IDENTIFICATION OF THE HIGH RISK BEREAVED OF THE MT. ST. HELENS DISASTER

by

Mary Ellen Cowan, R.N., B.S.

A Thesis

Presented to
The Oregon Health Sciences University
School of Nursing
in partial fulfillment
of the requirements for the degree of
Master of Nursing

June 11, 1982

APPROVED:

[redacted]

Shirley A. Murphy, R.N., Ph.D., Associate Professor, Thesis Advisor

[redacted]

Beverly Hoeffer, R.N., D.N.Sc., Associate Professor, First Reader

[redacted]

May Rawlinson, R.N., Ph.D., Professor, Second Reader

[redacted]

Carol A. Lindeman, R.N., Ph.D., Dean, School of Nursing

ACKNOWLEGEMENTS

I would like to thank my thesis committee for their help in expediting the process to allow my completion by June.

I especially want to thank Shirley Murphy, my advisor, for her patience and continuing encouragement throughout the process. Also for the use of the invaluable data which was the basis of this study.

Additional thanks goes to my friend and typist Janelle McLeod, whose support and encouragement was an important factor in my completion.

Finally I want to thank my husband, Terry and my daughter, Kathleen, for their support and continuing faith in my completion. Thank you all, very much.

This study was supported by traineeships from the United States Public Health Service Grant Numbers 2 ALL NU00250-05 and 2 ALL NU00250-06.

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CHAPTER I

INTRODUCTION

The death of a significant other can be and generally is a most difficult experience for most individuals. Grief and bereavement have elicited a phletora of attention within the literature since the late fifties. However, emphasis has been on understanding, explaining, and describing grief, its symptoms, the responses to grief and the grief process. Only recently have researchers and clinicians focused on both short-term grief responses and the long-term recovery from bereavement. Criteria are now suggested to identify the bereaved who are at risk for psychological and physiological pathology. The indicators for possible risk are divided into groups of risk markers and risk factors. This study examines data obtained from a study of the bereaved persons of the Mount Saint Helens' disaster (Murphy, 1981) and will attempt to determine whether or not those at risk are identifiable. The question then becomes, what risk markers and risk factors are most predictive in identifying the bereaved at risk for psychological and physiological impairment?

Psychiatric nurses frequently are confronted with patients suffering from the effects of loss. Losses may be the death of a significant other, loss through divorce or separation, or loss of some other important aspect in their lives, such as a job, home, or body part. In all instances, however, the process the individual goes through in dealing with the grief of one's loss is thought to be the same or a similar process involved in dealing with the grief of bereavement. Whether or not the criteria for predicting the bereaved at risk are also predictors for other losses is beyond the scope of this study, but

would be a worthwhile topic for future study. In the Mount Saint Helens' disaster as well as in all disasters, time and personnel are usually limited. It is important, therefore, to utilize those personnel and the professionals involved in the most effective manner. Nurses may be at disaster sites, receiving areas, or hospitals. Health professionals are needed to identify which persons may need intervention to reduce or eliminate pathology as a result of catastrophic loss. The problem is that high risk bereaved individuals may develop psychological or physiological pathology if not identified promptly and appropriate intervention initiated. The importance of identifying persons at risk is consistent with primary prevention aimed at reducing psychiatric morbidity. The value of intervention at the time of a life crisis such as bereavement is to reduce vulnerability and direct the person toward improved mental health (Demi, 1978).

Basic Concepts and Definitions

The concepts of loss and bereavement are of primary importance in all disasters whether or not a death occurs, as a loss of property can also cause a grief response. Additionally, the concept of high-risk which is important to this study also aids in learning how to effectively use personnel in primary prevention.

Loss

Loss occurs when an individual is deprived of someone or something which one previously had (Peretz, 1970). A loss can take a number of forms, such as the loss of another through death or divorce or loss of health or physical functioning which can manifest itself in losses of self-esteem or as a loss of social roles. Other losses may be external

such as loss of money or one's home. Another type of loss can be developmental and occurs in the normal process of growth and development.

Loss is always unique to the individual experiencing it. Each person attaches his/her own personal meaning to their perception of the loss (Peretz, 1970). Since loss is a universal experience, it occurs to everyone and thus is often overlooked as a precursor of disease and dysfunction. This loss phenomena places the bereaved person at a greater risk following a death of a significant other. When the loss is traumatic, such as in the disaster of Mount Saint Helens, the shock of the event may be so great as to permit the person to regress to an earlier and more primitive method of coping. At this time a person may utilize defenses such as repression to alleviate one's overwhelming feelings of anxiety.

The focus of the therapist working with a bereaved person is to assist the individual in integrating one's loss and in helping individuals realize that personal survival depends on it. Grief is the most common and is considered the most adaptive reaction to loss (Peretz, 1970). The grief process itself helps the bereaved individual break the ties one had with the deceased person, and encourages friends and relatives to extend the type of support the bereaved individual requires.

Bereavement

Bereavement is that state conferred upon a person who has experienced a loss of a significant other. The state of bereavement is considered an illness by some authorities (Peretz, 1970; Stoddard, 1978)

as it is characterized by a differing feeling state from what the individual normally experiences. This state is generally associated with physical and emotional symptoms. Normal bereavement in which one experiences grief is usually limited in time and intensity and does not require professional intervention. Other types of bereavement may be maladaptive and not reach resolution without professional intervention.

The physical and emotional symptoms experienced during bereavement are the manifestations of grief. Grief is the process through which the bereaved person reintegrates oneself back to a life without the deceased. The manifestations of grief are varied, usually characterized by intense sorrow and distress. Physical symptoms are another frequent manifestation, such as a tightness of the throat, weakness, exhaustion, insomnia and loss of appetite. Anxiety, tension, and agitation are often experienced as an initial reaction to a loss. The bereaved may feel they are losing control and may fear they are losing their mind. Symptoms such as feelings of unreality and illusions that the dead person is seen or heard within the house add to this fear as well as the intensity of the feelings (Peretz, 1970).

Feelings of guilt and/or anger at the deceased for leaving them may also plague the bereaved. Depression with feelings of suicide may be experienced, especially if the bereaved feel a sense of helplessness about the future. A tendency to blame others for the loss is another way some persons attempt to cope with the painful feelings. Bereavement and the grief process itself has a variable duration. It may last from six months to one year, though the acute phase is frequently completed

within one to two months (Peretz, 1970). Each person will experience and cope with loss according to individual personalities and prior coping mechanisms. The process itself may be assessed by the bereaved returning to normal levels of functioning prior to the loss. The development of pathology either physical or psychological through which the bereaved does not progress in the grief process is indicative of the need for professional intervention to assist the bereaved in expressing one's grief.

High Risk

With the advent of an increasing population of persons utilizing mental health services, the mental health clinics are setting priorities to deal with this influx. Some clinics thus only deal with special needs, such as alcoholism or drug addiction, while others deal with the chronic population. These are populations of persons who are most likely to suffer an increased amount of pathology if not treated expediently. With some it may be the risk of an increased likelihood of death or mortality. With others it may be an increased likelihood of morbidity or an increased degree of symptoms or other pathology.

Risk for this study is defined as an exposure to mischance or peril. This definition implies that the adverse condition is preceded by a factor which increases the probability of this adverse condition (Grundy, 1973). This approach to risk delineates two terms; risk marker which is used to describe groups who are vulnerable to risk factors. These risk markers (i.e. age, sex, race, etc.) are considered not amenable to intervention because they are inherent in the individual. The second term risk factor, is either an environmental or endogenous

characteristic which antedates the onset of the adverse condition or is associated with the deterioration of the condition, such as the brutal nature or circumstances of a death, one's prior relationship with the deceased, or one's negative perception of a supportive network. These characteristics are to be present to a degree for which intervention is both possible and worthwhile (Grundy, 1973). These risk factors will vary for different high risk groups. This study considers the factors identified for the high risk bereaved population. High risk presupposes a considerable trauma has taken place which places the individual in a position to which one is vulnerable to developing physiological or psychological pathology (Lancaster, 1980).

Bereavement, then, is one of the most traumatic experiences many of us will ever experience. Although much has been written about death, grief and bereavement, little has been published on identifying those bereaved who are at risk for developing pathology. The risk markers and risk factors which have been identified in recent literature are utilized in this study to determine whether the bereaved of the Mount Saint Helens' disaster who are at risk are identifiable. The overall purpose of this study is to examine the data (Murphy, 1981) and to predict whether or not the identified risk markers and risk factors have predictive value. This was done by examining the relationships between the risk indicators and the degree of pathology of the bereaved survivors as determined by the outcome measures obtained from the data.

Review of the Literature

This review examines literature which identifies subjects at risk for post bereavement psychological impairment. Included will be earlier

literature which identifies increased mortality and morbidity among the bereaved and those which corroborate the more recent high-risk literature. The risk markers will be identified. These markers do not necessarily cause the increased risk, but do aid in delineating the subjects who are most susceptible. The risk factors considered to be predictive of those persons at risk will also be identified. Additionally, Bugen's model (1977) which aids in determining the degree of risk will be examined.

Mortality and Morbidity

For the purpose of this study, only the adult bereavement literature was reviewed. Studies regarding adult bereavement primarily concern widowhood. There are very few studies that report the effects of the death of one's adult child, an intimate friend, or other kinship attachments and loss.

Morbidity has frequently been measured by the number of visits the bereaved makes to a physician. These visits may be either psychiatric or non-psychiatric consultation, though frequently a general physician may be consulted for both. In a study of a matched group of widows in Boston and Sydney, it was found that widows under 60 years of age had many more complaints about their health and sought the care of a physician within the first year of bereavement (Maddison & Viola, 1968). A study by Parkes (1964) confirms increased physician visits within the first year of bereavement compared to a control period of 18 months prior to the bereavement in which the same subjects made fewer physician visits. There is a question as to whether the increased visits are due to the bereavement or to the loss of support which re-

sulted from the bereavement (Clayton, 1973). In another study, 40% of the widows (49 under the age of 45) consulted their physicians within eight weeks after the deaths of their spouses (Glick, Weiss, & Parkes, 1974).

While physicians' visits may be one way of assessing bereavement symptomology and risk, another approach is epidemiological. A study examining statistical data on mortality found a very high excess risk of mortality among the young widowed under 35 years of age (Kraus & Lilienfeld, 1959). This excess was compared to the married population and found the risk was ten to one for the widowed compared to the married. In an epidemiological literature review by Jacobs and Ostfeld (1977), it was concluded that there was an increased risk of mortality following the death of one's spouse.

