found that total, undesirable, and desirable events were not related to hearing status. The Chi-square was not significant. However, for the life events variables for one year, the eta correlations for the combined samples indicated an effect for age on two of these variables--total events for one year and desirable events for one year. With the effects of age accounted for, the effect of hearing status on total events for one year was not significant (see Table 20). The interaction of age with hearing status also was not significant. For desirable events for one year the results did not support the Chi-square results. Once the variation due to age was accounted for, a significant difference by hearing status for the number of desirable events for one year was found (see Table 21). The interaction term was not significant.

TABLE 19

CROSSTABULATION OF PAST DESIRABLE LIFE EVENTS BY HEARING STATUS
(N=109)

Past Desirable Events Observed f (Expected f)	Hearing Status		χ^2	C
	Hearing	Deaf		
Low	26 (17.9)	6 (14.1)		
Moderate	22 (23.5)	20 (18.5)		
High	13 (19.6)	22 (15.4)	13.55*	.33

*$p < .005$

TABLE 20

ANALYSIS OF VARIANCE RESULTS FOR TOTAL LIFE EVENTS FOR ONE YEAR
BY AGE AND HEARING STATUS

	Mean Square	df	F	p
Age	62.08	3	5.77	.001
Hearing Status	33.76	1	3.14	.079
Age by Hearing Status	16.90	3	1.57	.201

TABLE 21

ANALYSIS OF VARIANCE RESULTS FOR DESIRABLE LIFE EVENTS FOR ONE YEAR BY AGE AND HEARING STATUS

	Mean Square	df	F	p
Age	14.18	3	4.74	.004
Hearing Status	25.98	1	8.67	.004
Age by Hearing Status	1.31	3	.44	.727

Social Support

Each of the social support variables were classified into low, moderate, and high support levels. The Chi-square test was conducted to test for differences in the two groups. Age, student/non-student status, and educational attainment were shown to be related to perceived support availability and the number of supporters (see Table 13, page 67). Age was the only demographic variable shown to be related to level-of-contact (see Table 13). Therefore, in investigating the differences between deaf and hearing respondents for social support, using the analysis of variance technique described earlier, the demographic variables were entered first followed by all of the interaction terms. Hearing status was entered last to see if it would account for significant variation once the variation due to the demographic variables was accounted for.

Perceived support availability. The differences between deaf and hearing people on support availability were highly significant. Table 22 presents the Chi-square results. As can be seen, deaf respondents were very likely to be found in the low support cell, whereas hearing respondents were very likely to be located in the high support cell. The Chi-square was 20.63 ($p<.0001$) with moderate contingency coefficient of .40.

Three demographic variables showed an effect on support availability--age, student/nonstudent status, and education. Each of these variables was entered first followed by the interaction terms using the analysis of variance procedure. The hearing status variable was entered last. With this full model there were numerous redundancies in the design. Therefore, the model was reduced by eliminating those terms which were not significant or for which F values could not be calculated. The net effect of this procedure was to reduce the model to two demographic variables (age and education), the hearing status variable, and one interaction term (education by hearing status). Table 23 presents results of this analysis. With this model age was not significantly related to support availability; however, education did have a significant effect. Even with that effect there was still a difference in support availability due to hearing status. The interaction of education with hearing status was not significant.

TABLE 22

CROSSTABULATION OF PERCEIVED SUPPORT AVAILABILITY BY HEARING STATUS (N=110)

Support Availability Observed f (Expected f)	Hearing Status			
	Hearing	Deaf	χ^2	C
Low	11 (20.0)	25 (16.0)		
Moderate	22 (22.7)	19 (18.3)		
High	28 (18.3)	5 (14.7)	20.63*	.40

*$p<.0001$

TABLE 23

ANALYSIS OF VARIANCE RESULTS FOR PERCEIVED SUPPORT AVAILABILITY BY AGE, EDUCATIONAL ATTAINMENT, AND HEARING STATUS (REDUCED MODEL)

	Mean Square	df	F	p
Age	31.02	3	1.57	.206
Education	136.43	2	6.90	.002
Hearing Status	139.85	1	7.07	.010
Education by Hearing Status	30.37	2	1.54	.223

Number of supporters. As with support availability, deaf respondents were very different from hearing respondents regarding the number of supporters (see Table 24). Deaf respondents were predominately located in the low support cells. Hearing respondents tended to be found in the high support cell. The Chi-square was 22.34 ($p<.0001$). The strength of the relationship was moderate (C=.41).

Table 25 presents the analysis of variance results of the demographic variables on the number of supporters. Similar to the procedure described for support availability, a reduced model was necessary. Age was not significantly related to the number of supporters. Education accounted for a significant amount of the variation. Hearing status was also significant in this model. The interaction of education with hearing status was not significant.

Level of contact with supporters. The Chi-square results (Table 26) indicated that hearing respondents have higher levels of contact with supporters than deaf respondents. The Chi-square indicated that deaf respondents were classified in the low contact category much more frequently than hearing respondents. In the high contact cells hearing respondents occurred much more frequently than deaf respondents. A Chi-square of 19.67 ($p<.0001$) was found with a contingency coefficient of .39. The analysis of variance strategy was not necessary for the level-of-contact variable; the eta correlations were not significant for the combined sample.

TABLE 24

CROSSTABULATION OF NUMBER OF SUPPORTERS BY HEARING STATUS
(N=110)

Number of Supporters Observed f (Expected f)	Hearing Status		χ^2	C
	Hearing	Deaf		
Low	6 (16.6)	24 (13.4)		
Moderate	34 (29.4)	19 (23.6)		
High	21 (15.0)	6 (12.0)	22.34*	.41

*$p < .0001$

TABLE 25

ANALYSIS OF VARIANCE RESULTS FOR THE NUMBER OF SUPPORTERS BY AGE, EDUCATIONAL ATTAINMENT AND HEARING STATUS
(REDUCED MODEL)

	Mean Square	df	F	p
Age	13.23	3	1.77	.161
Education	26.31	2	3.53	.035
Hearing Status	71.39	1	9.56	.003
Education by Hearing Status	4.18	2	.56	.573

TABLE 26

CROSSTABULATION OF LEVEL-OF-CONTACT WITH SUPPORTERS BY HEARING STATUS (N=110)

Level-of-Contact Observed f (Expected f)	Hearing Status			
	Hearing	Deaf	χ^2	C
Low	7 (16.6)	23 (13.4)		
Moderate	29 (26.6)	19 (21.4)		
High	25 (17.7)	7 (14.3)	19.67*	.39

*$p<.0001$

Results: Interrelationships Among the Major Study Variables

As was pointed out in Chapter I, previous research had indicated that psychological symptoms and social support were negatively correlated: that is, when symptoms were high, support was low. A positive relationship for symptoms and life events had been found. However, these relationships were not straightforward. Specifically, it had been demonstrated that an interaction of social support with life events occurred (e.g., Wilcox, 1981b). When events were high and support was low, there was a greater effect on psychological well-being. On the other hand, when events were high and support was high, there was a lesser effect on psychological well-being. This interaction was labeled the "buffering effect." In this section

the relationships between psychological symptoms and social support, and between symptoms and life events were studied. In addition, the interacting effects of life events and social support on psychological symptoms were studied.

The analyses presented were within group analyses. The purpose was to test whether or not the relationships between variables in the hearing sample were replicated in the deaf group. Consistent with the discussion of the data characteristics presented earlier, nominal and/or ordinal level analyses were used to test for the relationships.

Hearing Sample

Psychological symptoms and social support. Table 27 presents the Kendall tau correlation coefficients of current psychological symptoms with each of the social support variables for the hearing sample. The expected negative correlations were found for two of the social support variables. Support availability and level-of-contact were both negatively correlated with symptoms in the hearing sample. The correlations, while highly significant, were slight. The number of supporters, however, was not related to symptoms.

Past psychological symptoms showed negative correlations with two of the social support variables--support availability and level-of-contact--(presented in Table 27 also). These correlations were highly significant, but nonetheless not very strong. As with current symptoms, past symptoms were not associated with the number of supporters.

TABLE 27

RANK ORDER CORRELATION USING KENDALL'S TAU OF CURRENT AND PAST PSYCHOLOGICAL SYMPTOMS WITH THE SOCIAL SUPPORT VARIABLES (HEARING SAMPLE)

	Symptoms	
	Current	Past
Perceived support availability	-.21*	-.27**
Number of supporters	-.05	-.02
Level-of-contact	-.30**	-.30**

*$p<.05$

**$p<.01$

Psychological symptoms and life events. Current symptoms were correlated with recent life events (total, undesirable and desirable) and with life events for one year (total, undesirable and desirable). These correlations are presented in Table 28. The recent life event variables were not related to current symptoms. However, total and undesirable events for one year were significantly related to symptoms. Undesirable life events for one year were the most strongly associated with symptoms ($r_k=.31$, $p<.003$). Desirable life events for one year did not significantly correlate with current symptoms.

The correlations of past psychological symptoms with past life events and with recent life events are also presented in Table 28. Past life events did not associate with past symptoms. However,

TABLE 28

RANK ORDER CORRELATIONS USING KENDALL'S TAU OF CURRENT AND PAST PSYCHOLOGICAL SYMPTOMS WITH THE LIFE EVENTS VARIABLES (HEARING SAMPLE)

	Symptoms	
	Current	Past
Recent Life Events		
Total	.12	.11
Undesirable	.19	.21*
Desirable	-.00	-.12
Past Life Events		
Total	--	.11
Undesirable	--	.07
Desirable	--	.13
Life Events for One Year		
Total	.24*	--
Undesirable	.31**	--
Desirable	.09	--

*$p<.05$

**$p<.01$

one of the recent event variables was correlated with past symptoms. Recent undesirable events were significantly correlated with past symptoms ($r_k=.21$, $p<.04$).

Deaf Sample

Psychological symptoms and social support. Contrary to the findings for the hearing sample, the social support variables did not correlate significantly with current symptoms. Table 29 presents these correlations. The table also contains the correlations of

TABLE 29

RANK ORDER CORRELATIONS USING KENDALL'S TAU OF CURRENT AND PAST PSYCHOLOGICAL SYMPTOMS WITH THE SOCIAL SUPPORT VARIABLES (DEAF SAMPLE)

	Symptoms	
	Current	Past
Perceived support availability	-.16	-.22
Number of supporters	-.01	-.06
Level-of-contact	-.11	-.06

past symptoms with the social support variables; these correlations were also non-significant.

Psychological symptoms and life events. The pattern of significant correlations of symptoms with life events in the deaf sample differed from the hearing sample. Table 30 presents the correlations for the deaf sample. As can be seen, recent total life events and recent desirable events were both correlated with current symptoms. Recent total events showed the strongest relationship (r_k=.31, p<.01). Recent desirable events also were significantly associated with symptoms (r_k=.23, p<.05); recent undesirable events, however, did not correlate with symptoms. Of the three life event variables for one year, only total events for one year were significantly associated with current symptoms (r_k=.26, p<.02).

TABLE 30

RANK ORDER CORRELATIONS USING KENDALL'S TAU OF CURRENT AND PAST PSYCHOLOGICAL SYMPTOMS WITH THE LIFE EVENTS VARIABLES (DEAF SAMPLE)

	Symptoms	
	Current	Past
Recent Life Events		
Total	.31**	.32**
Undesirable	.20	.25*
Desirable	.23*	.20
Past Life Events		
Total	--	.25*
Undesirable	--	.18
Desirable	--	.21
Life Events for One Year		
Total	.26*	--
Undesirable	.18	--
Desirable	.20	--

*$p<.05$

**$p<.01$

Table 30 also shows the correlations of past symptoms with past and recent life events. Past total events was significantly correlated with past symptoms, but the correlation was weak ($r_k=.25$, $p<.03$). Past undesirable and desirable events were not correlated with past symptoms. Past symptoms were, however, positively correlated with recent total life events ($r_k=.32$, $p<.01$) and with recent undesirable life events ($r_k=.25$, $p<.04$).

Results: The Social Support-Life Events Interaction

In this section the evidence for the buffering effect of social support was considered. To investigate the interacting relationship of life events and social support on psychological symptoms, the respondents were classified into six social support-life events groups. The groups were established according to the following criteria. Life events were categorized into three levels--low, moderate, and high--based on cut-offs at approximately the 33rd pecentile and 66th percentile for the combined sample. The social support variables were classified into low and high support levels, using a median split. This classification was done within each sample separately. This strategy was made necessary due to the large differences found for social support in the two samples. Using a combined sample median split did not permit sufficient cell sizes to get reasonably stable estimates of the level of symptoms within each cell. Using the above categories for support and events produced six separate groupings. The deaf and hearing samples were categorized separately. Within each sample the median number of psychological symptoms was calculated for each support level-life event category.

To argue that social support and life events have a buffering effect on psychological symptoms, the median number of symptoms should exhibit the following trends. First, at each level of life events the median number of symptoms for respondents with lower support should be higher than the median number of symptoms for respondents with higher support. Also, as the level of life events

increases from low to high, there should be an increase in the median number of symptoms. However, for a buffering effect to be in evidence, the differences between the medians for the low and high support group should increase from low to moderate to high levels of life events. This model is graphed in Figure 1.

Life Events with Perceived Support Availability

Hearing Sample. In general the median number of symptoms for the support availability-life events cells for the hearing sample did not conform to the model presented earlier. Table 31 presents the medians for the hearing sample. As can be noted, in several instances the median for the high support respondents was greater than the median for the low support respondents. This pattern was found in each of the life events variables for one year. Note the high event categories for total events for one year; the low event categories for undesirable events for one year; and the high event categories for desirable events for one year.

A higher median number of symptoms for the high support group was also found for two of the recent event variables. The median number of symptoms for the moderate event categories was higher for the high support group than for the low event group. For recent desirable events the high support group exhibited higher medians for symptoms than the low support group in both the moderate and high event levels. For support availability only recent undesirable events showed the pattern of higher number of symptoms for the low support group at each level of life events (see Figure 2).

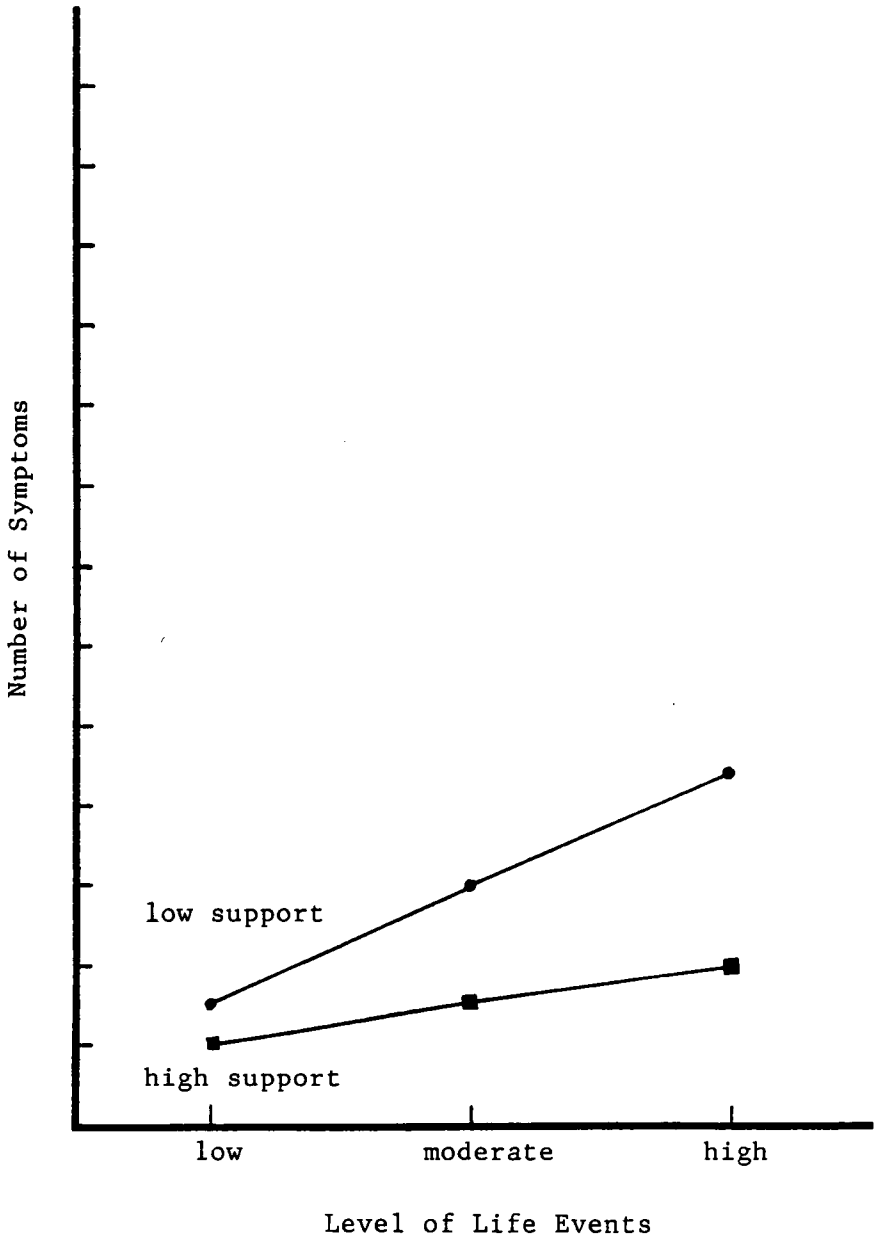


FIGURE 1

MODEL OF THE EXPECTED EFFECTS OF SOCIAL SUPPORT AND LIFE EVENTS ON PSYCHOLOGICAL SYMPTOMS

TABLE 31

MEDIAN NUMBER OF CURRENT PSYCHOLOGICAL SYMPTOMS BY LIFE EVENTS AND PERCEIVED SUPPORT AVAILABILITY (HEARING SAMPLE)

Support Availability	Life Events Variable		
	Low	Moderate	High
	Recent Total Events		
Low	5	4	5
High	0.5	4.5	4.5
	Recent Undesirable Events		
Low	3	5	4.5
High	1	3	2.5
	Recent Desirable Events		
Low	4.5	3.5	3
High	2	6	4
	Total Events for One Year		
Low	3	4	5
High	1.5	2	6
	Undesirable Events for One Year		
Low	1	5	5
High	2	1.5	3
	Desirable Events for One Year		
Low	7.5	3	4.5
High	0	3	6

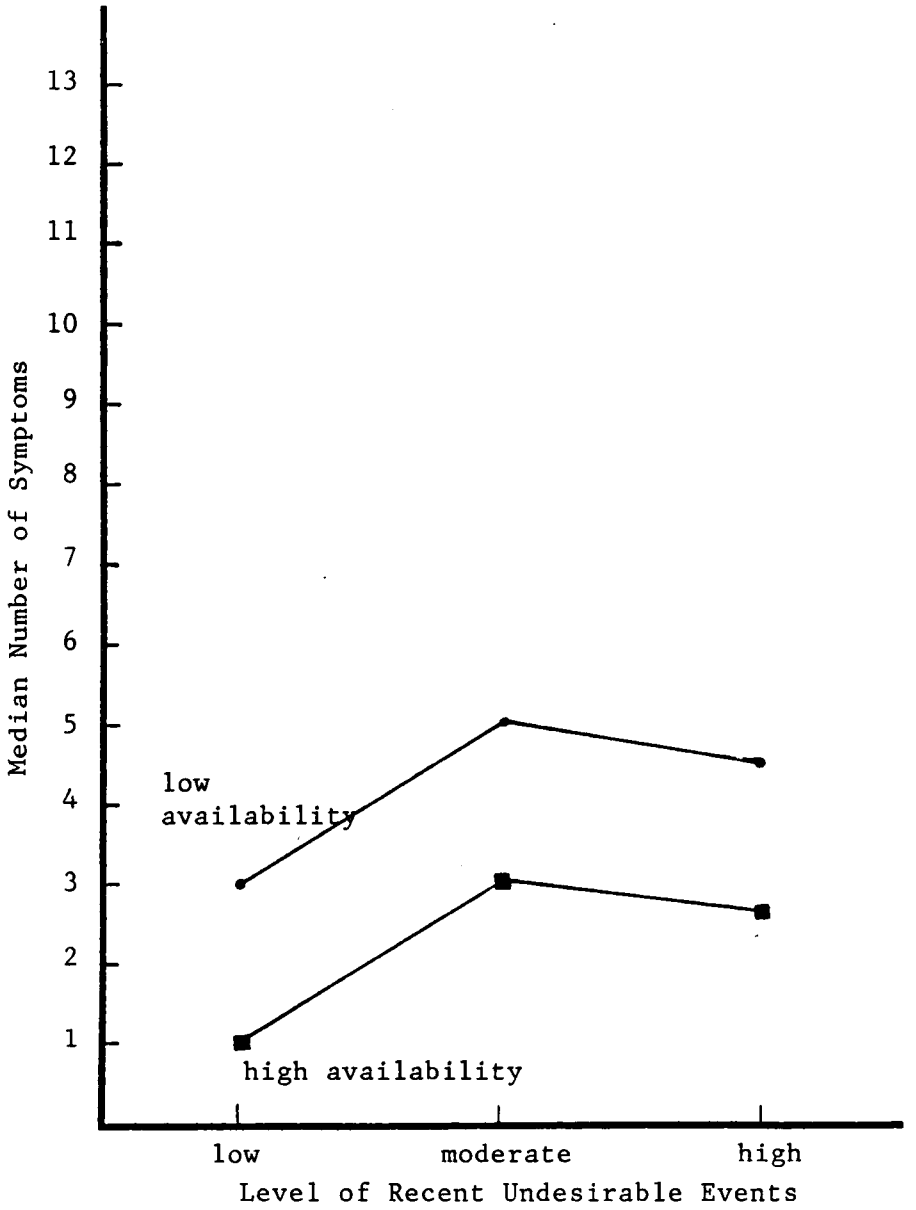


FIGURE 2

MEDIAN NUMBER OF CURRENT PSYCHOLOGICAL SYMPTOMS BY PERCEIVED SUPPORT AVAILABILITY AND RECENT UNDESIRABLE LIFE EVENTS (HEARING SAMPLE)

However, increases in the level of events was not reliably associated with increased differences between the median number of symptoms for the low and high support groups.

The Mann-Whitney U test was used to test for differences between the high and low support groups at each level of life events. For recent undesirable events at each level of life events, no significant differences were found between the high and low support groups.