An examination and analysis of the studies using cross-sectional and longitudinal research designs for determining high mortality risks for the bereaved revealed shortcomings in virtually every study (Stroebe, Stroebe, Gergen & Gergen, 1979). These researchers postulate alternative explanations that could account for the relationship between bereavement and an increased death rate. Further studies are suggested using improved methodology and controls to determine if the generality across age and sex actually exists.

Both mortality and morbidity, then, have been identified as bereavement outcomes. Specifically, widowed individuals report both physical and psychological symptoms, increased numbers of visits to doctors' offices and increased rates of death when compared to their non-widowed counterparts in the general population.

Risk Markers to Identify High Risk Bereaved

A risk marker helps to describe groups of individuals who are more vulnerable to the risk factors. Grundy (1973) considers these risk markers unamenable to intervention as they are not causal factors and intervention cannot change the status of the individual (i.e. age, sex, race).

Age. Kraus et al. (1959) found a significant increase in death rates in young widowed males (under 35) compared to married males of the same age category. Younger widowed are considered to be between the ages of 18-45 by several researchers (Ball, 1976-77; Maddison et al., 1968; Maddison & Walker, 1967). These researchers concur that there is an elevated risk for the young widowed population (male and female). In an overall review of the mortality of bereavement, the increased risk for the younger male, aged 20-34 is confirmed (Jacobs et al., 1977).

Sex. Maddison et al. (1968) reported that male widows showed a 50% increase in the number of deaths by coronary heart disease in the first six months of bereavement. Suicide rates for young male bereaved are extremely high in the first six months of bereavement while female bereaved were considered to be vulnerable much longer and reached a peak in vulnerability at two years after the loss (Ball, 1976-77). The risk for male bereaved decreases as the male's age advances (Jacobs et al., 1977). The data on males is a recent addition to the literature. Most bereavement studies considered widows. Thus, data indicates initial high risk for both sexes. Males appear to adapt sooner to the bereavement. Of the variables age and sex, age appears to be the more important high risk marker.

Kinship. While it has been well established that conjugal bereavement produces increased mortality and morbidity (Greenblatt, 1978; Parkes, 1974), bereaved parents have also been identified as a group with high morbidity (Herz, 1980). Findings from a recent disaster study resulting in sudden death, indicate that bereaved parents suffered more severe grief reactions than those widowed as a result of the event (Singh & Raphael, 1981). The sample consisted of 36 bereaved, of which 15 were widows, 9 widowers, 11 mothers and 8 fathers who had lost children. A control group was not used but subjects were assessed with questionnaires and a nondirective interview to determine the extent of the grief resolution (i.e. good, bad, or intermediate). Generally kinship and the severity of the grief reaction is a function of the type of attachment that is severed and is not often addressed in epidemiologic studies. Further kinship studies have focused on sibling response to terminal illness. Kinship response to sudden death and bereavement in young adulthood has not been studied systematically.

Socioeconomic status. The information on social class is generally inconclusive as many studies fail to include this data. Maddison (1968) reported that no significant difference was found in bereavement reactions among social classes. However, both age and socioeconomic status were considered important in predicting persons to be at risk for psychological impairment in a study reported by Sheldon, Cochrane, Bachon. Lyall, Rogers, and Freeman (1981). The study suggests low socioeconomic status to be predictive in identifying persons at risk. The study demonstrated similar findings as a study by Harvey and Bahr

(1980) in which the bereaved widows of a mine disaster were the subjects.

Risk Factors to Identify High Risk Bereaved

Grundy (1973) offers a concept of risk in which risk is defined as a hazard, danger, mischance or peril. The implication is that an adverse consequence is preceded by a factor or factors which would increase the probability of the adverse consequence. The assumption is that a risk factor is amenable to intervention which aids in decreasing morbidity, whereas it would not be possible for intervention to change a risk marker.

Perception and availability of social supports. In a study by Maddison (1968) it was postulated that a widow's supportive network could influence the effects of morbidity. It was suggested that a supportive network would decrease the incidence of morbidity and assist the widow toward managing her grief. Moreover, recent studies aimed at developing prevention programs to lessen psychiatric morbidity have examined the individual's social supports.

Raphael (1977) interviewed 200 widows several weeks after the loss of their spouses to identify widows who could be considered to be at risk for post bereavement morbidity. Sixty-four of the 200 widows were assigned at random to experimental and control groups. The experimental group received support and encouragement for their mourning, while the control group received none. All were followed up 13 months later with a questionnaire. The overall results indicated a decrease in morbidity for the experimental groups. Four risk factors were identified to delineate the bereaved widows at risk for morbidity. The factors were: high level perceived non-supportiveness of social

network, moderate level perceived non-supportiveness of social network occurring with traumatic circumstances of the death, previously highly ambivalent relationships with the deceased, and presence of concurrent life crises. The two factors most predictive in this study were the high level perceived non-supportive social network and prior ambivalent marital relationships.

A descriptive study in which a primary prevention program was initiated immediately after a rail disaster sheds further light on the importance of social supports to the bereaved (Raphael, 1979-80). Emergency counseling was provided for the bereaved victims of the disaster. High risk groups among the bereaved were identified and an effort was made to give those high risk persons special attention. One of the prime factors in identifying persons at risk is identifying those bereaved persons who had or perceived to have inadequate support for their grief. The sample consisted of persons who had lost a significant other following a major rail disaster. Due to the emergency of the situation, no controls were used. No information was given regarding the data collection tools, though reference was made to therapeutic formats. Neither were the results obtained from these assessments delineated, though the study claimed those reports would be forthcoming. Recommendations were included for further research and training of mental health persons to gain the special expertise required for dealing with disasters. In spite of the aforementioned deficits, the study provides valuable information toward expanding the information on the high risk bereaved.

A follow-up of Raphael's (1979-80) study was conducted 15 to 18

months later to assess the functioning of the bereaved victims of the rail disaster (Singh et al., 1981). Interviews and questionnaires were completed with 44 persons: 15 widows, 9 widowers, 11 mothers and 8 fathers who had lost children. The mean age of the deceased children in this study was 23 years, though case reports included children as young as age two. It was not until after Singh had obtained this information, that the information from the prior study by Raphael became known to him. At this point Singh and Raphael collaborated and interrelated their data.

Of the 44 persons interviewed by Singh, 19 had been identified previously by Raphael as being high risk. Since the high risk subjects did better on several outcome measures of health, the crisis intervention they had received earlier (Raphael, 1979-80) was credited for their lowered morbidity. Furthermore, Singh and Raphael suggested that sufficient high risk criteria are not yet available for groups other than widows as some subjects who were parents were not considered high risk by the criteria yet had a poor outcome for their bereavement. Death being a highly stressful life event suggests coping is required, which adds additional support for the importance of social support for the bereaved. Social supports which are available to an individual can increase a person's ability to cope with stress (Andrews, Tennant, Hewson, & Valliant, 1978).

In this study by Singh and Raphael (1981) the methodology and collection tools are clearly identified and well described. The instruments' validity are stated as is the manner in which they are used. Again as with the research by Raphael (1979-80) this study identifies

a population about which little had been validated and demonstrates improved measurement regarding catastrophic stress response.

Meaning of the event. The meaning of a death to the bereaved individual also seems to be a highly significant factor. Weisman (1973) described three kinds of untimely death: premature, unexpected, and calamitous. With each of these three categories of untimely death, persons respond according to factors surrounding the death. For example, a parent might feel guilty or neglectful for not having been able to protect a young child who died. Also, with an unexpected death the individual is left with the sudden shock and often experiences a sense of unreality. This is also true with a calamitous death, where, additionally, there is a sense of what one could have done to prevent the occurrence. The bereaved, in these circumstances, must also resolve the brutal nature of such a death. Likewise, traumatic circumstances surrounding a death can be both anger provoking as well as guilt provoking (Raphael, 1977, 1979-80). All of the above factors add to the psychic trauma of the death. The unexpectedness of the loss has been frequently shown to be experienced by the bereaved by a more severe grief reaction (Ball, 1976-77; Clayton et al., 1973; Greenblatt, 1978; Levinson, 1972). All three categories of untimely death as conceptualized by Weisman are important considerations in disaster death.

A model which deals with an individual's personal meaning of a death of a significant other was conceptualized by Bugen (1976). Bugen identifies two dimensions, centrality-peripherality and preventability-unpreventability. These two dimensions are thought to play an important role in both the intensity and the duration of the grief response. A

central relationship is seen as one in which the deceased's presence was so important that the bereaved individual feels there is no life without the deceased. The bereaved sees the love of the deceased person as an important part of one's daily nurturance. This type of relationship suggests an intense degree of grief upon the death of a loved one. A peripheral relationship is one in which a person's presence is felt and respected, but whose loss is not irreplaceable. In this case the grief response would be mild. A peripheral relationship also suggests that the bereaved's rewards and pleasures are not contingent upon the deceased. If the bereaved feels that the death was preventable, the belief will probably prolong the grief reaction. Conversely, the belief that nothing could have been done to divert the death absolves the bereaved from responsibility and guilt.

An intense grief reaction in Bugen's model (1976) could include both physical and psychological symptoms such a tightness of the throat, loss of appetite, insomnia, emotional waves of distress, depression and uncontrolled crying. A mild reaction is demonstrated by the absence or mildness of symptoms, though sadness, loneliness, and irritability may be experienced. Prolonged grief is seen as being extended beyond six months after the death and is characterized by continuing physical or psychological symptoms which require intervention for resolution. A reaction that is brief will be resolved within a two to six month period. A brief reaction may also reflect the absence of an emotional bond between the deceased and the bereaved.

Bugen's model (1976) further suggests four possible outcomes using the two dimensions: 1) a central relationship and a preventable death

would indicate an intense and prolonged grieving process; 2) a central relationship and an unpreventable death would suggest an intense but brief process; 3) for a peripheral relationship and preventable death belief, the grief process would be mild and prolonged; and 4) for a peripheral relationship and a non-preventable belief, the grief would be mild and brief. This model places persons into categories of intensity and duration of grief and when accompanied by the other factors can be an important adjunct in identifying the high risk population. Further, the model appears to be testable, but Bugen's article included a limited number of case studies, and offered no empirical findings.