Deaf sample. For the deaf sample the modeled pattern of the median number of symptoms was not found (see Table 32). For each life events variable, at the low and high levels of events, the medians fit the pattern. That is, the high support groups exhibited fewer symptoms than the low support groups. However, at the moderate level of events the median number of symptoms for the high support group was equal to or greater than the median for the low support group for each life event variable. Figure 3 presents the relationship of recent desirable events and perceived support availability; this figure was one of several that most closely resembled the expected pattern of the interacting effects of events with support availability. As described above, however, at the moderate level of recent desirable events, both the high and low support groups had an equal number of symptoms. The differences in the number of symptoms between the high and low support groups at the low events level and at the high events level were not

TABLE 32

MEDIAN NUMBER OF CURRENT PSYCHOLOGICAL SYMPTOMS BY LIFE EVENTS AND PERCEIVED SUPPORT AVAILABILITY
(DEAF SAMPLE)

Support Availability	Life Events Variable		
	Low	Moderate	High
	Recent Total Events		
Low	2	2	5.5
High	1	3	3
	Recent Undesirable Events		
Low	5	2	5
High	2.5	3	3
	Recent Desirable Events		
Low	3	3	5.5
High	2	3	4
	Total Events for One Year		
Low	3	2	5
High	1	2	4
	Undesirable Events for One Year		
Low	5	1	5
High	3.5	2	3
	Desirable Events for One Year		
Low	3.5	2	4.5
High	1	2	3.5

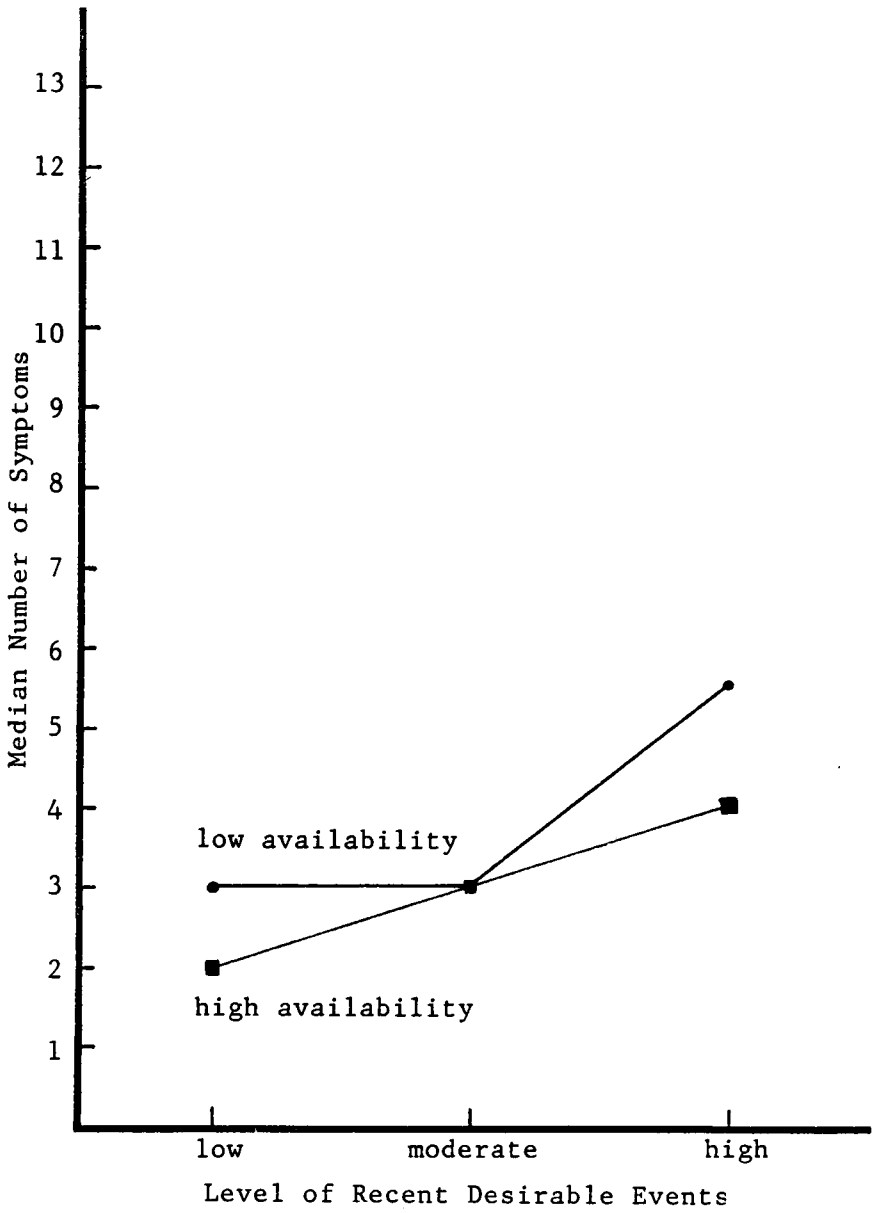


FIGURE 3

MEDIAN NUMBER OF CURRENT PSYCHOLOGICAL SYMPTOMS BY PERCEIVED SUPPORT AVAILABILITY AND RECENT DESIRABLE LIFE EVENTS (DEAF SAMPLE)

significant. This pattern was also found for total events for one year (see Figure 4) and for desirable events for one year (see Figure 5). The differences between the high and low support groups at the low event and high event levels were not significant. Clearly, the expectation of increasing differences in the medians with higher levels of events was not found.

Life Events and Level-of-Contact

Hearing sample. While not perfect, several of the life events-contact combinations resembled the pattern described earlier. The life event variables for one year yielded the best results (see Table 33 and Figures 6, 7, and 8). For each of these variables, the median number of symptoms was higher for the low support group at each level of events. Nonetheless, the differences in medians did not consistently increase with higher levels of events. The Mann-Whitney U test for differences only found a few significant differences between high and low support contact groups. For total events for one year at the high events level, high contact respondents were significantly different from low contact respondents; there were no differences between high and low contact respondents at the low and moderate events levels. For undesirable events for one year at the moderate level of events, high contact respondents were significantly different from low contact respondents. However, at the low level of events and at the high level of events, no significant differences were found. For desirable events for one

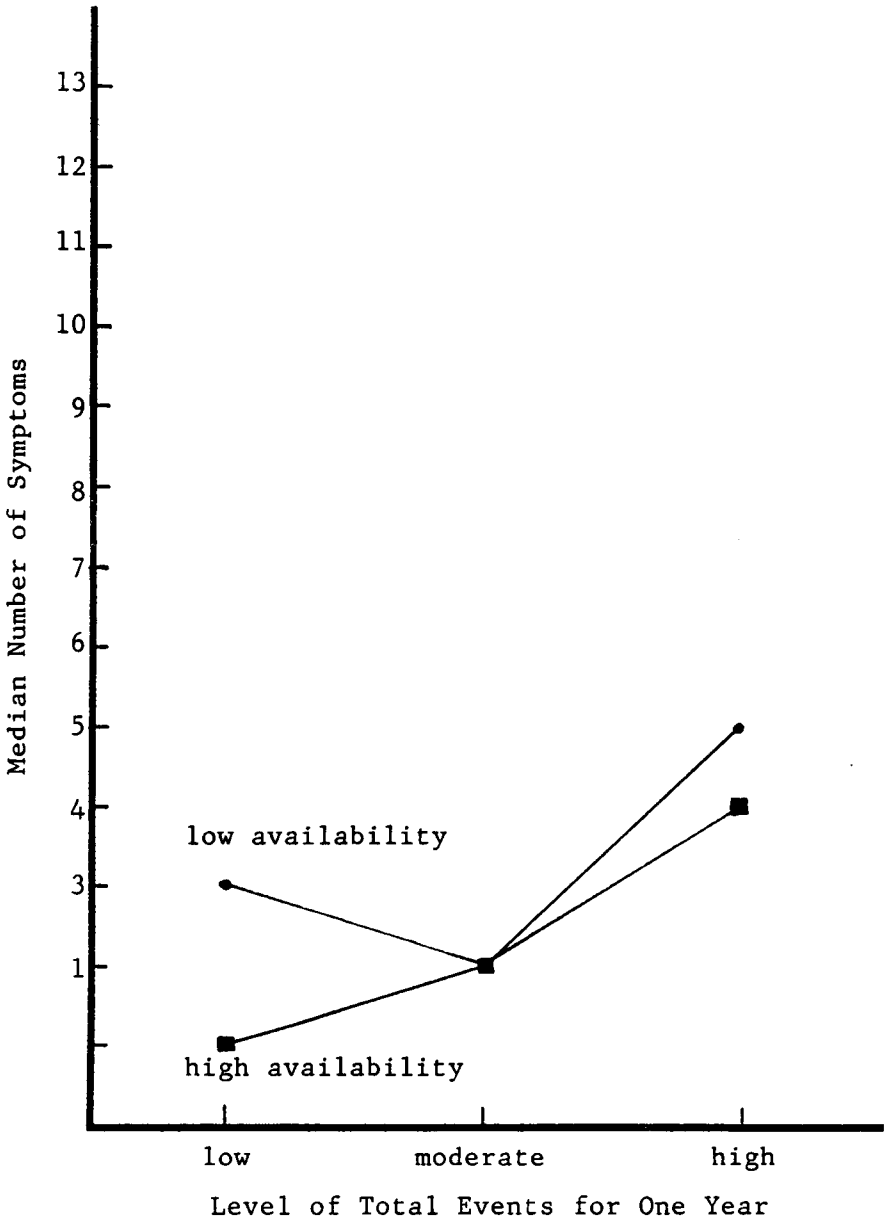


FIGURE 4

MEDIAN NUMBER OF CURRENT PSYCHOLOGICAL SYMPTOMS BY PERCEIVED SUPPORT AVAILABILITY AND TOTAL LIFE EVENTS FOR ONE YEAR (DEAF SAMPLE)

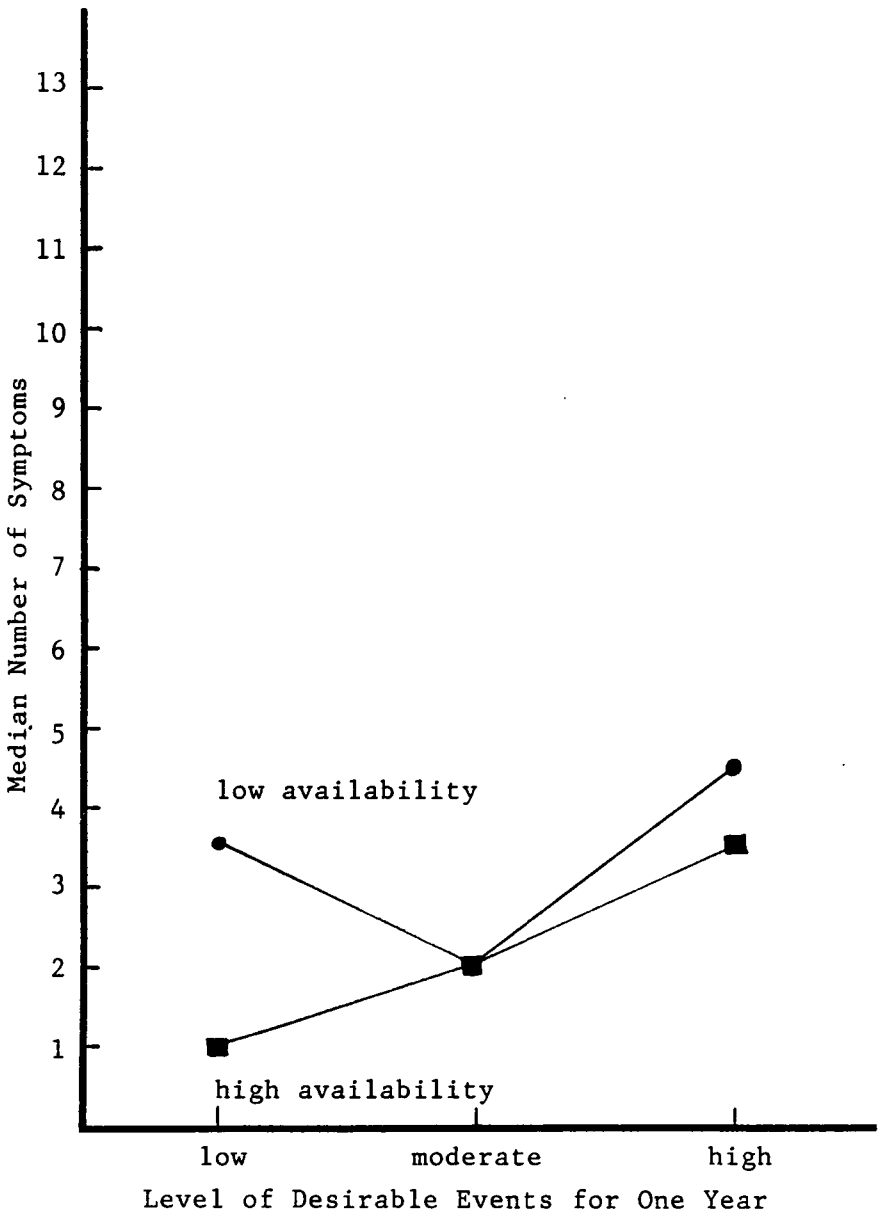


FIGURE 5

MEDIAN NUMBER OF CURRENT PSYCHOLOGICAL SYMPTOMS BY PERCEIVED SUPPORT AVAILABILITY AND DESIRABLE LIFE EVENTS FOR ONE YEAR

(DEAF SAMPLE)

TABLE 33

MEDIAN NUMBER OF CURRENT PSYCHOLOGICAL SYMPTOMS BY LIFE EVENTS AND LEVEL-OF-CONTACT WITH SUPPORTERS (HEARING SAMPLE)