Additional life crises. It has been suggested that additional negative life events close to, or at the time of a death of a significant other, play an important role in one's ability to cope with the presenting stress of both grief and the other event. Additionally, positive correlations between accumulated life stresses and mental illness have been reported by Cooper and Sylph (1973) and others (Lazare, 1979; Paykel, 1974; Rahe & Arthur, 1977; Rahe, 1979). Life event stress is seen as an important variable in an individual who lacks crisis support and has poor coping skills (Andrews et al., 1978). However, additional crises did not prove to be predictive in Raphael's study (1977). The experimental group consisted of 31 subjects and therefore may have been too small to be conclusive. Multiple bereavement and concurrent life crisis were used in identifying those at risk in two other recent studies (Raphael, 1979-80; Singh et al., 1981). Again the results were non-conclusive and suggested better criteria for identifying high risk

subjects are needed for subjects other than widowed.

Pre-existing problems with the deceased. Pre-existing problems within the relationship between the deceased and the bereaved was identified as a factor contributing to high risk for psychological morbidity (Raphael, 1977; 1979-80; Singh et al., 1981). A prior ambivalent relationship was not found to be predictive in the study by Singh and Raphael (1981). The total bereaved group consisted of 36 persons which is small and thus the findings are inconclusive and require further validation. In a study by Demi (1978) suicide survivors were compared to non-suicide survivors. While there were no statistically significant differences between the two groups, ambivalence played a major role in the widows' adjustment. Subjects who had a hostile relationship with their spouse but were able to verbalize positive and negative feelings tended to have a good outcome, whereas subjects who did not recognize or verbalize their ambivalence tended towards a poor outcome.

Additional Factors to Aid in Identification

In trying to understand individual's differing perceptions toward what constitutes support during a crisis, it has been suggested that personality is a factor (Maddison & Walker, 1967). Personality attributes and patterns of coping as well as individual appraisal of the events of the death also play an important role (Andrews et al., 1978; Sheldon et al., 1981). No validated instrument is available to date, however, to define a variety of coping styles. One study examining suicide and alcoholism found a high frequency of loss of personal relationships in the six weeks prior to the suicide of the alcoholic (Murphey, Armstrong, Hermele, Fischer, & Clendenin, 1979). This does seem to

confirm the suggestion that the way in which an individual ordinarily copes may, in fact, be predictive of how they will cope with a death of a significant other. Weisman (1973) suggests persons will cope in ways accepted by social norms of the community. These norms may then assist or deter the individual on the expression of one's grief. This suggests that the community of the alcoholic both accepts the drinking as a way of coping while at the same time deterring the appropriate grief responses.

Summary of the Review

There appears to be overwhelming support for findings of an increased morbidity and mixed support for increased mortality in the bereaved following a death of a significant other. The reason for the increase is still in question as to whether the morbidity is due to the bereavement, a result of a loss of support, and/or concurrent negative life stress.

Sociodemographic data has been shown to be an important aspect in identifying persons at risk for psychological impairment after bereavement. Age is a significant factor; younger widowed are reportedly at higher risk. Further, in spite of most studies concentraing on widows, males at all ages are at higher risk. Males are at the highest risk for the first six months after a death while female risk reaches a peak in the second year of bereavement (Ball, 1976-77). Spouses continue to be considered to have an increased mortality and morbidity during bereavement. A parent with children under the age of 18 living at home is considered a higher risk than the widowed due to the added burden of financial and physical care (Maddison, 1968). Singh et al.(1981), noted

that parents appeared to suffer the highest morbidity, though the mean age of the deceased child was 23 years.

In addition to the above risk markers which help identify the high risk bereaved, risk factors have been identified to further delineate the high risk group. Three bereavement factors have been shown to be most predictive: 1) perception of a non-supportive social network, 2) circumstances and the personal meaning of the death to the bereaved, and 3) concurrent life stress. The risk associated with socio-economic status of the bereaved appears to be less clear.

Bugen's model (1976) can assist in assessing the meaning of the event to the individual and thus aid in the identification process. Coping patterns have been suggested as important, but have not been sufficiently researched thus far.

All of the preceding factors and markers are especially important in identifying high risk groups. Crisis intervention aimed at high risk populations to decrease the morbidity and mortality has yielded inconclusive data. Thus, it becomes important to prevent impaired mental health by identifying those in need.

Conceptual Framework

The conceptual model for this study is based on the rationale that the identification of and intervention with the recently bereaved are essential to the resolution of the life crisis of bereavement in high risk populations. Although other concepts as stress, coping, and theories of social support could have been utilized, the decision was made to use the framework of Raphael (1977) and Singh et al. (1981) to facilitate increased understanding of the problem.

The overall goal of primary prevention is to reduce the incidence of psychiatric disorders within the community (Caplan, 1964). Primary prevention in mental health suggests a psychiatric disorder is more readily and more often prevented, cured, or alleviated the earlier intervention is introduced (Karno & Schwartz, 1974). In addition, this concept also suggests the importance of social, cultural and economic environments to prevention and treatment of mental disorders. It is felt the above factors are considered of equal importance to the biological and psychological experiences. This point is consistent with the findings of Raphael (1977) and Singh et al. (1981), who found social support of the bereaved individual of great significance in predicting pathological responses to bereavement.

The concept of primary prevention itself has a three-fold focus: 1) community mental health education, 2) mental health consultation, and 3) crisis intervention. Several of these aspects are pertinent to this study. Initially identifying the bereaved at risk is extremely important because within the means of identification it would be impossible to direct any crisis intervention effectively. Education then becomes the next important issue since risk markers and risk factors must be taught to those persons who would most likely be dealing with the crises. This education would aid the workers of a disaster to refer high risk bereaved individuals for mental health consultation or crisis intervention. Ideally all professionals and para-professionals would be trained in the identification of the high risk individuals and as many of those as possible could also be trained in crisis intervention for the bereaved.

Intervention during periods of life-crisis vulnerability has the basic goal to aid the individual toward resolution and toward improved mental health (Caplan, 1964). The premise of crisis theory is that man has a basic capability of adaptation and that under stress the regular patterns of behavior may not continue to be adaptive. The theory further predicts that in acute states of emotional pain which is secondary to accumulated life event stress, individuals are at risk for decompensating into a psychiatric disorder (Karno et al., 1974). It is at this point when the individual is in crisis that the behavior may be reshaped into new adaptive patterns or the person may be at risk of decompensating into maladaptive patterns, that crisis intervention is needed. The life crises which are subject to relief by crisis intervention are generally emergencies and require intervention as soon as possible. The individuals at risk in a crisis require intensive emotional support and need to be guided toward stress-reducing solutions to prevent mental health complications. Crisis theory further predicts that those individuals assisted in resolving a crisis are strengthened through their improved problem-solving capacity and thus are less vulnerable in the future.

In the study from which this research evolves, "Coping with Stress Following a Natural Disaster: The Volcanic Eruption of Mt. St. Helens", three major research questions were addressed: Is there a relationship between illness and three life events: presumed death of a close relative or friend, confirmed death of a close relative or friend, and loss of one's permanent or recreational residence? Do self-efficacy and social supports act as intervening variables to buffer the negative

effects of stress on one's health when coping with loss? What are the perceived effects of the media on coping with loss following a disaster (Murphy, 1981)?

Murphy's study sample consisted of 155 subjects. The data were collected approximately 11 months after the disaster. Questionnaires were mailed to the groups of bereaved, property loss, and control subjects. Follow-up interviews were conducted with 34 loss subjects.

The subjects' physical and mental health status, impact of negative life events, daily annoyances, and coping patterns were assessed by The Hopkins Symptom Checklist, The Life Experiences Survey, The Hassles Scale, The Self-Efficacy Scale, The Coppel Index of Social Support, and additional items written by the investigator (Murphy, 1981).

Some of the significant findings are as follows: Both of the bereaved groups were adversely affected on all of the study outcomes except physical health. Presumed death bereavement was not found to be more difficult than coping with confirmed death bereavement. When the combined bereaved group (N=69) was compared with the control group (N=50), the findings demonstrated self-efficacy and social support were significant predictors of depression for the bereaved group, whereas neither self-efficacy nor social support significantly predicted depression in the control group. The confirmed bereaved group reported more negative effects than the other study groups regarding the overall effects of the news media (Murphy, 1981).

Time of measurement, sampling, and the magnitude of the disastrous event were suggested to account for the lack of differences between the two bereaved groups of major outcome variables. Several clinical inter-

ventions were suggested by the investigator: 1) identification of high risk individuals and early treatment, 2) training of helping professionals, and 3) improved disaster planning (Murphy, 1981).

This study focuses on the identification of the high risk bereaved, as the result of the disaster of the Mount Saint Helens eruption. The intended outcomes, then, are: 1) to predict high risk disaster populations based on risk markers and factors encountered, and 2) to recommend specific primary prevention tools. Crisis intervention has been shown to be a concept incorporated by the major theory of primary prevention. It has been well established that the death of a significant other is a stressful life event.

Hypotheses

The hypotheses are derived from the following research questions:

1) Are the risk markers age and sex predictive in identifying the bereaved at risk for psychological or physiological impairment?
2) Will a bereaved individual's perception of one's support system be predictive in determining whether or not one is at risk for psychological or physiological impairment?
3) Will a bereaved individual's perception of a death as preventable or unpreventable be predictive in determining whether or not one is at risk for psychological or physiological impairment?
4) Will a bereaved individual's perception of one's prior relationship with the deceased as being central versus peripheral be predictive in determining whether or not one is at risk for psychological or physiological impairment?
5) Will the amount of stress perceived by the bereaved individual be

predictive in determining whether or not one is at risk for psychological or physiological impairment?

The hypotheses derived from research question one are:

1) Bereaved persons less than 40 years of age will demonstrate a higher amount of morbidity which consists of three components: depression, somatization, physical health; when compared with nonbereaved persons of the same ages.

2) Bereaved males of all ages will demonstrate a higher amount of morbidity (depression, somatization, physical health) when compared with nonbereaved males of the same ages.

The hypothesis derived from question two is:

3) Bereaved persons who have a positive perception of their social support system will demonstrate less morbidity (depression, somatization, physical health) than bereaved who view their support system negatively.

The hypothesis derived from research question three is:

4) Bereaved persons who view the traumatic circumstances of the death as preventable will demonstrate a greater degree of morbidity (depression, somatization, physical health) when compared with bereaved persons who view the traumatic circumstances of the death as unpreventable.

The hypothesis derived from research question four is:

5) Bereaved persons who view their prior relationship with the deceased as central will demonstrate a greater degree of morbidity (depression, somatization, physical health) when compared with bereaved persons who view their prior relationship with the deceased as

peripheral.