Level-of-Contact	Life Events Variable		
	Low	Moderate	High
	Recent Total Events		
Low	3.5	4	6
High	1	4	2
	Recent Undesirable Events		
Low	2	4	7
High	2.5	1	2
	Recent Desirable Events		
Low	5	3	5
High	2	6	1
	Total Events for One Year		
Low	3	4	7
High	1	3	2
	Undesirable Events for One Year		
Low	2.5	5.5	6.5
High	0.5	1	4.5
	Desirable Events for One Year		
Low	8	3	6.5
High	0	2	5

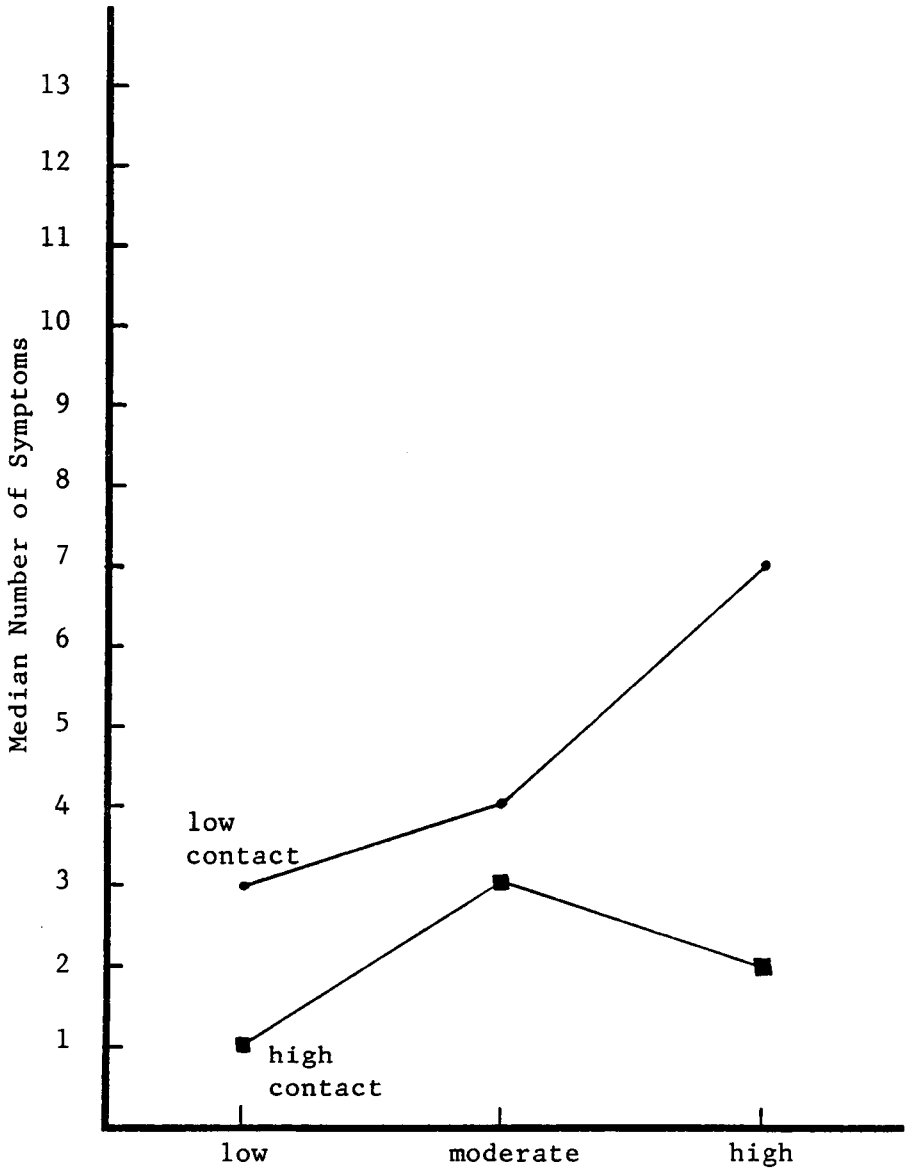


FIGURE 6

MEDIAN NUMBER OF CURRENT PSYCHOLOGICAL SYMPTOMS BY LEVEL-OF-CONTACT AND TOTAL LIFE EVENTS FOR ONE YEAR (HEARING SAMPLE)

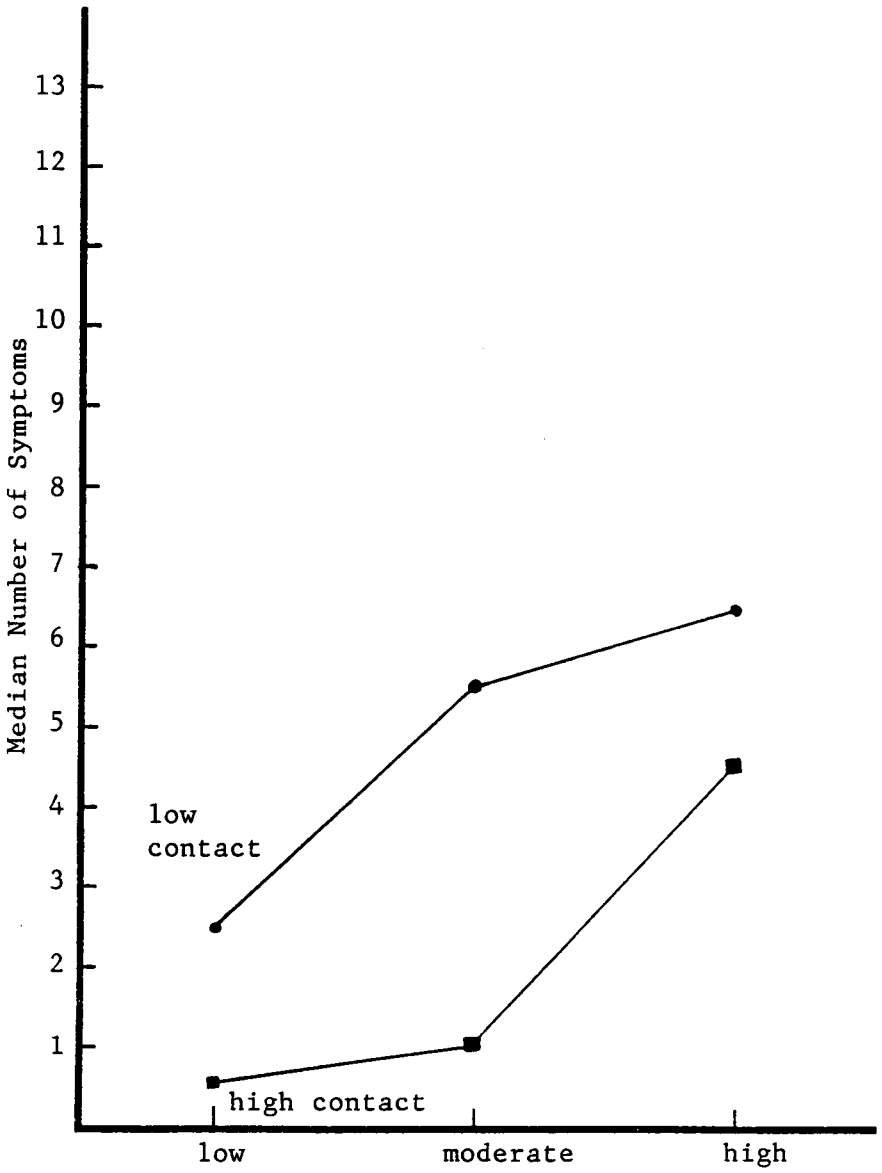


FIGURE 7

MEDIAN NUMBER OF CURRENT PSYCHOLOGICAL SYMPTOMS BY LEVEL-OF-CONTACT AND UNDESIRABLE LIFE EVENTS FOR ONE YEAR (HEARING SAMPLE)

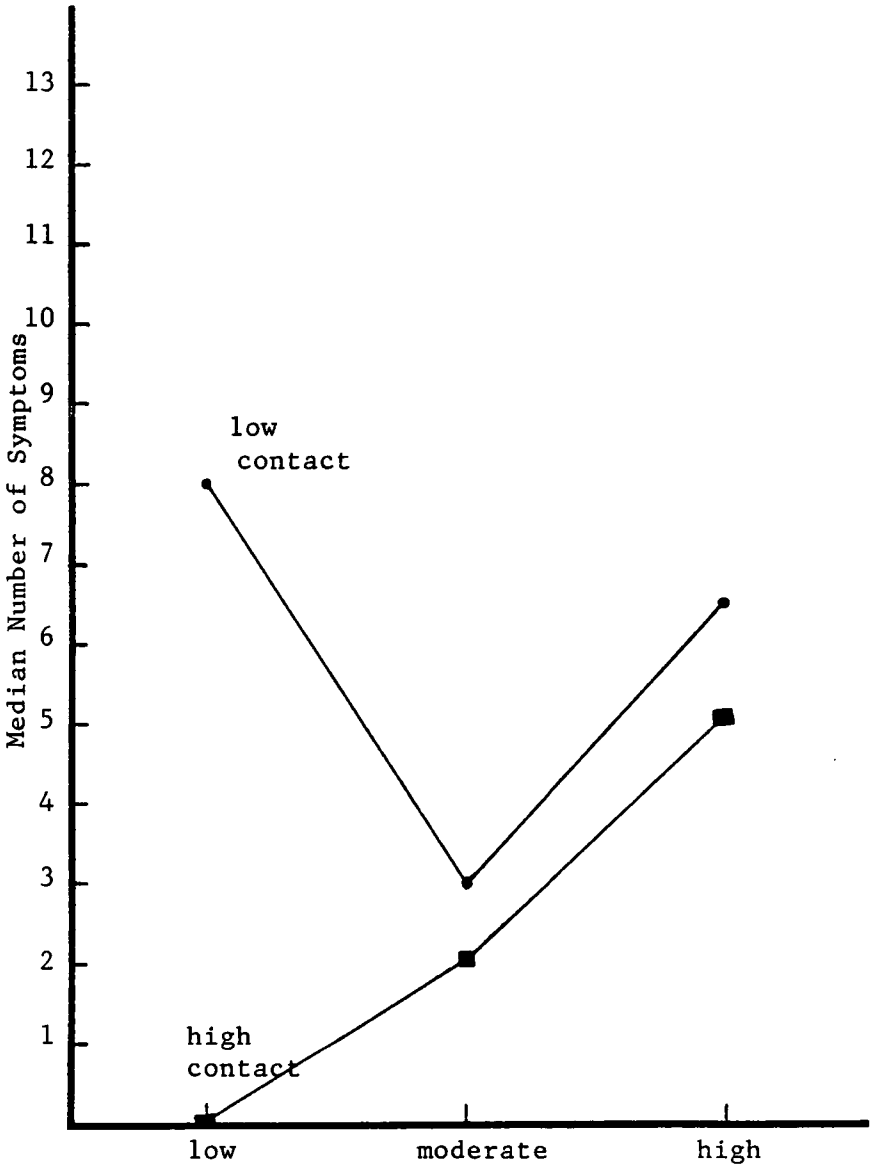


FIGURE 8

MEDIAN NUMBER OF CURRENT PSYCHOLOGICAL SYMPTOMS
BY LEVEL-OF-CONTACT AND DESIRABLE LIFE EVENTS
FOR ONE YEAR
(HEARING SAMPLE)

year, no differences were found at low, moderate or high levels of events.

The recent life events variables showed the problem of medians for the high support group that were equal to or greater than the medians found for the low support group. This situation occurred for recent total events in the moderate events categories, for recent undesirable events in the low events categories, and for recent desirable events in the moderate events groupings (see Table 33).

Deaf sample. In the deaf sample no combination of life events with level-of-contact yielded results consistent with the expected patterns. The medians are presented in Table 34. At high levels of events the low support group always exhibited more symptoms than the high support group. However, at the low and moderate event levels, the high support group frequently had a median number of symptoms that was equal to or greater than the median for the low support group. The results were similar for life events for one year and recent life events.