The hypothesis dervied from research question five is:

6) Bereaved persons who experience a higher amount of stress will demonstrate a greater degree of morbidity (depression, somatization, physical health) when compared with bereaved persons who experience a lower amount of stress.

CHAPTER II

METHODOLOGY

Research Design

This study has made an effort to determine whether the high risk bereaved of the Mount Saint Helens' disaster were identifiable. The data obtained in the study by Murphy (1981) was examined by a secondary analysis. The study is ex post facto design and utilized a post test only with equivalent groups.

Subjects

Data from 119 subjects were analyzed for this study. The three groups of subjects were: 1) bereaved of presumed dead, n=39; 2) bereaved of confirmed dead, n=30; 3) persons experiencing no disaster-related loss, n=50. The potential and actual participation rates of the three groups are shown in Table 1.

The Bereaved Groups

The bereaved family members and friends of the disaster victims comprised two of the groups examined: 1) bereaved of the presumed dead, and 2) bereaved of the confirmed dead. Presumptive death was defined as not discovering the body of a deceased victim within seven days following the volcanic eruption. More of the presumed dead were confirmed in the months following the disaster. Confirmed death was defined as identification of victims' bodies up to seven days after the volcanic eruption. There were additional missing persons who were not declared presumed dead. No attempts were made to contact families of these persons. Further, no attempts were made to include the bereaved of the four children who died. Thus, the bereaved samples were obtained by contacting those family and friends of 51 adult disaster victims.

Table 1

Differential Response Rates
of Participation for the Study Sample

Group	Potential Number of Participants	Persons Contacted	Actual Participation	Percent of Potential	Percent of Those Contacted
Presumed Dead Bereaved	62	45	39	63%	87%
Confirmed Dead Bereaved	40	36	30	75%	83%
Control Subjects	--	73	50	--	68%
Total	--	154	119	--	79%

Several approaches were utilized to obtain the names of potential study subjects. A list was obtained from the Skamania County (Washington) coroner's office of persons who had testified at court hearings to validate presumptive death of victims of the volcano. The list included names, addresses, and telephone numbers and in some cases the relationship to the deceased. All of these persons were not able to be contacted as many had left local temporary phone numbers, some were no longer at the stated permanent residence and in some cases repeated efforts to reach the subjects by telephone was unsuccessful. In other cases letters were intercepted by the attorneys and estate executors of the bereaved and were neither forwarded nor answered by the interceptor.

Another method of locating possible subjects was by obtaining death certificates for the confirmed dead. This was a time-consuming process as some certificates were not available until eight months after the disaster and some of the certificates could not be obtained. The information contained on the death certificates included names, addresses and telephone numbers of the nearest relatives and the victims' employers. These persons were then contacted.

Social networks was yet another means utilized in obtaining the sample. Organizations, colleagues and family members were contacted to obtain names of contact persons and possible subjects. Additionally a local newspaper reporter who had interviewed some of the bereaved friends and family for a story willingly shared several names that had not been obtained by prior methods. The sample of the bereaved contacted included spouses, parents, adult children, brothers, sisters, intimate friends, and colleagues of all but three of the 51 adult victims of the disaster (31 presumed dead and 20 confirmed dead).

Two bereaved persons per deceased person were included in the bereaved sample. The selection of those persons was as follows:

> 1) First, the bereaved spouse was asked to participate if the victim was married at the time of death. If the victim was not married at the time of death, either a parent or adult child was selected. If neither were available, nor willing to participate, a brother or sister was selected. If none of the three participated, this was considered missing data. 2) The second bereaved subject for each victim was the closest friend

or colleague willing to participate (Murphy, 1981, p. 107). Relatives of friends under the age of 18 were not contacted for ethical reasons. Additionally, no two bereaved persons within the same household were used in the sample.

There were 31 presumed dead which gave a potential of 62 subjects for the bereaved presumed group. Of these 62 persons, 45 were contacted and 39 participated in the study. There were 20 confirmed adult dead whose bodies were found within seven days of the disaster. For this group there were 40 potential subjects. Of these 40 persons, 36 were contacted and 30 participated in the study. As the potential numbers of subjects were small, two bereaved per deceased victim were chosen to improve the possibility of obtaining an adequate sample size. Eighty percent (41 persons) of the disaster victims are represented in this study by at least one close relative or friend.

The two groups consisted primarily of young females. The majority were skilled workers (41%), 22% were self-employed, and 23% were professionals. Thirty-three percent had completed high school and over 55% had some education beyond high school. Of the 55%, 17% had completed college and 14% had obtained advanced degrees. In general this data indicates a relatively middle class sample. Demographic data for the bereaved groups are shown in Table 2.

No differences were found in the individuals ability to cope with the death of a significant other between the two bereaved groups. The bereaved groups were compared by discriminant function analysis on all outcome measures. For the bereaved group comparisons, the overall approximate $F(5,62)=.99$, (NS) was obtained. The two bereaved groups

were judged sufficiently similar and were therefore combined for this study. This resulted in an N=69 sample size for the bereaved group.

Control Group

A group of 50 persons served as comparison subjects with the two bereaved groups. These persons were matched proportionately with the subjects of the bereaved groups by geographic location, age, sex, and occupation. Potential subjects' names were obtained from loss victims who were asked to identify persons to serve as controls. As not all persons suffering a loss wished to identify a control and not all of these controls wished to participate, additional control subjects were obtained and matched on the demographic variables (see Table 2).

Protection of Human Subjects

Human subjects were protected according to National Institutes of Health (NIH) Guidelines. This study qualifies for NIH exemption under category number five, which states:

> Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects (OHSU School of Nursing memo).

Study Instruments

The instruments utilized in this study are as follows: 1) The Hopkins Symptoms Checklist (HSCL-90), 2) The Life Experiences Survey (LES), and 3) the Coppel Index of Social Support (CISS). Additional

items were written to measure physical health, the relationship of the bereaved/deceased prior to death, and the perception of preventability of death.

Morbidity for this study consists of these components: depression, somatization, and physical health. Morbidity was defined as an increased score on the depression or the somatization measure or a decreased score on the physical health measure. Increased and decreased scores were determined by the comparison of mean scores, for the morbidity measures, between the bereaved and control groups. Increased scores were those scores which were higher than the mean scores of the control group for the somatization and depression measures and lower than the control group for the physical health measure (Table 3).

The Hopkins Symptom Checklist

The mental health of the study subjects was assessed through use of the depression and somatization scales of The Hopkins Symptom Checklist-90 (HSCL-90). The HSCL-90 consists of eight subscales and is administered by a self-report symptom rating scale. A total of 90 items comprises the HSCL-90, each of which is measured on a scale from zero to four. A rating of zero on the scale indicates a measure of no distress, while the number four indicates a high degree of distress. The instrument is used to measure the persons' psychopathology and degree of stress.

The normative samples described by Lipman (1979) are based on 1500 subjects from three samples. Two samples were psychiatric outpatients experiencing symptoms of depression and anxiety. The other sample was a portion of a general health survey in a large Western city.

Table 2

Demographic Data for the Three Samples

Variable	Group 1 Presumed Dead Bereaved N=39	Group 2 Confirmed Dead Bereaved N=30	Group 3 Control Subjects N=50
Sex			
Female	27 (69.2)	21 (70)	34 (68)
Male	12 (30.8)	9 (30)	16 (32)
Mean Age in Years	38.4	37.7	38.9
Age Ranges by Age	18-67	19-72	19-69
Relationship to the Deceased			
Widow	2 (5.1)	3 (10)	a
Mother	5 (12.8)	1 (3.3)	a
Son	2 (5.1)	---	a
Daughter	8 (20.5)	7 (23.3)	a
Intimate Friend	12 (30.8)	13 (43.3)	a
Colleague	3 (7.7)	2 (6.7)	a
Brother or Sister	7 (17.9)	3 (10)	a
Other	---	1 (3.3)	a

Note. Except for age, table entries are numbers of subjects with corresponding percentages in parentheses.

[a] "Relationship to deceased" not applicable for Group 3.

One of the procedures used to determine the symptom constructs underlying the HSCL is the clinical-rationale clustering procedure. This procedure has been demonstrated to be sensitive to change in emotional status among both psychiatric and non-psychiatric groups. Two studies reported that the HSCL primary symptoms dimensions can rank-order patient groups in the same manner as expert clinicians (Rickels, Lipman, Garcia, & Fisher, 1972). Construct validity has also been confirmed by Derogatis, Lipman, Rickels, Uhlenhuth, and Covi (1974).

The other procedure used in determining the symptom constructs of the HSCL was factor analysis. This analysis of the 90-item version revealed the eight dimensions were uncorrelated and each contained at least five items with loadings above .40 and explained 50.2% of the total variance. The eight factors were found to have coefficient alphas ranging from .77 to .86, indicating the HSCL scales contain high levels of internal consistency (Lipman, Covi, & Shapiro, 1979).

Two of the eight HSCL-90 subscales were scored and analyzed for this study. They are the depression and somatization scales. Depression and psychosomatic symptoms are seen as frequent responses to highly stressful life events. See Appendix A for a copy of the instrument and scoring information.

Items of Physical Health

A nine item health index was constructed due to difficulties with existing measures. Included within this index were questions about the individual's perceived health status, whether they had required visits to a physician or medical facility and if a chronic condition they had

previously had worsened. This index was important in this study as stress may be presented as physical symptoms and thus aids in determining the degree of morbidity an individual is experiencing. The physical health index and scoring directions are shown in Appendix B.

The validity of the health index was determined using traditional item analysis procedures. Five of the nine items were found to be intercorrelated and were converted to z scores and averaged to form an index of health. The coefficient alpha was .69 (Murphy, 1981).

Life Experiences Survey (LES)

The Life Experiences Survey (LES) measures the amount of stress experienced by individuals. Three change measures over two time periods are available: 1) positive change, 2) negative change, and 3) total change. The LES consists of 47 items in which the subjects rated themselves as to the impact each of the events had upon their lives. A seven point scale is used and ranges from "no effect" to "great effect". Events that are experienced as "good" are given a positive score while events experienced as "bad" are given a negative score. The total score includes the sum of the positive and negative changes. The negative change was the measure utilized in this study, as death of a significant other is a negative life stress and is included in this scale.

The sample used for gathering normative data for the LES was a group of 345 undergraduate students. There were no significant differences found between males and females on any of the three change scores. It was further reported that positive and negative change scores are uncorrelated and reliable using test-retest procedures over a six-week in-

terval on two additional samples (Sarason, Johnson, & Siegel, 1978). See Appendix C for a copy of the instrument and scoring information.