Life Events and Number of Supporters

Hearing sample. Inconsistencies with the expected pattern were common in this set of results. Table 35 presents the median number of symptoms for each life events-number of supporters combination. For the life events for one year variables, higher medians for the high support group were found for total events

TABLE 34

MEDIAN NUMBER OF CURRENT PSYCHOLOGICAL SYMPTOMS BY LIFE EVENTS AND LEVEL-OF-CONTACT WITH SUPPORTERS (DEAF SAMPLE)

Level-of-Contact	Life Events Variable		
	Low	Moderate	High
	Recent Total Events		
Low	2	2	5.5
High	1	3	4.5
	Recent Undesirable Events		
Low	1	2.5	5.5
High	6	2	4
	Recent Desirable Events		
Low	3	1	5.5
High	2	5	4
	Total Events for One Year		
Low	1	2	5.5
High	3	2	3.5
	Undesirable Events for One Year		
Low	2	1	5
High	6	2	4
	Desirable Events for One Year		
Low	2	2	4.5
High	1	3.5	3.5

TABLE 35

MEDIAN NUMBER OF CURRENT PSYCHOLOGICAL SYMPTOMS BY LIFE EVENTS AND NUMBER OF SUPPORTERS (HEARING SAMPLE)

Number of Supporters	Life Events Variable		
	Low	Moderate	High
	Recent Total Events		
Low	3.5	4	4
High	0	4	6
	Recent Undesirable Events		
Low	2.5	4	4
High	1.5	3.5	4
	Recent Desirable Events		
Low	4	1	3
High	3	6	-
	Total Events for One Year		
Low	3	4	4
High	1.5	3.5	6
	Undesirable Events for One Year		
Low	1	4.5	5
High	2.5	4	4.5
	Desirable Events for One Year		
Low	4	4	2.5
High	0	2	6

for one year (high events categories); for undesirable events for one year (low events categories); and for desirable events for one year (high events categories).

Concerning recent life events, problems similar to the above were encountered. Recent total events had equal symptom medians at the moderate events level, and higher symptoms at the high events level. Equal symptom medians were found for recent undesirable events at the high support level. For recent desirable events there were no hearing respondents in the high events-high support cell. Nonetheless, at the moderate event level the high support group had the higher number of symptoms.

Deaf sample. The discrepancies noted for the hearing sample above in the pattern of results for life events-number of supporters combinations were also present in the deaf sample (see Table 36). Across all the life events variables in the low events levels, the high support group showed a higher number of symptoms than the low support group. Equal symptom medians were found for the high support group at the moderate levels of events for total events for one year and for recent desirable events. In the high events levels the high support group had a median number of symptoms that were equal to or higher than the median for the low support group for five of the six life event variables.

TABLE 36

MEDIAN NUMBER OF CURRENT PSYCHOLOGICAL SYMPTOMS BY LIFE EVENTS AND NUMBER OF SUPPORTERS
(DEAF SAMPLE)

Number of Supporters	Life Events Variable		
	Low	Moderate	High
	Recent Total Events		
Low	1.5	3	5
High	4	2	5.5
	Recent Undesirable Events		
Low	1	3	5
High	5	2	5
	Recent Desirable Events		
Low	2.5	3	4.5
High	3	3	6
	Total Events for One Year		
Low	1	2	5
High	4	2	4
	Undesirable Events for One Year		
Low	1	2	3.5
High	4.5	1.5	5
	Desirable Events for One Year		
Low	1	3.5	4
High	4.5	2	4

Summary of the social support-life events interaction results. The obtained results for the support-events interaction did not, in general, conform to the expected pattern for either sample. The hearing sample produced the best results. The support availability-life events interaction did not reflect the pattern; however, in the case of recent undesirable events, the medians for the low support groups were greater than the high support group at each level of events. The expectation of larger differences between the medians as the level of events increased was not found. For all other life event variables at least one median of the high support groups was equal to or greater than the corresponding median for the low support group.

For the hearing sample the level-of-contact variable exhibited the most consistent results. For each of the life event variables for one year, the low support group's median number of symptoms exceeded the median for the high support group as expected. However, the increasing differences between the medians with increasing levels of events were not found.

The number of supporters-events combination showed the least conformity to the expected model. Frequently, the median number of symptoms for the high support group was equal to or greater than the median in the low support group.

For the deaf sample the results conformed to a lesser extent to the expected pattern than for the hearing sample. The support availability-life events combinations showed a problem at the moderate level of events. For each events variable the median

number of symptoms for the high support group equaled or surpassed the corrsponding median for the low support group. This trend was also found with the level-of-contact variable, except that the low level of events category was also showing the inconsistencies. For the number of supporters variable, the highly inconsistent pattern evidenced in the hearing sample was also present for the deaf sample. For both samples the number of supporters variable produced the least conformity to the pattern presented in Figure 1 (page 92).

CHAPTER VI

DISCUSSION

In Chapter I (pages 21-24), the four research questions which provided the focus of this study were presented. The first three research questions dealt with comparisons of deaf and hearing persons on each of the major study variables--current and past psychological symptoms, recent and past life events and events for one year (total, undesirable and desirable), and social support (perceived support availability, the number of supporters, and the level-of-contact with supporters). The fourth research question examined the relationships of social support and life events to current psychological symptoms.

The individual relationships of social support and life events with psychological impairment were studied first, followed by their interacting relationship.

For current psychological symptoms, the findings indicated that deaf and hearing persons were not statistically different. The samples also did not differ for past psychological symptoms.

Concerning the life events variables, the comparisons revealed significant differences for three of the nine life event variables (past total events, past desirable events, and desirable events for one year). The direction of the differences was toward deaf persons experiencing more events. For the remaining six life event

variables, deaf and hearing respondents did not significantly differ.

The most significant differences between deaf and hearing respondents were found for each of the social support variables. The results for each variable--perceived support availability, number of supporters, and level-of-contact with supporters--revealed that hearing persons always reported higher levels of social support.

Two potential problems in interpreting these results must be mentioned. First, the samples were not similar in terms of demographic characteristics. Random sampling was not possible for the deaf sample; therefore a sample of convenience was used. Hearing respondents were recruited from the same settings and neighborhoods from which the deaf respondents were found. It was hoped that this procedure would produce samples that were similar. Unfortunately, the sampling procedure did not accomplish this goal. Therefore, the results of these comparisons must be interpreted cautiously.

The most important demographic differences involved three variables. A large percentage of hearing respondents were in the youngest age grouping (21-30 years old); the majority of deaf respondents were aged 31-40 years old. There were 14 students in the hearing sample, and none in the deaf sample. Finally, there were large educational differences favoring the hearing sample; 79% of hearing respondents attended college compared to 45% in the deaf sample.

For each of these demographic variables, a significant relationship was found to some of the major study variables when the samples were combined (see Tables 13, 14 and 15, pages 67, 68 and 69, respectively). However, the relationship in the combined sample seemed to be based on the strength of the relationship for one of the samples. For instance, age was significantly correlated with four life event variables in the combined sample. In the deaf sample seven of the nine correlations were significant; in the hearing sample none was significant.

Educational attainment was correlated with perceived support availability and the number of supporters for the combined sample. These same two variables were correlated with education in the hearing sample, but not in the deaf sample. These patterns of findings suggested the two groups were not alike; the influence of the demographic variables was not similar in the two samples.

A second problem with comparing deaf and hearing persons involves the nature of a proper control group for deaf persons. Deafness implies marked differences in development of the deaf child (Meadow, 1980). For example, there are differences in the deaf child's relationship to his/her family, differences in acquiring information about the world, and differences in communication. Deafness is not simply the absence of hearing; there are significant experiential differences. One could conclude that a proper control group for a deaf sample does not exist.

Given the situation described above, the discussion of the results of this study focused on the deaf sample, the group of

primary interest to this author. The findings pertaining to each major study variable were discussed, followed by the results involving the interrelationships of social support, life events and psychological symptoms.

Psychological Symptoms

The percentage of deaf persons exceeding the cut-off score of 3 on the Langner was high (47% for current symptoms and 44% for past symptoms). This finding suggests that there was a high rate of symptomatology present in this sample. In Langner's original work with the Midtown Manhattan study (1962), the percentage of respondents scoring above 3 was 31%. Therefore, the rate for this deaf sample was somewhat higher, and was consistent with Schlesinger's speculation (1978). Certainly the high rate was not related to the demographic characteristics of the deaf sample; each of those variables was found to be unrelated to both current and past symptoms using both nominal and ordinal statistical analyses.

The other major study variables (social support and life events) also impacted very little on the psychological symptom score. None of the social support variables was related to symptoms. Weak relationships, accounting for trivial variance, were found for several of the life event variables. An explanation for this finding of a high rate of impairment was, therefore, not readily apparent.

Life Events

An intriguing result found for the life events variables was the relationship of events to age, found with the eta correlation (see Table 13, page 67). These correlations were moderately strong. Contrary to what this author expected, older deaf persons did not experience more events. The opposite was found; the older deaf respondents reported fewer events. The relationship, however, was an artifactual one. When reviewing the life events used in the questionnaire, it was found there were five events that one would expect to be reported more frequently by older persons (for example, death of spouse, death of a good friend, physical illness, and injury). However, there were many more that would be less likely to happen to an older deaf person (for example, those events involving work--11; those involving birth or school--5). These events should be experienced less frequently by older deaf persons. Therefore, the relationship of age to life events in the deaf sample revealed an age bias in the types of events represented on the scale.

Social Support

By far the most interesting results in this study related to the social support variables. On the one hand observational accounts provided by Jacobs (1974) and Padden (1980) suggested the possibility of strong social support. Each writer discussed the closeness of the deaf community, and the ties to friends and family. However, as pointed out in Chapter I (pages 23-24), there

were at least two reasons that indicated social support may be less available in the deaf community than in the hearing community. First, because most deaf persons have hearing parents, and these parents generally do not learn sign language, parental support may be reduced. And second, support from co-workers would be less since deaf persons are in the minority in work settings; the co-workers generally are not able to communicate with their deaf peers. Therefore, two settings which are sources for support for most hearing people may not be as significant for deaf persons.

The data from this study provided several indications that the presence of support was not as strong as one might expect based on Jacobs' (1974) and Padden's (1980) writings. First, there were no maximum scores for deaf respondents on the SSI; the range of possible scores was 0 (indicating no perceived support availability) to 25 (indicating the very high support availability). The bulk of the deaf respondents were located in the middle scores (from 13 through 19). That pattern of scores indicated that many deaf respondents did not perceive the types of support on the SSI as being readily available from their supporters. Table 12 (page 61) showed the percentage of respondents indicating that the support item was not available. Over half of the items were reported as not available by 40% or more of the deaf sample. Additionally, leve-of-contact with supporters was also seemingly low. Approximately one-half of the respondents reported contact with their supporters at a level less than once a week (from several

times a month to less than once a month). These results did not support a conclusion of strong social support.

What factor, or factors, then accounts for these findings? Jacobs (1974) suggested a potential reason, "the deaf grapevine." Jacobs pointed out that since the deaf community is small, what happens to one of its members is of interest to all. Very quickly information about a person will spread throughout the community. Referring to Appendix C one can note that many items on the SSI were of a personal nature (family problems, sexual problems, etc.). The deaf respondents may have reported that supports connected to these problem situations were unavailable due to their belief that sharing such information with others promotes gossip. In interviews with two of the respondents in the study, the grapevine explanation was offered as a primary reason for not divulging problems to others. (The respondents were presented the SSI. The items that were highly unavailable were flagged. The respondents were asked to give reasons why they thought deaf persons felt the support described was not perceived as available.) The reasoning was simple: "If something bad is happening to me, which I want kept quiet, I don't tell anyone about it." This explanation was supported by research regarding social networks which found that closer networks were not always better (Heller and Swindle, 1983). Both Wilcox (1981a) and Hirsch (1980) found that more dense networks, while providing support, were also sources of stress.

Interaction of Life Events with Social Support

As stated at the beginning of this chapter, the fourth research question focused on the interrelationships among the major study variables. Specifically, it was concerned with the effects of social support and life events on psychological symptoms. The results for the deaf sample did not conform to the expected pattern of relationships. It was expected that the social support variables would negatively correlate with symptoms; they did not. It was expected that the life events variables would positively correlate with symptoms; several did, but at a very weak level.

Given the low level of social support exhibited by the deaf respondents in this sample, the lack of significant correlations with symptoms was not surprising. The low positive correlations of life events to symptoms were not surprising; these results were consistent with previous research (Andrews et al., Holmes & Masuda, 1974; Williams et al., 1981).

When considering the interacting effects of life events and social support on psychological symptoms, it was apparent that evidence to support a buffering effect was not found. As the tables indicated (Table 32, page 95, Table 34, page 105, Table 36, page 108), deaf respondents in the low support group often reported the same number or fewer symptoms than respondents in the high support group. This pattern of the low support group reporting the same or fewer symptoms than the high support group was not limited to one level of life events. Indeed, if this pattern

was found at the low life events level, it would have been less problematic. A low level of events was indicative of low stress; social support was theorized to have a buffering effect at higher levels of events. However, in this study the low support group reported the same or fewer symptoms sometimes at the low events level, sometimes at the moderate events level, and sometimes at the high events level.

The problem in showing a buffering effect for social support has received attention from Thoits (1982), Heller and Swindle (1983), and Leavy (1983). Each of these researchers pointed to methodological problems as well as conceptual problems. A common problem they cited was the reliance on retrospective designs, as was used in this study. While recognizing the necessity of using this design in some situations, Leavy cautioned that there was too much room for "reporter bias due to selective or deficient memory" (p. 16). These retrospective designs were also static pictures of social support and life events. Measurement of the constructs at a given time (e.g., six months ago) eliminated the inherent dynamic characteristics of the social support-stress relationship. In addition, the correlational nature of the data restricted causal inference. Practical considerations made it necessary to use a retrospective design in this study. Therefore, the methodological problems described by Heller and Swindle, and Leavy were applicable to this study. Leavy, as well as Heller and Swindle, recommended prospective, longitudinal designs.

Several conceptual problems relating to support discussed by Heller and Swindle (1983) and Leavy (1983) were relevant to this study. This study operationalized social support in three ways--perceived availability, the number of supporters,, and the level-of-contact with supporters. According to Leavy (1983), these variables represented aspects of the structure and content of social support, but not the process. That is, the ways in which a person develops, maintains, and uses supportive ties. These process variables are personal ones that interact in complex ways with the environmental variables of availability and amount of support (Heller & Swindle, 1983).

Related to the above conceptual problem was a bias toward believing that all support is positive. Heller and Swindle (1983) pointed out that a supportive act may be offered, but if it is interpreted as interference, the act is not supportive. Heller and Swindle indicated that for some situations (such as relocations) a less close (less dense) social network may be more desirable. On the other hand, for a family crisis event (such as a death), a closer support network may be most useful. What these ideas suggested was that the supportiveness of help offered may be dependent on characteristics of the life event. Such considerations were not a part of this study.

Finally, both Heller and Swindle (1983) and Leavy (1983) have criticized the current studies of stress and buffering as being based on too simple of a model. The model ignored the complex

interactions of type of life event with type of support offered, of personal characteristics (e.g., traits, coping style) with both developing supportive ties and using them appropriately, and of social norms with the perception and use of support. The interaction involving social norms and social support may be a particular importance to this study since deaf persons constitute a cultural group as discussed in Chapter I (pages 18-21).

The lack of hearing is not the major problem of deafness. The major problem is the communicative isolation from other people and the mainstream of society. Due to their unique situation, deaf persons themselves developed a visual language that best suited their needs (Baker & Cokely, 1980). Associated with the language were a set of behaviors and values that are not completely compatible with those of the greater society (Padden, 1980).

It seems possible that the social norms surrounding the use of social support by deaf persons may be somewhat different than those of hearing people. The presence of the efficient "deaf grapevine" has been suggested above to influence disclosure of personal information or problem situations. Seemingly the norm is: If you tell someone about your problem or situation, it almost automatically becomes public information, appropriate for dissemination. The grapevine may be one of other norms that subtly influence social support in the deaf community. The nature of these norms is the subject of future research.

The question of culture and language raised another question for this study; that is, the use of English in presenting the social support items (as well as the psychological symptoms and life events items). The revisions to the research instruments were done based on a belief that if an item was written to a simpler English level, it would be understood by the deaf person in the same fashion as a hearing person. Because of the extensive experience deaf people have with English (which is a major focus of deaf education), it was believed that the items would carry the same meaning for a deaf person that a hearing person would ascribe to it. However, as Triandis and Brislin (1984) recently pointed out, the above contention may be wrong. Triandis and Brislin stated anecdotely: ". . . I developed a scale to measure what I thought was a well-understood concept. But the people in the other culture think differently about the concept. We weren't talking about the same thing" (p. 1008). It is possible the lack of significant findings in this study was partially related to the differences in meaning of the concepts for the deaf sample (in addition to the already mentioned methodological and conceptual drawbacks).

Conclusions

Social support has been suggested as a major environmental variable suitable for manipulation in preventive interventions in mental health (Heller & Swindle, 1983). Interventions based on social support concepts, such as the buffering effect, could potentially be useful in providing mental health services to deaf persons. In Chapter I it was noted that mental health professionals,

skilled in deafness, were extremely scarce. At the same time estimates of the numbers of deaf persons in need of mental health care, but not receiving services, were high. Since this study did not produce results supporting the buffering hypothesis, the efficacy of using social support in mental health interventions for deaf persons was not demonstrated.

Several sources of problems have been identified. The retrospective design of this study, while necessary, was limited in its ability to deal with the complexity of the social support phenomenon and yielded correlational data. Conceptual problems relating to the definition of social support were also present. As Heller and Swindle (1983) pointed out, these problems were common to many of the previous studies on which this study is based.

Even if these problems could have been eliminated, this study may still have not produced the expected results. The problem involved the cultural and language differences between deaf and hearing people. As was stated above, it is possible that the norms governing social support for hearing people are not the same as the norms governing social support for deaf people.

Heller and Swindle (1983) noted that there were cultural differences in the perception, accessibility and use of social support from a social network. They suggested that ethnic values would be a major influencing factor (e.g., the extent to which altruism or self-reliance is valued).

Therefore, an important first step in conducting social support research with deaf persons is to find out what social support means

for a deaf person. How does a deaf person go about seeking support from others? Under what circumstances? What is the necessary relationship between supporter and supportee that will guarantee confidentiality of the supportee's situation? For what types of problems can a deaf person seek help from others? And what types of problems are expected to be handled privately? These questions and others need to be considered in studying social support in the deaf community.

A first step should be careful N-of-1 studies using persons who are highly likely to experience stressful situations (Heller & Swindle, 1983). These studies would be exploratory, following individuals before, during, and after a stressful experience. Regarding deaf persons, one particular group seems to provide an excellent opportunity for this research strategy. This group is high school students at residential schools for the deaf. Consider the situation of the senior at these schools. For nine months for many years, this student has been at the school. He/she is in an environment where communication is easy, surrounded by deaf peers and varying numbers of deaf adults. Then he/she graduates. In addition to the graduation event, the student is faced with several new challenges--finding a job, going to college, finding a place to live, planning meals, planning a budget, and so forth. At the same time, the student's social network has been dramatically altered. No longer is the student surrounded by peers. Instead, he/she is moving into a world that is dominated by hearing people.

These people generally cannot communicate with deaf persons, and probably have a degree of misconceived ideas about them. This situation is certainly highly stressful. Tracking different students' adjustment to this set of circumstances will provide a wealth of information about what factors promoted successful and unsuccessful adaptation. This information can be used to develop scales that can measure the various components of social support for deaf persons, as well as provide hypotheses that can be tested in stronger research designs.

Certainly graduating seniors are a somewhat atypical deaf group, and it will be important to investigate other deaf persons at a risk for stress. Such studies will help round out the picture of the relationship of social support to adjustment in the deaf community. When stronger studies are conducted, then the efficacy of using social support in the deaf community as a preventive tool can be more accurately assessed.

Another area that clearly needs further research is the assessment of mental health. This study used a revised form of a widely used symptom checklist--the Langner--which was developed for the Midtown Manhattan project. The results suggested a fairly high percentage of the deaf respondents were "psychologically impaired" (i.e., exceeded the cut-off score). The distribution of scores for the deaf respondents showed an unusual pattern. For the hearing sample (without students) ten respondents reported no symptoms; in the deaf sample the number of respondents reporting

no symptoms was four. The number of deaf respondents reporting one or two symptoms was 16, compared to six hearing respondents.

Why would the deaf respondents be so much less likely to report no symptoms, and be so much more likely to report a couple of symptoms? One possibility is that indeed being deaf does increase the likelihood of having psychological symptoms. Another possibility is that the symptoms on the checklist do not have the same meaning for the deaf respondents. For example, the item, "nothing ever turns out for me the way I want it to . . . (i.e., my wishes were not fulfilled)" (see Appendix A, Item 20, for the revised version for deaf persons). It is conceivable that for deaf persons unfulfilled wishes are more commonplace, and therefore, they become an expectation of life, which must be adapted to. Whereas for hearing people that kind of experience may be more rare, and thus, have more impact on mental health. If this explanation of different meanings for LSC items is correct, then the pattern of scores would be more explicable.

Another interesting feature were the responses of deaf and hearing respondents to the questionnaire related to the types of items that were frequently endorsed. Of the items most frequently endorsed for deaf persons, four were symptoms having a physical component (see Table 8, page 55). The items were "become sweaty fast," "fullness of head/nose," "acid stomach," and "suddenly feel hot." Hearing respondents reported only two symptoms involving a physical component ("fullness of head/nose" and "acid stomach").

Again there is a suggestion that the items did not carry the same meaning for the two groups. More research is needed to better understand what indicators of mental problems are most accurate and appropriate for deaf persons.

Recommendations

In terms of the research questions posed in Chapter I, this study did not produce the expected results. The comparisons yielded results of questionable validity, and the efficacy of social support as a preventive tool was not demonstrated. However, as with many studies, important research directions became evident. With this study these directions were related to deaf culture and cross-cultural research.

The first direction centers on the social norms surrounding the perception and use of social support by deaf persons. Research is needed to investigate the structure of support in terms of the deaf community. The results of this study indicated that measuring social support based on the majority (hearing) culture's concepts will not prove useful. The structure and size of the deaf community seem to produce a level of intimacy that changes the rules of support-seeking and support-providing. One way to better describe the norms relating to social support for deaf persons was mentioned previously--the N-of-1 research design focusing on deaf persons at risk for stress (e.g., graduating seniors at residential schools for the deaf).

A second direction revolves around the measurement of psychological distress. The frequency distribution of the deaf respondents' scores indicated a different response pattern than for the hearing respondents. It was suggested the characteristics of being deaf may have influenced the probability of endorsement of items. It was also noted that symptoms involving a physical component were among the most frequently endorsed by deaf respondents. Hearing respondents did not show that pattern. Again it seems necessary to define psychological distress in terms of the culture so that appropriate measurement may follow.

Research relating to the influence of social support and life events on psychological states should not be limited to psychological distress. The range of outcome variables should be expanded to gain a more complete picture of deaf persons' adjustment to a hearing world. Potentially useful constructs include quality of life, life satisfaction, self-esteem, acceptance of disability, coping styles, and attitudes toward hearing persons. Investigating these constructs will better demonstrate the usefulness of social support as a preventive method for intervention.

The final research direction involves the general strategy for research with deaf persons. A common technique has been to compare deaf persons to their hearing counterparts on various psychological processes (e.g., Myklebust, 1964). Many times these studies did not mention the influence of deaf culture on the findings. At the time such research was being conducted, the effects of the

perceptual differences between deaf and hearing persons were emphasized. Relatively little attention was given to socio-cultural and linguistic influences. However, with the linguistic research of Stokoe (1980) and the subsequent recognition of ASL as a language, the cultural factors of deafness have received greater attention (as exemplified by scholarly works such as Sign Language and the Deaf Community (Baker & Battison, editors) and Sign and Culture (Stokoe, editor).

The present study has indicated that cultural factors may be very powerful influences. To better insure that research results reflect the world of deaf persons, a cross-cultural approach is necessary. The nature of deafness is not just the absence of hearing. There are implications that are linguistic, cultural and psychological. For the deaf person there is a degree of involvement in and acceptance of the majority culture, as well as an inevitable degree of separation from it. It is this unique blending of cultural influences that needs to be defined and understood for deaf populations so that research can be effectively conducted.