Coppel Index of Social Support

Three measures of social support are obtained through the use of Coppel's Index of Social Support (CISS): size of network, contact with network, and quality of social supports. Network size is determined by the number of friends, family, confidants, and social groups individuals are presently involved with. The contact network measures how often within a week the individuals are in contact with these people. Two scores are used, one to determine the size of the network and the other to indicate the average weekly contact with the persons included within the network. The perceived social support scale consists of 15 statements in which respondents rate themselves on a five-point scale which ranges from "Not at all like me" to "Very much like me". As perceived social support is one of the major risk indicators this scale was of prime importance to this study.

Coppel (1980) constructed the 15-item scale based on a pilot study involving 170 undergraduate students. Internal consistency (coefficient alpha = .89) and test-retest reliability (coefficient of r = .82) over a two-week interval (N=90) were demonstrated. A factor analysis of the scale accounted for 63.17% of the total variance. See Appendix D for a copy of the instrument and scoring information.

Other Items

Nine items from Murphy's study (1981) which were not found in any standardized instrument were utilized by this investigator. These items dealt with demographic and interpersonal items such as the identifica-

tion and quality of the relationship with the deceased person prior to death, and the subject's perception of preventability of the death. Since prior relationships and an individual's perception of preventability are risk factors these questions provided valuable information towards identifying high risk individuals.

Preventability/unpreventability was determined from a question which asked whom the bereaved blamed for the death. Question number 30 used to determine this is found in Appendix E. The death was considered unpreventable if the bereaved blamed God or no one and considered preventable if any other person was blamed.

Centrality/peripherality in this study was viewed as the degree of importance of the deceased person to the bereaved. This was measured on a scale from one to nine, one being the least important and nine the most important. This scale is shown in Appendix E as question 27a. A central relationship was viewed as nine on this scale and the remainder of the scale were considered peripheral relationships.

Procedure

The primary procedure for this study consisted of a secondary analysis of the data obtained by Murphy (1981). The following indicatos were utilized for analysis: demographic variables of age and sex, degree of morbidity identified by subjects (as measured by the depression and somatization scales of the HSCL-90 and the physical health scale), perception of social support, perception of the event as being preventable or unpreventable, the type of relationship, whether central or peripheral, and concurrent life stress.

The demographic variables, the perception of the death as preventable

or unpreventable and the type of relationship, central or peripheral were contained in the nine item tool utilized by this investigator. Morbidity was identified as an increase in physical symptoms or an increase in depression and somatization and measured by several instruments. These instruments are: somatization and depression subscales of the HSCL-90 and the physical health scale used by this investigator. Objective and subjective indicators of social support were measured by the CISS. The LES measured the amount of perceived stress. Thus all the indicators of high risk being examined in this study were available for measurement within the preceding instruments.

Statistical Methods

Frequency Distributions

Presentation of the analysis of the data begins with frequency distributions of the study variables among the two study groups. Frequency distributions were constructed and percentages calculated to describe the study sample. Measures of central tendency were used to determine the usefulness of the variables and to determine the need for higher level analysis.

Pearson Correlations

The Pearson product-moment correlation procedure was conducted with all of the major variables in this study. The correlations were obtained for the total sample, then for each of the study groups.

Multiple Regression Analysis

The hierarchical step-wsie regression procedure was used to test the hypotheses. Study variables were entered into the regression equation based on current high risk bereavement literature.

Scattergram

Scattergrams were used to display the distribution of the variables when compared with the morbidity factors.

CHAPTER III

RESULTS

The results of this study are presented so that the risk markers and risk factors can be examined both individually and collectively in order to identify the high risk bereaved population. Each of the five study questions will be addressed and the statistical measures examined.

Findings Regarding the First Study Question

The first study question was: Are the risk markers age and sex predictive in identifying the bereaved at risk for psychological or physiological impairment? Two hypotheses were designed to test this question. Means and standard deviations of the outcome measures for the bereaved and control groups are shown in Table 3.

Hypothesis 1

Hypothesis 1 states, bereaved persons less than 40 years of age will demonstrate a higher amount of morbidity which consists of three components: depression, somatization, physical health; when compared with nonbereaved persons of the same age. Significance on physical health was not expected, therefore, to accept the hypothesis, significance on depression and somatization was needed. This hypothesis was partially supported by the data. Pearson correlations for the bereaved group (N=69) demonstrated that age was significantly correlated with two of three morbidity measures, HSCL Depression ($r=-.19$, $p<.05$) and Physical Health Status ($r=-.23$, $p<.05$). Age and somatization were not correlated ($r=.06$, NS). These correlations are shown in Table 4. For the control group (N=50) Pearson correlations were significant only for the measure of depression ($r=-.39$, $p<.01$) (See Table 4).

Table 3

Means and Standard Deviations of the Outcome Measures for the Bereaved and Control Groups

Outcome Measures	Group Means and Standard Deviations for Outcomes	
	Group 1[a] Bereaved (N=69)	Group 2 Control (N=50)
Stress Outcomes		
LES Negative	12.82	5.94
	(10.0)	(6.06)
Morbidity Outcomes		
HSCL Somatization	.73	.42
	(.58)	(.55)
HSCL Depression	1.26	.74
	(.72)	(.58)
Physical Health	-.12	.16
	(.75)	(.62)
Interpersonal Outcomes		
Social Support	52.47	55.3
	(13.48)	(13.45)
Preventability of the Death	.40	b
	(.49)	b
Importance of the Deceased	8.21	b
	(1.11)	b

Note. Group 1 - Presumed and Confirmed Bereaved were combined for analyses (N=69).

Note. b - Not applicable to control group.
The top number of each pair is the mean and the bottom number, in parentheses, is the standard deviation.

Table 4

Intercorrelation Matrix for Risk Markers, Risk Factors, and Health Outcome Measures for the Bereaved and Control Groups

Risk Markers	Risk Markers		Risk Factors				Health Outcome Measures		
	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Sex[b]	B.00	-.07	-.24*	.03	-.38***	-.09	-.40***	-.37***	.21*
	C.00	-.27*	.20	.04	a	a	-.03	-.19	-.12
2. Age		B.00	-.18	.13	.03	-.20*	.06	-.19*	-.23*
		C.00	-.21	.21	a	a	-.21	-.39**	-.06
Risk Factors									
3. LES Negative (Stress)			B.00	-.08	.23*	.24*	.52***	.49***	-.48***
			C.00	-.08	a	a	.43***	.44***	-.38***
4. Perceived Social Support				B.00	-.18	-.17	-.10	-.28**	.01
				C.00	a	a	-.02	-.12	.04
5. Importance of the Deceased					B.00	-.05	.28**	.48***	-.18
					C.00	a	a	a	a
6. Perceived Preventability of the Death[c]						B.00	.21*	.25*	.02
						C.00	a	a	a
Health Outcome Measures									
7. HSCL Somatization							B.00	.62***	-.46***
							C.00	.61***	-.59***
8. HSCL Depression								B.00	-.25*
								C.00	-.40**
9. Physical Health Status									B.00
									C.00

Note. *=p < .05 **=p < .01 ***=p < .001
a - Not applicable to control group
b - Coded 0 for females, 1 for males
c - Coded 0 for unpreventable; 1 for preventable
B=Bereaved (N=69)
C=Control (N=50)

An additional descriptive statistic used to examine individual risk markers and risk factors was the scattergram. One of the major purposes of this study was to determine whether age, stress, and morbidity were related. Scattergram plots for the bereaved group (N=69) indicate that the younger the person, the higher the scores for LES, depression ($r=-.19$, $p<.05$), somatization and health ($r=-.23$, $p<.05$). For the control group (N=50) a higher percentage (18%) of persons under 40 had higher scores on the depression measure ($r=-.39$, $p<.01$) than the other health measures. See Table 5 for these results.

Hypothesis 2

Hypothesis 2 states, bereaved males of all ages will demonstrate a higher amount of morbidity (depression, somatization, physical health) when compared with non-bereaved males of the same ages. This hypothesis was partially supported by the data. Pearson correlations for the bereaved group (N=69) demonstrate a relationship between males and physical health ($r=.21$, $p<.05$). All other male sex and morbidity correlations for bereaved males were non-significant. Likewise, for the control group (N=50) males, sex was not correlated with the morbidity outcomes. The scattergram did not differentiate further between bereaved and control males. A similar relationship between bereaved males and physical health ($r=.21$, $p<.05$) was demonstrated.

Findings Regarding the Second Study Question

The second study question was: Will a bereaved individual's perception of one's support system be predictive in determing whether or not one is at risk for psychological or physiological impairment? One hypothesis was designed to test this question.

Hypothesis 3

Hypothesis 3 states, bereaved persons who have positive perception of their social support system will demonstrate less morbidity (depression, somatization, physical health) than bereaved who view their support system negatively. This hypothesis was only partially supported by the data. For the bereaved group (N=69) perceived social support and HSCL Depression were significantly correlated ($r=-.28$, $p < .01$) (See Table 4). Social support was not significantly correlated with any of the other stress or health measures. For the control group (N=50), Pearson correlations demonstrated no significance between perceived social support and any of the morbidity measures (Table 4).

The scattergrams added additional clarity to the importance of social support as the bereaved group showed higher proportions of morbidity on all of the morbidity measures and a higher proportion of stress than the control group with the same scores. Only the depression measure reached significance ($r=-.28$, $p < .01$). Results of the scattergram are presented in Table 6.

Findings Regarding the Third Study Question

The third study question was: Will a bereaved individual's perception of a death as preventable or unpreventable be predictive in determining whether or not one is at risk for psychological or physiological impairment? One hypothesis was designed to test this question.

Hypothesis 4

Hypothesis 4 states, bereaved persons who view the traumatic circumstances of the death as preventable will demonstrate a greater degree of morbidity (depression, somatization, physical health) when compared

Table 5

Contingency Data Based on Scattergram Analysis of Age Compared With Scores on LES and Outcome Variables of HSCL Somatization, HSCL Depression, and Health

Scores*	LES Negative (16-44)		HSCL Somatization (1-2.6)		HSCL Depression (1.2-3)		Health (-.58 to -1.9)	
	Under 40	Over 40	Under 40	Over 40	Under 40	Over 40	Under 40	Over 40
Bereaved (N=69)	17(25)	4(6)	16(23)	5(7)	28(41)	7(10)	14(20)	7(10)
Control (N=50)	4(8)	1(2)	6(12)	1(2)	9(18)	2(4)	2(4)	2(4)

Note. The number of cases in each category is followed by the percentage in parentheses.
* Scores for each category indicate increased stress and morbidity.