LIST OF REFERENCES

LIST OF REFERENCES

Alexander, F. (1948). Psychologic factors in gastrointestinal disturbances: General principles, objectives, and preliminary results. In F. Alexander, & T. M. French (Eds.), Studies in psychosomatic medicine. New York: Ronald Press Co.

Andrews, G., Tennant, C., Hewson, D. M., & Vaillant, G. E. (1978). Life event stress, social support, coping style, and risk of psychological impairment. Journal of Nervous and Mental Disease, 166, 307-315.

Baker, C., & Cokely, D. (1980). American sign language: A teacher's resource text on grammar and culture. Silver Spring, MD: T. J. Publishers, Inc.

Barrera, M. (1981). Social support in the adjustment of pregnant adolescents: Assessment issues. In B. H. Gottleib (Ed.), Social networks and social support. Beverly Hills: Sage.

Brown, G. W., & Birley, J. L. T. (1968). Crisis and life changes and the onset of schizophrenia. Journal of Health and Social Behavior, 9, 203-214.

Cassel, J. (1974). Psychosocial processes and "stress": Theoretical formulation. International Journal of Health Services, 4, 471-482.

City Directory Company of Knoxville. (1982). Knoxville Tennessee City Directory 1983. Knoxville, TN: Author.

Dohrenwend, B. P., Oksenberg, L., Shrout, P. E., Dohrenwend, B. S., & Cook, D. What brief psychiatric scales measure. In S. Sudman (Ed.), Proceedings of the Third Biennial Conference on Health Survey Research Methods. Washington, DC: National Center for Health Statistics and National Center for Health Services Research (in press).

Dohrenwend, B. S., Krasnoff, L., Askenasy, A. R., & Dohrenwend, B. P. (1978). Exemplification of a method for scaling life events: The PERI life events scale. Journal of Health and Social Behavior, 19, 205-229.

Frank, J. D. (1973). Persuasion and healing. Baltimore: John Hopkins University Press.

Gersten, J. C., Langner, T. S., Eisenberg, J. C., & Orzeck, L. (1974). Child behavior and life events: Undesirable change or change per se? In B. S. Dohrenwend & B. P. Dohrenwend, (Eds.), Stressful life events: Their nature and effects. New York: John Wiley and Sons.

Gore, S. (1978). The effect of social support in moderating the health consequences of unemployment. Journal of Health and Social Behavior, 19, 157-165.

Goulder, T. J. (1976, May 18-19). Federal and state mental health programs for the deaf in hospitals and clinics. Paper presented at the Orthopsychiatric Workshop on Deafness, Washington, D.C.

Heller, K., & Swindle, R. W. (1983). Social networks, perceived social support, and coping with stress. In R. D. Fellner & L. A. Jason (Eds.), Preventive Psychology: Theory, Research and Practice. Elmsford, NY: Pergamon Press.

Hetzel, B. S., Grace, W. J., & Wolff, H. G. (1956). General metabolic changes during stressful life experiences in man. Journal of Psychosomatic Research, 1, 186-202.

Hirsch, B. J. (1980). Natural support systems and coping with major life changes. American Journal of Community Psychology, 8, 159-172.

Hoemann, H. W., & Briga, J. I. (in press). Hearing impairment. In J. Kauffman & D. P. Hallahan (Eds.), Handbook of Special Education.

Holmes, T. H., & Masuda, M. (1974). Life changes and illness susceptibility. In B. S. Dohrenwend & B. P. Dohrenwend (Eds.), Stressful life events: Their nature and effects. New York: John Wiley and Sons.

Holmes, T. H., & Rahe, R. H. (1967). The social readjustment rating scale. Journal of Psychosomatic Research, 11, 213-218.

Jacobs, L. M. (1974). A deaf adult speaks out. Washington, D.C.: Gallaudet College Press.

Kaplan, B. H., Cassel, J. C., & Gore, S. (1977). Social support and health. Medical Care, 15(supplement), 47-58.

Kenny, D. A. (1979). Correlation and causality. New York: John Wiley and Sons.

Langner, T. S. (1962). A twenty-two item screening score of psychiatric symptoms indicating impairment. Journal of Health and Human Behavior, 3, 269-276.

Leavy, R. L. (1983). Social support and psychological disorder: A review. Journal of Community Psychology, 11, 3-21.

Lin, N., Ensel, W. M., Simeone, R. S., & Kuo, W. (1979). Social support, stressful life events, and illness: A model and an empirical test. Journal of Health and Social Behavior, 20, 108-119.

Lowenthal, M. F., & Haven, C. (1968). Interaction and adaptation: Intimacy as a critical variable. American Sociological Review, 33, 20-30.

Masuda, M., & Holmes, T. H. (1967). Magnitude estimations of social readjustments. Journal of Psychosomatic Research, 11, 219-225.

Meadow, K. P. (1980). Deafness and child development. Berkeley: University of California Press.

Mueller, D. P., Edwards, D. W., & Yarvis, R. M. (1977). Stressful life events and psychiatric symptomatology: Change or undesirability? Journal of Health and Social Behavior, 18, 307-317.

Myers, J. K., Lindenthal, J. J., & Pepper, M. P. (1971). Life events and psychiatric impairment. Journal of Nervous and Mental Disease, 152, 149-157.

Myers, J. K., Lindenthal, J. J., & Pepper, M. P. (1975). Life events, social integration and psychiatric symptomatology. Journal of Health and Social Behavior, 16, 421-427.

Myers, J. K., Lindenthal, J. J., Pepper, M. P., & Ostrander, D. R. (1972). Life events and mental status: A longitudinal study. Journal of Health and Social Behavior, 13, 398-406.

Myklebust, H. R. (1964). The psychology of deafness: Sensory deprivation, learning, and adjustment, 2nd Edition. New York: Grune & Stratton.

Nash, J. E., & Nash, A. (1981). Deafness in society, Lexington, MA: D. C. Heath and Company.

Padden, C. (1980). The deaf community and the culture of deaf people. In C. Baker & R. Battison (Eds.), Sign language and the deaf community: Essays in honor of William C. Stokoe. National Association of Deaf.

Paykel, E. S. (1974). Life stress and psychiatric disorder: Applications of the clinical approach. In B. S. Dohrenwend & B. P. Dohrenwend (Eds.), Stressful life events: Their nature and effects. New York: John Wiley and Sons.

Quigley, S. P., & Kretschmer, R. E. (1982). The education of deaf children: Issues, theory and practice. Baltimore: University Park Press.

Rabkin, J. G., & Struening, E. L. (1976). Life events, stress, and illness. Science, 194, 1013-1020.

Robinson, L. D. (1978). Sound minds in a soundless world. Washington, DC: Department of Health, Education and Welfare.

Sachs, B. B., Robinson, L. D., & Sloan, M. (1978). The mental health needs of deaf Americans. Mental Health in Deafness, Experimental Issue 2, 6-13.

Sarason, S., Levine, M., Goldenberg, I. I., Cherlin, D., & Bennett, E. M. (1966). Psychology in community settings: Clinical, educational, vocational, social aspects. New York: John Wiley and Sons.

Schein, J. D., & Delk, M. T. (1974). The deaf population in the United States. Silver Spring, MD: National Association of the Deaf.

Schlesinger, H. (1978). Mental health and deafness. Gallaudet Today, 9, 14-18.

Schlesinger, H., & Meadow, K. P. (1972). Sound and sign. Los Angeles: University of California Press.

Schottstaedt, W. W., Grace, W. J., & Wolff, H. G. (1956). Life situations, behaviors, attitudes, emotions, and renal excretion of fluid and electrolytes--I. Method of study. Journal of Psychosomatic Research, 1, 203-211.

Schroedel, J. G., & Jacobsen, R. J. (1978). Employer attitudes towards hiring persons with disabilities: A labor market research model. Albertson, NY: Human Resource Center.

Seiler, L. H., & Summers, G. F. (1974). Toward an interpretation of items used in field studies of mental illness. Social Science and Medicine, 8, 459-467.

Selye, H. (1973). The evolution of the stress concept. American Scientist, 61, 692-699.

Selye, H. (1976). The stress of life. New York: McGraw Hill.

Stokoe, W. C. (1980). Sign and culture: A reader for students of American sign language. Silver Spring, MD: Linstok Press.

Taube, C. A. (1978). Assessing the supply of mental health resources. Statistical Notes for Health Planners, 7, 1-15.

Teuting, P., Koslow, S. H., & Hirschfeld, R. M. A. (1981). Science reports: Special report on depression research. (National Institute of Mental Health, DHHS Publication No. (ADM) 81-1085). Rockville, MD: U.S. Department of Health and Human Services.

Thoits, P. A. (1982). Conceptual, methodological, and theoretical problems in studying social support as a buffer against life stress. Journal of Health and Social Behavior, 23, 145-159.

Tolsdorf, C. (1976). Social networks, support, and coping: An exploratory study. Family Process, 15, 407-417.

Triandis, H. C., & Brislin, R. W. (1984). Cross-cultural psychology. American Psychology, 39, 1006-1016.

Turner, R. J. (1981). Social support as a contingency in psychological well-being. Journal of Health and Social Behavior, 22, 357-367.

U.S. Department of Health, Education, & Welfare. (1975). State vocational rehabilitation agency fact sheet booklet: Fiscal year 1974. Washington, DC: Author.

U.S. Department of Health, Education & Welfare. (1976). State vocational rehabilitation agency fact sheet booklet: Fiscal year 1975. Washington, DC: Author.

U.S. Department of Health, Education & Welfare. (1977). State vocational rehabilitation agency fact sheet booklet: Fiscal year 1976. Washington, DC: Author.

Wilcox, B. (1981a). Social support in adjusting to marital disruption: A network analysis. In B. H. Gottleib (Ed.), Social networks and social support. Beverly Hills: Sage.

Wilcox, B. (1981b). Social support, life stress, and psychological adjustment: A test of the buffering hypothesis. American Journal of Community Psychology, 9, 371-386.

Wilcox, B. (1982, November). Personal communication.

Williams, A. W., Ware, J. E., Jr., & Donald, C. A. (1981). A model of mental health, life events, and social supports applicable to general populations. Journal of Health and Social Behavior, 22, 324-336.

APPENDICES

APPENDIX A

LANGNER SYMPTOM CHECKLIST

	Original Item	Revised Item
1.	I feel weak all over most of the time.	I feel weak all the time.
2.	I have had periods of days, weeks or months when I couldn't take care of things because I couldn't "get going."	Sometimes for days, weeks, or months, I can't finish my work (at home, at work, etc.). I don't want to do it, or I don't care.
3.	In general, would you say that most of the time you are in high (very good) spirits, good spirits, low spirits, or very low spirits?	Do you feel very happy, happy, sad, or very sad everyday?
4.	Every so often I suddenly feel hot all over.	Sometimes my body becomes so hot.
5.	Have you ever been bothered by your heart beating hard? Would you say: often, sometimes, or never?	Does your heart beat fast? Yes, often; yes, sometimes; never.
6.	Would you say your appetite is poor, fair, good, or too good?	Is your eating poor, fair, good, or too good?
7.	I have periods of such great restlessness that I cannot sit long in a chair (cannot sit still long).	Sometimes I can't sit quiet on a chair.

8.	Are you the worrying type (a worrier)?	Do you worry always?
9.	Have you ever been bothered by nervousness (irritable, fidgety, tense)? Would you say: often, sometimes, or never?	Have you had nervousness before? Yes, often; yes, sometimes; never.
10.	Have you ever had fainting spells (lost consciousness)? Would you say: often, sometimes, or never?	Have you ever fainted (blacked out, knocked out, k.o.) before? Never; yes, once; yes, sometimes.
11.	Have you ever been bothered by shortness of breath when you are not exercising or working hard? Would you say: often, sometimes, or never?	Have you had hard breathing when you were not playing or working hard? Yes, often; yes, sometimes; never.
12.	Do you ever have trouble in getting to sleep or staying asleep? Would you say: often, sometimes, or never?	I can't sleep or stay asleep. Yes, often; yes, sometimes; never.
13.	I am bothered by acid (sour) stomach several times a week.	Sometimes I feel a burning or hot stomach.
14.	My memory seems to be all right (good).	I can remember many things (I have a good memory).
15.	Have you ever been bothered by "cold sweats"? Would you say: often, sometimes, or never?	Often I become and feel cold and wet (sweaty) fast.

16.	Do your hands tremble enough to bother you? Would you say: often, sometimes, or never?	Did your hands shake in the past? Yes, often; yes, sometimes; never.
17.	There seems to be a fullness (clogging) in my head or nose much of the time.	Often my nose or head feels full, and I can't breathe through my nose.
18.	I have personal worries that get me down physically (make me physically ill).	I worry too much and become sick.
19.	Do you feel somewhat apart even among friends (apart, isolated, alone)?	I feel my friends don't like me. I feel alone.
20.	Nothing ever turns out for me the way I want it to (turns out, happens, comes about, i.e., my wishes were not fulfilled).	I never get the things I want (new car, good friends, nice house, much money, etc.).
21.	Are you ever troubled with headaches or pains in the head? Would you say: often, sometimes, or never?	Have you had headaches or pains in the head? Yes, often; yes, sometimes; never.
22.	You sometimes can't help wondering if anything is worthwhile anymore.	Sometimes I think I don't care about anything (the world, other people, etc.).

APPENDIX B

PERI LIFE EVENTS SCALE

Original Item	Revised Item
Graduated from school or training program.	not changed
Had problems in school or in training program.	not changed
Failed school or training program.	not changed
Started work for the first time.	not changed
Changed jobs for a better one.	not changed
Changed jobs for a worse one.	Changed jobs for a bad one.
Had trouble with a boss.	not changed
Found out that I was not going to be promoted.	Found out that I was not getting a better job in the same place.
Laid off.	not changed
Fired.	not changed
Became engaged.	Asked someone to marry me and he or she said yes.

Married.	not changed
Relations with spouse changed for the worse, without separation or divorce.	Had problems with husband or wife, without separation or divorce.
Divorced.	not changed
Promoted.	Got better job in the same place.
Spouse died.	Husband or wife died.
Birth of first child.	not changed
Miscarriage or stillbirth.	Lost baby before birth or baby born dead.
Found out cannot have children.	not changed
Person moved out of the household.	Person moved out of my home.
Serious family argument other than with spouse.	Big family argument, argued with family, not husband or wife.
Family member other than spouse died.	Family member died, not husband or wife.
Moved to a worse residence or neighborhood.	Moved to a bad house, apartment or neighborhood.
Built a home or had one built.	Built a home.
Lost a home through fire, flood, or other disaster.	Lost a home by fire, flood, or bad weather.

Assaulted.	Assaulted (someone hurt me, fight with me, beat me).
Robbed.	not changed
Accused of something for which a person could be sent to jail.	Accused (blamed) for something for which a person could be sent to jail.
Lost driver's license.	not changed
Arrested.	Arrested (Police said I did something wrong and put me in jail).
Convicted of a crime.	Convicted of a crime (Judge said your fault, broke rules or laws as stealing, fighting, drugs, etc.).
Started buying a car, furniture, or other large purchase on the installment plan.	Started buying a car, furniture, or other large buy on credit or loan.
Took a cut in wage or salary without a demotion.	Cut in your paycheck.
Got a substantial increase in wage or salary without a promotion.	Got a big raise on your paycheck.
Did not get an expected wage or salary increase.	Should get a big raise on your paycheck, but did not.
Took a vacation.	Went on a vacation.
Took up a new hobby, sport, craft or recreational activity.	Started a new hobby, sport, or craft.
Pet died.	not changed

Broke up with a friend.	not changed
Close friend died.	Good (close) friend died.
Physical illness.	Had a physical illness.
Injury.	Had an injury.
Unable to get treatment for an illness or injury.	Couldn't get a doctor's help or nurse's help for illness or injury.
Married couple separated.	not changed
Physical health improved.	not changed
Moved to a better residence or neighborhood.	Moved to a better house, apartment or neighborhood.

APPENDIX C

SOCIAL SUPPORT INDEX

	Original Item	Revised Item
1.	There is at least one I know whose advice I really trust.	I know a person who advises me very good. (If you know more than one person, still answer true.)
2.	There is someone who will give me suggestions about activities for recreation or entertainment.	Suppose I wanted some fun to do. I could ask a person for ideas.
3.	There is really no one who can give me objective feedback about how I'm handling my problems.	No person can tell me how good or bad I am doing with my problems.
4.	When I need suggestions, for how to deal with a personal problem, I know someone I can turn to.	Suppose I needed help with my own problems. I could go see a person to advise me (give me me ideas).
5.	There is no one who I feel comfortable going to for advice about sexual matters.	I can't ask my family or friends to help me with sexual problems.
6.	I feel that there is no one with whom I can share my most private worries and fears.	Suppose I wanted to talk about my feelings, fears, and worries. I can't tell my family or friends how I feel.
7.	If a family crisis arose few of my friends would be able to give me good advice about handling it.	Suppose a bad family problem happened. I could ask a friend to help me with it.

8.	There are few people I trust to help solve my problems.	I can trust few people for good advice about my problems.
9.	There is someone I could turn to for advice about changing my job or finding a new one.	Suppose I wanted a new job. I could go see a family person or friend and talk about the job.
10.	There are several different people with whom I enjoy spending time.	I have several good friends, and I like doing things with them.
11.	I don't often get invited out to do things with others.	Often people don't ask me to go out (to a party, to a ball game, to eat, etc.).
12.	If I wanted to have lunch with someone, I could easily find someone to join me.	Suppose tomorrow I wanted to eat at a restaurant. I could ask a friend to go with me.
13.	Most people I know don't enjoy the same things that I do.	I like doing some things which my friends don't like to do.
14.	When I feel lonely, there are several people I could call and talk to.	Suppose I feel lonely. I could ask a friend or family person to talk to me.
15.	I regularly meet or talk with members of my family or friends.	Often I meet with or talk to my family or friends.
16.	If I wanted to go out of town (e.g., to the coast) for the day, I would have a hard time finding someone to go with me.	Suppose I wanted to go to the mountains all day. I could ask a person to go with me.
17.	If for some reason I were put in jail, there is someone I could call who would bail me out.	Suppose I was arrested (Police put me in jail). I could ask a person to pay my bail (pay money to Police to get me out of jail).

18.	If I had to go out of town for a few weeks, someone I know would look after my house (the plants, pets, yard, etc.).	Suppose I wanted to leave Knoxville for a few weeks. I could ask someone to watch my house (the yard, pets, etc.).
19.	If I were sick and needed someone to drive me to the doctor, I would have trouble finding someone.	Suppose I was sick and needed to go to the doctor. I could ask a person to take me to the doctor.
20.	There is no one I could call if I needed to borrow a car for a few hours.	Suppose I needed to borrow a car. A friend or family person would let me borrow his/her car.
21.	If I needed a quick emergency loan for $100, there is someone I could get it from.	Suppose I needed $50 now. I could borrow the money from a friend or family person.
22.	If I needed some help in moving to a new home, I would have a hard time finding someone to help me.	Suppose I was moving to a new house. I could ask a person to help me.
23.	If I were sick, there would be almost no one I could find to help me with my daily chores.	Suppose I was sick. I could ask a friend or famiy person to help me with my everyday chores (cleaning, dishes, cooking, etc.).
24.	If I had to mail an important letter at the post office by 5:00 and couldn't make it, there is someone who could do it for me.	Suppose I needed to mail a letter at the Post Office by 5 P.M. I could ask a person to mail it for me.
25.	If I needed a ride to the airport very early in the morning, I would have a time finding anyone to take me.	Suppose I needed to go to the bus station early in the morning. I could ask a person to take me.

APPENDIX D

ITEMS NOT INCLUDED ON THE REVISED VERSION OF THE SSI

There is someone I can turn to for advice about handling hassles over household responsibilities.

If I decide on a Friday afternoon that I would like to go to a movie that evening, I could find someone to go with me.

No one I know would throw a birthday party for me.

I feel that I'm on the fringe in my circle of friends.

If I got stranded 10 miles out of town, there is someone I could call to come and get me.

APPENDIX E

TABLE E-1

CROSSTABULATION OF PAST PSYCHOLOGICAL SYMPTOMS
BY EMPLOYMENT STATUS
(HEARING, N=59)

Past Symptoms Observed f (Expected f)	Employment Status		χ^2	
	Working	Non-working		
Low	28 (23.9)	4 (8.1)		
High	16 (20.1)	11 (6.9)	4.76*	.32

*$p<.05$ (with Yates' correction)

TABLE E-2

CROSSTABULATION OF PERCEIVED SUPPORT AVAILABILITY BY AGE
(HEARING, N=61)

Perceived Support Availability Observed f (Expected f)	Age		χ^2	C
	21-30	31 and Older		
Low	2 (5.0)	9 (6.0)		
Moderate	9 (10.1)	13 (11.9)		
High	17 (12.9	11 (15.1)	6.10*	.30

*$p<.05$

TABLE E-3

CROSSTABULATION OF PAST DESIRABLE LIFE EVENTS BY VOLUNTARY ASSOCIATIONS
(HEARING, N=61)

Past Desirable Events Observed f (Expected f)	No. of Voluntary Associations 0-1	2 or More	χ^2	
Low	16 (20.5)	32 (27.6)		
High	10 (5.5)	3 (7.4)	6.26*	.36

*$p<.02$ (with Yates' correction)

TABLE E-4

CROSSTABULATION OF UNDESIRABLE LIFE EVENTS FOR ONE YEAR BY VOLUNTARY ASSOCIATIONS
(HEARING, N=61)

Undesirable Events for One Year Observed f (Expected f)	No. of Voluntary Associations 0-1	2 or More	χ^2	
Low	22 (17)	18 (23)		
High	4 (9)	17 (12)	5.88*	.31

*$p<.025$ (with Yates' correction).

TABLE E-5

CROSSTABULATION OF PAST UNDESIRABLE LIFE EVENTS BY AGE
(DEAF, N=49)

Past Undesirable Events Observed f (Expected f)	Age		χ^2	L
	21-40	41 or Older		
Low	8 (13.2)	15 (9.9)		
High	20 (14.8)	6 (11.1)	7.21*	.39

*$p<.01$ (with Yates' correction)

TABLE E-6

CROSSTABULATION OF PAST UNDESIRABLE LIFE EVENTS BY EMPLOYMENT STATUS
(DEAF, N=48)

Past Undesirable Events Observed f (Expected f)	Employment Status		χ^2	
	Working	Non-working		
Low	13 (17)	9 (5)		
High	24 (20)	2 (6)	5.68*	.32

*$p<.025$ (with Yates' correction)

TABLE E-7

CROSSTABULATION OF TOTAL LIFE EVENTS FOR ONE YEAR
BY EMPLOYMENT STATUS
(DEAF, N=48)

Total Events for One Year Observed f (Expected f)	Employment Status Working	 Non-working	χ^2	L
Low	13 (17.7)	10 (5.3)		
High	24 (19.3)	1 (5.7)	8.45*	.39

*$p<.004$ (with Yates' correction)

TABLE E-8

CROSSTABULATION OF DESIRABLE LIFE EVENTS FOR ONE YEAR
BY EMPLOYMENT STATUS
(DEAF, N=48)

Desirable Events for One Year Observed f (Expected f)	Employment Status Working	 Non-working	χ^2	
Low	15 (18.5)	9 (5.5)		
High	22 (18.5)	2 (5.5)	4.25*	-.35

*$p<.05$ (with Yates' correction)

VITA

Randolph Leigh Mowry was born in Staunton, Virginia on July 4, 1953. He attended the Augusta County public schools, graduating from Wilson Memorial High School in 1971.

His college education was acquired at the College of William and Mary in Williamsburg, Virginia. He graduated in 1975 with a Bachelor of Arts degree in Anthropology.

After graduation Randolph worked for one year as an excavator on several archeological sites in eastern Virginia. From 1976 to 1979 he was employed in a Virginia state mental hospital in the children and youth program. In 1979 Randolph entered graduate school at The University of Tennessee, Knoxville to pursue a doctoral degree in Community Psychology. He was elected a member of the Phi Kappa Phi national honor society in 1981.

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