Table 6

Contingency Data Based on Scattergram Comparison of Social Support and Morbidity Variables Depression, Somatization, and Health

Scores*	LES Negative (16-44)	HSCL Somatization (1-2.6)	HSCL Depression (1.2-3)	Health (-.58 to -1.9)
Bereaved (N=69)	11(16)	6(9)	17(25)	11(16)
Control (N=50)	3(6)	4(8)	6(12)	1(2)

Note. The number of cases in each category is followed by the percentage in parentheses.
* Scores for each category indicate increased stress and morbidity.
Perceived social support scores of 50 correlated with stress and health measures.

with bereaved persons who view the traumatic circumstances of the death as unpreventable. This hypothesis was partially supported by the data. Pearson correlations indicate significant relationship between preventability and HSCL Somatization ($r=.21$, $p<.05$) and with HSCL Depression ($r=.25$, $p<.05$).

Findings Regarding the Fourth Study Question

The fourth study question was: Will a bereaved individual's perception of one's prior relationship with the deceased as being central verses peripheral be predictive in determining whether or not one is at risk for psychological or physiological impairment? One hypothesis was designed to test this question.

Hypothesis 5

Hypothesis 5 states, bereaved persons who view their prior relationship with the deceased as central will demonstrate a greater degree of morbidity (depression, somatization, physical health) when compared with bereaved persons who view their prior relationship with the deceased as peripheral. This hypothesis was partially supported by the data. Pearson correlations between the importance of the deceased and HSCL Somatization ($r=.28$, $p<.01$) and with HSCL Depression ($r=.48$, $p<.001$) were significant. The importance was measured on a scale from 1 to 9, one being lowest in importance and nine being highest importance. The scattergrams further clarified the importance of stress and the morbidity measures of health, depression and somatization to the nature of the relationship prior to death. For persons who rated the deceased as a very important person in their lives, 22% (N=15) had high scores (16 to 44) on stress ($r=.23$, $p<.05$), 23% (N=16) had high HSCL Somatiza-

tion scores (1 to 2.6) ($r=.28$, $p < .01$), 41% (N=28) had high HSCL Depression scores (1.2 to 3) ($r=.48$, $p < .001$), and 20% (N=14) had poor health (-.58 to -1.9) ($r=-.18$, NS).

Findings Regarding the Fifth Study Question

The fifth study question was: Will the amount of stress perceived by bereaved individuals be predictive in determining whether or not one is at risk for psychological or physiological impairment? One hypothesis was designed to test this question.

Hypothesis 6

Hypothesis 6 states, bereraved persons who experience a higher amount of stress will demonstrate a greater degree of morbidity (depression, somatization, physical health) when compared with bereaved persons who experience a lower amount of stress. This hypothesis was supported by the data. Pearson correlations between LES negative (Stress) and all of the morbidity factors were highly significant. HSCL Somatization revealed a correlation of $r=.52$ ($p<.001$), HSCL Depression a correlation of $r=.49$ ($p < .001$), and physical health $r=-.48$ ($p < .001$) (See Table 4).

Additional Findings Not Tested by the Hypotheses

A number of additional significant correlations were observed for which no hypotheses had been written. For the bereaved group (N=69), age was significantly correlated with perceived preventability of the death, was significantly correlated with stress, and with the importance of the deceased. Stress was also significantly correlated with two additional factors, importance of the deceased person and with perceived preventability of the death (see Table 4).

The rate of recovery for the bereaved subjects was significantly

correlated with four of the risk indicators and all of the morbidity measures. The correlations were with sex ($r=.48$, $p < .0001$), with LES negative ($r=.31$, $p < .01$), with social support ($r=.25$, $p < .05$), with importance of the deceased ($r=-.49$, $p < .001$), with somatization ($r=-.47$, $p < .001$), with depression ($r=-.57$, $p < .001$), and finally with health ($r=.24$, $p < .05$). The perceived recovery rate was scored on a scale from one to nine with one being "not at all recovered" and nine, "completely recovered". Question 17 used to determine the recovery rate is found in Appendix E.

Findings Described Collectively

In addition to examining risk markers and risk factors individually, as identified in the literature, it was thought that taken collectively, these indicators might account for some of the variability associated with disaster death. In order to determine the extent to which these two risk markers and four risk factors combined could predict high risk populations, multiple regression analyses were performed. The hierarchical step-wise procedure was selected because determining the amount of variance that could be accounted for by each predictor as well as in combination with the other predictors would be useful information.

At the first step, the predictor of stress was entered. At the second step, age and sex were entered in order of their statistical signigicance. At the fourth step, social support was entered. At the fifth step, importance of the deceased person and perceived preventability of the death were entered in order of their statistical significance. Six multiple regression analyses were completed, one for each of the three dependent measures (HSCL Depression, HSCL Somatization, Physical

Table 7

Predicting High Risk Bereaved From Variables: Stress, Age, Sex, Social Support, Preventability of Death, and Importance of Deceased Person: Multiple Regression Results for Bereaved and Control Groups

Group	Predictor Variable	Percent of Variance Accounted for at each entry step	F to Enter Predictor df	Multiple R	Beta Wt. at Final Step	Adjusted R^2	Overall F Statistic df
Outcome Measure: HSCL Depression							
Bereaved (N=69)	LES Negative	24.5	21.77***(1,67)	.495	.31	.234	21.77***(1,67)
	Sex	6.6	6.35* (1,66)	.558	-.15	.290	14.93***(2,66)
	Age	2.0	1.95 (1,65)	.575	-.11	.300	10.74***(3,65)
	Social Support	4.9	5.09* (1,64)	.617	-.14	.342	9.84***(4,64)
	Importance DP[a]	7.99	9.33** (1,63)	.678	.33	.418	10.77 (5,63)
	Preventability[b]	1.5	1.83 (1,62)	.690	.13	.425	9.40***(6,62)
Control (N=50)	LES Negative	19.4	11.57***(1,48)	.440	.43	.177	11.57***(1,48)
	Age	9.6	6.36* (1,47)	.538	-.40	.260	11.80***(2,47)
	Sex	14.4	11.76***(1,46)	.659	-.39	.398	9.61***(3,46)
	Social Support	.04	.03 (1,45)	.659	-.02	.385	8.67***(4,45)
Outcome Measure: HSCL Somatization							
Bereaved (N=69)	LES Negative	27.8	25.82***(1,67)	.527	.44	.267	25.82***(1,67)
	Sex	8.1	8.37** (1,66)	.599	-.24	.340	18.52***(2,66)
	Age	1.5	1.64 (1,65)	.612	.15	.346	13.01***(3,65)
	Social Support[b]	.5	.52 (1,64)	.616	-.04	.341	9.82***(4,64)
	Preventability[b]	.9	1.00 (1,63)	.624	.11	.381	8.06***(5,63)
	Importance DP[a]	.5	.52 (1,62)	.628	.08	.336	6.75***(6,62)
Control (N=50)	LES Negative	19.1	11.38***(1,48)	.437	.43	.174	11.38***(1,48)
	Sex	1.7	1.03 (1,47)	.457	-.17	.175	6.21** (2,47)
	Age	2.6	1.57 (1,46)	.485	-.17	.185	4.71** (3,46)
	SS Total	.16	.09 (1,45)	.486	.04	.169	3.49* (4,45)
Outcome Measure: Health							
Bereaved (N=69)	LES Negative	23.1	20.18***(1,67)	.481	-.54	.220	20.18***(1,67)
	Age	10.9	10.97** (1,66)	.584	-.31	.321	17.08***(2,66)
	Sex	.2	.28 (1,65)	.586	.05	.313	11.36***(3,65)
	Social Support[b]	.01	.01 (1,64)	.586	.02	.303	8.39***(4,64)
	Preventability[b]	.8	.86 (1,63)	.594	.09	.301	6.87***(5,63)
	Importance DP[a]	.01	.01 (1,62)	.594	-.01	.290	5.64***(6,62)
Control (N=50)	LES Negative	9.4	4.98* (1,48)	.306	-.31	.075	4.98* (1,48)
	Age	1.7	.89 (1,47)	.333	-.16	.073	2.93 (2,47)
	Sex	.97	.51 (1,46)	.347	-.10	.063	2.10 (3,46)
	SS Total	.03	.01 (1,45)	.348	.01	.043	1.55 (4,45)

Note. After each F statistic the appropriate degrees of freedom are presented in parentheses.
*=$p < .05$ **=$p < .01$ ***=$p < .001$
a=Importance of the Deceased Person
b=Perceived Preventability of Death

Health) for the bereaved and control groups separately. Results from the bereaved sample are reported first.

The significance of the overall F tests for the regression analyses ranged from $p < .05$ to $p < .001$. The step-wise contribution of each predictor of the total percentage of variance accounted for by each successive set of predictors are indicated in the percent of variance and adjusted R^2 columns of Table 7. The F to enter each predictor, the multiple R, and beta weights at the final step are also presented.

Stress was a highly significant predictor of the health outcomes in all three of the regression analyses for the bereaved group. Stress accounted for 27.8% of the variance in somatization, 24.5% of the variance in depression, and 23.1% of the variance in physical health.

Once stress was entered as a predictor for the dependent variable of HSCL depression, three of the remaining five variables, sex ($F(1,66)= 6.35$, $p < .05$), perceived social support ($F(1,64)=5.09$, $p < .05$), and importance of the deceased person ($F(1,63)=9.33$, $p < .01$), contributed significantly to the remaining variance in depression. Neither age nor perceived preventability of death accounted for significant variance. For the dependent variable of somatization, only sex contributed significantly to the remaining variance beyond stress ($F(1,66)=8.37$, $p < .01$). Age, social support, perceived preventability and the importance of the deceased did not account for any significant variance. For the dependent variable of physical health, only age contributed significantly to the remaining variance beyond stress ($F(1,66)=10.97$, $p < .01$).

The same step-wise regression analyses were conducted with the

control group)N=50), Results of the regression analyses are presented in Table 7. Even though earlier results revealed that control subjects' mean stress and illness scores were much lower than those of the bereaved subjects, the stress-illness relationship is similar to that of the bereaved group. Results for the control group indicate that stress accounts for 19.4% of the variance in depression, 19.1% of the variance in somatization, and 9.4% of the variance in physical health. In contrast to the bereaved group, the results for the control group demonstrated that both age and sex accounted for a significant amount of the variance for depression ($F(1,47)=6.36$, $p<.05$), ($F(1,46)=11.76$, $p<.001$), respectively. None of the other variables that were significant for the bereaved group were shown to be significant predictors for any of the three outcome variables for the control group.

Summary of Results

All of the study hypotheses were supported by at least two morbidity outcome measures except for the hypotheses examining the relationships between males, social support, and morbidity, which were partially supported.

In general younger bereaved persons, under 40 years of age, demonstrated a greater amount of depression, poor health, somatization and overall stress than bereaved persons over 40 years of age. It was also noted that the younger persons were more likely to view the death as preventable. Age was also highly significant for the control group in that it predicted depression, though not to the extent as measured for the bereaved (control=18%, bereaved=41%).

Bereaved females demonstrated the highest depression and stress

ratings compared to males and the control females. Two of the health outcome measures, depression and somatization, were significantly correlated with females. Additionally significant was the high correlation between females and the importance of the deceased person. In general females had much higher levels of morbidity. A correlation was shown between bereaved males and physical health although there was no significant differences in the total health scores between either sex or group.

Perceived social support was seen as a factor in depression for the bereaved group. Those persons who perceived they had poor social support demonstrated a greater amount of depression. To a lesser degree, perceived social support was an important factor for health and the amount of stress experienced for the bereaved group as compared with the control group.

The perceived preventability of the death was correlated with age. Younger persons viewed the death as being preventable more frequently than older persons. Perceived preventability was also correlated with stress, indicating that persons who blamed themselves or others also experienced a greater amount of stress than those who viewed the death as being unpreventable.

The prior relationship with the deceased person when viewed as important or central was significant with sex and stress. This indicates that females who felt the deceased person was of central importance to their lives also felt an increased amount of stress, which would then increase their likelihood of increased morbidity.

Stress alone was the most important risk factor. Correlations

were demonstrated with all the health outcomes, as well as with the three of the five risk identifiers. No significant correlations were demonstrated between stress and age or social support.

The suggestion of the interrelationship of the predictor variables was supported by the multiple regression analysis. Stress was the highest predictor on all outcomes for morbidity in the multiple regression. However due to the high correlations between the variables, when all six are used to predict morbidity, 42.5% of the variance is accounted for with depression, 33.6% of the variance with somatization, and 29% of the variance with physical health. All variables used concurrently, then, would be most predictive in identifying high risk bereaved persons. The concurrent use of the combined variables was confirmed by the correlation between stress and the recovery rates, which were also correlated with four of the risk indicators and all of the morbidity variables.

CHAPTER IV

DISCUSSION, SUMMARY AND CONCLUSIONS

This final chapter discusses the study results. Relevant findings will be examined and their relationship to prior research. Conclusions will include the implications of the findings and directions for future research.

Risk Markers

Age

The findings in this study supported the hypothesis that bereaved persons under the age of 40 were at risk for morbidity. This is consistent with prior studies (Ball, 1976-77; Maddison et al., 1968; Maddison et al., 1967) which found an elevated risk for the younger male and female widowed population. Depression was found to be the most significant manifestation and was often coupled with persons who saw the death as being preventable.

Sex

Though the male bereaved did not demonstrate a higher overall risk than the female bereaved in this study, they did have significant physical health problems. Mental health problems may have been detected, as the literature suggests, had the data been collected earlier. Males are said to have the highest health risks within the first six months of bereavement (Ball, 1976-77; Maddison et al., 1968) whereas health risks for females lasts much longer. Thus, the findings which demonstrate females having the highest stress and depression ratings as well as somatization scores is consistent with prior research. The results of this study further indicates that males had made more satisfactory

recoveries and in general were more satisfied with their current life situations than females.

Socioeconomic status was not tested in this study as it has not generally been identified in the disaster literature, though bereavement literature does suggest it has importance. Murphy (1981) found because presumptive deaths were dealt with quickly, socioeconomic status was not an issue as it might be in other bereavement. Furthermore the two bereaved groups were found to be similar and combined for this study.

Risk Factors

Perceived Social Support

The use of the scattergram procedure in this study allowed a comparison between low levels of support with high levels of poor health. Those individuals who reported the lowest scores on the perceived social support measure reported the highest scores on the HSCL depression subscale and the index of physical health.

The literature suggests that social support is the most important factor in effecting the morbidity of bereavement (Maddison, 1968; Raphael, 1977; 1979-80; Singh et al., 1981). Social support was a significant factor in depression in this study, although the overall degree of significance with all of the morbidity measures was much less than was suggested by Singh et al. (1981). In the previous study perceived social support was suggested as the prime risk indicator. Heller (1979) suggests too much importance has been given to social support as a factor in reducing morbidity. Heller suggests the de-

pressed person in general is more likely to perceive the environment as less supportive, and suggests the need for differing degrees of support for different persons which would then make a single score on social support non-predictive for individual needs.

In contrast, Rabkin and Struening (1976) suggest that when persons experience moderate stress they tend to believe they can handle the stress without additional support. In more severe stress and crises persons do tend to require support as much of the other literature suggests, but in extreme stress nothing helps. The disasterous event experienced by some persons in this study may be considered an extreme stressor. This explanation seems plausible because control subjects that reported low social support did not report high rates of illness. It is clear further research is required on this variable, perhaps separating social support from personality factors and levels of social competence.

Meaning of the Event

The personal meaning of the event was tested by two hypotheses dealing with the concepts of centrality/peripherality of the relationship and preventability/unpreventability of the circumstances of the death. This model of assessing risk was suggested by Bugen (1976). The study findings revealed younger persons more frequently viewed the death as being preventable and that females who had a central relationship with the deceased experienced increased stress thus resulting in increased morbidity. As stated earlier a central relationship coupled with a preventable death indicates an intense and prolonged grieving

process (Bugen, 1976). This concept was supported by the findings in this study as the data were collected 11 months after the disaster and thus found prolonged grief in subjects identifying these factors. The study by Murphy (1981) reported similar findings on these two measures. The data obtained by this investigator further demonstrated that persons who were currently dissatisfied with the life situation had poor rates of recovery. These data also seem consistent with the fact that 11 months following the disaster persons were able to process information regarding the magnitude of the event. Initially many of the bereaved individuals blamed their significant others for being in the area as well as authorities for not giving what was perceived as an adequate warning. Other recent disaster literature supports the notion that blame and preventability are significant factors in predicting outcome (Bromet & Dunn, 1981).

Concurrent Stress

Additional negative life events close to or at the time of a death of a significant other had been suggested as an important factor in a person's ability to cope with the presenting stress and the other event. The hypothesis to test this factor was supported. Conversely, concurrent stress was not found to be a significant factor in previous studies examining the risk factors for bereaved (Raphael, 1977; 1979-80; Singh et al., 1981). This may be due to the fact that the number of subjects was relatively small (N=31) or with the procedure of identifying concurrent stresses. In the study by this investigator, however, concurrent negative life events was the most important risk factor identified. Correlations were significant for all of the health outcomes as well as with

the risk factors.

Summary and Conclusions

This study has examined risk variables to identify the high risk bereaved populations. These variables have been shown to be highly predictive of risk for the bereaved when used collectively. Further, recommendations to aid in the establishing a primary prevention program have been made.

This study adds to the relatively small body of literature and research that attempts to delineate specific criterion for identifying the high risk bereaved populations. The high risk bereavement literature attempts to explain grief and bereavement using risk markers and risk factors as single important variables. Although concurrent life stress was found to be the most predictive variable in this study, the variables of age, perceived social support, importance of the deceased and the perceived preventability of the death were also found to be important in identifying high risk bereaved populations. Thus, taken together, these factors proved to be very predictive.

Implications for Practice

The risk literature and the predictive findings of this study suggest a number of issues for nursing practice. The implications for practice follow the focus of primary prevention which consists of community mental health education, mental health consultation, and crisis intervention.

1. Mental health professionals need to be involved in primary prevention teaching to local clergy, family practice physicians, nurse practitioners and paraprofessionals who are part of disaster teams.

2. Mental health professionals need to be clinically prepared for consultation for planning and implementing plans for disasters.

3. Mental health professionals should be responsible for providing brief intervention therapy at the time of the disaster as well as providing consultation to other paraprofessionals regarding disaster intervention.

4. Mental health professionals should be responsible for and provide counseling for the disaster helpers, realizing the associated trauma to helpers occurring during traumatic events.

5. Mental health professionals can utilize the knowledge of this study to aid in identifying risk among the bereaved. This can be accomplished by the awareness that persons under 40 years of age, those with concurrent life stresses, a perception of a central relationship, and the feeling that the death could have been prevented are factors to be utilized both individually and collectively to predict risk.

Directions for Future Research

The directions for research derived from this study are aimed toward establishing primary prevention programs which would aid in the reduction of morbidity for the high risk bereaved. The following research activities are suggested.

1. Development of assessment tools that can be used by both professionals and paraprofessionals to quickly identify high risk bereaved disaster victims.

2. Further development and evaluation of brief therapy programs for disaster victims aimed both at individual and group needs.

3. Development of improved social support measures and of determin-

ing individual differences in the need for support.

4. Identifying differences in personality styles and the differing effects of stress involved, along with a tool to assess them.

5. Additional research using the same risk markers and factors to determine generalizability for disasters and then for the bereaved in general.

6. The effects of socioeconomic status should be taken into account in future studies.

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APPENDIX A

Hopkins Symptom Checklist

SCL-90-R

Name:_____ Technician:_____ Ident. No._____

Location:_____ Visit No.:_____ Mode: S-R_____ Nar_____

Age:_____ Sex: M_____ F_____ Date:_____ Remarks:_____

Start here

INSTRUCTIONS

Below is a list of problems and complaints that people sometimes have. Read each one carefully, and select one of the numbered descriptors that best describes HOW MUCH DISCOMFORT THAT PROBLEM HAS CAUSED YOU DURING THE PAST ~~Week~~ 6mo. INCLUDING TODAY. Place that number in the open block to the right of the problem. Do not skip any items, and print your number clearly. If you change your mind, erase your first number completely. Read the example below before beginning, and if you have any questions please ask the technician.

EXAMPLE

HOW MUCH WERE YOU DISTRESSED BY:

Descriptors
0 Not at all
1 A little bit
2 Moderately
3 Quite a bit
4 Extremely

Answer

Ex. Body Aches..... Ex. [3]

HOW MUCH WERE YOU DISTRESSED BY:

Descriptors
0 Not at all
1 A little bit
2 Moderately
3 Quite a bit
4 Extremely

1. Headaches.....
2. Nervousness or shakiness inside.....
3. Repeated unpleasant thoughts that won't leave your mind..
4. Faintness or dizziness.....
5. Loss of sexual interest or pleasure.....
6. Feeling critical of others.....
7. The idea that someone else can control your thoughts....
8. Feeling others are to blame for most of your troubles.....
9. Trouble remembering things.....
10. Worried about sloppiness or carelessness.....
11. Feeling easily annoyed or irritated.....
12. Pains in heart or chest.....
13. Feeling afraid in open spaces or on the streets.....
14. Feeling low in energy or slowed down.....
15. Thoughts of ending your life.....
16. Hearing voices that other people do not hear.....
17. Trembling.....
18. Feeling that most people cannot be trusted.....
19. Poor appetite.....
20. Crying easily.....
21. Feeling shy or uneasy with the opposite sex.....
22. Feelings of being trapped or caught.....
23. Suddenly scared for no reason.....
24. Temper outbursts that you could not control.....
25. Feeling afraid to go out of your house alone.....
26. Blaming yourself for things.....
27. Pains in lower back.....
28. Feeling blocked in getting things done.....
29. Feeling lonely.....
30. Feeling blue.....
31. Worrying too much about things.....
32. Feeling no interest in things.....
33. Feeling fearful.....
34. Your feelings being easily hurt.....
35. Other people being aware of your private thoughts.....
36. Feeling others do not understand you or are unsympathetic.....
37. Feeling that people are unfriendly or dislike you.....
38. Having to do things very slowly to insure correctness...
39. Heart pounding or racing.....
40. Nausea or upset stomach.....
41. Feeling inferior to others.....
42. Soreness of your muscles.....
43. Feeling that you are watched or talked about by others..
44. Trouble falling asleep.....
45. Having to check and doublecheck what you do.....
46. Difficulty making decisions.....
47. Feeling afraid to travel on buses, subways, or trains.....
48. Trouble getting your breath.....
49. Hot or cold spells.....
50. Having to avoid certain things, places, or activities because they frighten you.....
51. Your mind going blank.....
52. Numbness or tingling in parts of your body.....

PLEASE CONTINUE ON THE FOLLOWING PAGE

SCL-90-R

HOW MUCH WERE YOU DISTRESSED BY:	Descriptors 0 Not at all 1 A little bit 2 Moderately 3 Quite a bit 4 Extremely
53. A lump in your throat	☐
54. Feeling hopeless about the future	☐
55. Trouble concentrating	☐
56. Feeling weak in parts of your body	☐
57. Feeling tense or keyed up	☐
58. Heavy feelings in your arms or legs	☐
59. Thoughts of death or dying	☐
60. Overeating	☐
61. Feeling uneasy when people are watching or talking about you	☐
62. Having thoughts that are not your own	☐
63. Having urges to beat, injure, or harm someone	☐
64. Awakening in the early morning	☐
65. Having to repeat the same actions such as touching, counting, washing	☐
66. Sleep that is restless or disturbed	☐
67. Having urges to break or smash things	☐
68. Having ideas or beliefs that others do not share	☐
69. Feeling very self-conscious with others	☐
70. Feeling uneasy in crowds, such as shopping or at a movie	☐

HOW MUCH WERE YOU DISTRESSED BY:	Descriptors 0 Not at all 1 A little bit 2 Moderately 3 Quite a bit 4 Extremely
71. Feeling everything is an effort	☐
72. Spells of terror or panic	☐
73. Feeling uncomfortable about eating or drinking in public	☐
74. Getting into frequent arguments	☐
75. Feeling nervous when you are left alone	☐
76. Others not giving you proper credit for your achievements	☐
77. Feeling lonely even when you are with people	☐
78. Feeling so restless you couldn't sit still	☐
79. Feelings of worthlessness	☐
80. The feeling that something bad is going to happen to you	☐
81. Shouting or throwing things	☐
82. Feeling afraid you will faint in public	☐
83. Feeling that people will take advantage of you if you let them	☐
84. Having thoughts about sex that bother you a lot	☐
85. The idea that you should be punished for your sins	☐
86. Thoughts and images of a frightening nature	☐
87. The idea that something serious is wrong with your body	☐
88. Never feeling close to another person	☐
89. Feelings of guilt	☐
90. The idea that something is wrong with your mind	☐

Scoring the SCL-90-R:

Total Score: All numbers in the boxes adjacent to items are added and divided by 90. This total score is called the G.S.I. (Global Symptom Index).

Depression Score: Depression items are numbers 5, 14, 15, 20, 22, 26, 29, 30, 31, 32, 54, 71, 79 and additional items 19, 44, 59, 60, 64, 66, 89. These item scores are totalled and divided by 20.

Somatization Score: Somatization items are 1, 4, 12, 21, 40, 42, 48, 49, 52, 53, 56, 58. These item scores are totalled and divided by 12.

APPENDIX B

Health Status Checklist

HEALTH STATUS CHECKLIST

The SCL-90-R you have just completed asked you to rate specific symptoms you have experienced in the past six months (since September 1, 1980). Below are some very general questions about your health. Directions: Circle one number under each question that best describes your health.

*1. As of right now, how do you rate your health? (Circle number)

1	2	3	4	5	6	7	8	9
Extremely Poor		Poor		Good		Very Good		Excellent

2. Compared to six months ago (about September 1, 1980) is your health: (Circle number)

1	2	3	4	5	6	7	8	9
Much Worse		Worse		The Same		Better		Much Better

3. Compared to one year ago (about March 1, 1980) is your health: (Circle number)

1	2	3	4	5	6	7	8	9
Much Worse		Worse		The Same		Better		Much Better

*4. How many times have you called or seen a doctor or nurse practitioner about your health in the past six months (since September 1, 1980)? (Circle number)

0	1	2	3	4	5	6	7	8	9	10 or more

*5. How does the time period checked in #4 compare to a typical six-months' period in your life as far as seeking assistance for your health is concerned? The time period check in number 4 is: (Circle)

1	2	3	4	5	6	7	8	9
Much More Often Than Usual		More Often Than Usual		About the Same as Usual		Less Often Than Usual		Much Less Often Than Usual

*6. How many times have you been hospitalized in the past six months (since September 1, 1980)? (Circle number)

0 Times	Once	Twice	Three Times	More Than Three Times

7. Do you have any chronic, on-going health conditions, such as diabetes, high blood pressure, or a heart condition? (Circle number)

1. No

2. Yes (Name of chronic health problem:_____)

8. If Yes, compared to six months ago (September 1, 1980), is your health problem: (Circle number)

1	2	3	4	5	6	7	8	9
Much Worse		Worse		Same		Better		Much Better

Note. * indicates the item was used to form the scale, 'Current health'. Group mean scores were obtained for each item. These raw scores were converted to z scores and averaged to form the index (Murphy, S., Copyright 1981, reproduced by permission of the author).

APPENDIX C

Life Experiences Survey

THE LIFE EXPERIENCES SURVEY

Listed below are a number of events which sometimes bring about change in the lives of those who experience them and which necessitate social readjustment. Please check those events which you have experienced in the recent past and indicate the time period during which you have experienced each event. Be sure that all check marks are directly across from the items they correspond to. Check either or both time periods for each experience that you have had.

Also, for each item checked below, please indicate the extent to which you viewed the event as having either a positive or negative impact on your life at the time the event occurred. That is, indicate the type and extent of impact that the event had. A rating of -3 would indicate an extremely negative impact. A rating of 0 suggests no impact either positive or negative. A rating of +3 would indicate an extremely positive impact.

	Mar.1,1980 to Sept.1,'80	Sept.1,'80 to Mar.1,1981	Circle only one of the 7 numbers for events that you have checked.						
			extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
1. Marriage			-3	-2	-1	0	+1	+2	+3
2. Detention in jail or comparable institution			-3	-2	-1	0	+1	+2	+3
3. Death of spouse			-3	-2	-1	0	+1	+2	+3
4. Major change in sleeping habits (much more or much less sleep)			-3	-2	-1	0	+1	+3	+3
5. Death of family member:									
a. mother			-3	-2	-1	0	+1	+2	+3
b. father			-3	-2	-1	0	+1	+2	+3
c. brother			-3	-2	-1	0	+1	+2	+3
d. sister			-3	-2	-1	0	+1	+2	+3
e. grandmother			-3	-2	-1	0	+1	+2	+3
f. grandfather			-3	-2	-1	0	+1	+2	+3
g. other (specify)			-3	-2	-1	0	+1	+2	+3

	Mar.1,1980 to Sept.1,'80	Sept.1,1980 to Mar.1,'81	Circle only one of the 7 numbers for events that you have checked. extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
6. Major change in eating habits (much more or much less food intake)			-3	-2	-1	0	+1	+2	+3
7. Foreclosure on mortgage or loan			-3	-2	-1	0	+1	+2	+3
8. Death of close friend			-3	-2	-1	0	+1	+2	+3
9. Outstanding social achievement			-3	-2	-1	0	+1	+2	+3
10. Minor law violations (traffic tickets, disturbing the peace,etc.			-3	-2	-1	0	+1	+2	+3
11. Male: Wife/girlfriend's pregnancy			-3	-2	-1	0	+1	+2	+3
12. Female: Pregnancy			-3	-2	-1	0	+1	+2	+3
13. Changed work situation (different work responsibility major change in working conditions, working hours,etc.			-3	-2	-1	0	+1	+2	+3
14. New job			-3	-2	-1	0	+1	+2	+3
15. Serious illness or injury of close family member:									
a. father			-3	-2	-1	0	+1	+2	+3
b. mother			-3	-2	-1	0	+1	+2	+3
c. sister			-3	-2	-1	0	+1	+2	+3
d. brother			-3	-2	-1	0	+1	+2	+3
e. grandfather			-3	-2	-1	0	+1	+2	+3
f. grandmother			-3	-2	-1	0	+1	+2	+3
g. spouse			-3	-2	-1	0	+1	+2	+3
h. other (specify)			-3	-2	-1	0	+1	+2	+3
16. Sexual difficulties			-3	-2	-1	0	+1	+2	+3
17. Trouble with employer (danger of losing job, being suspended, demoted			-3	-2	-1	0	+1	+2	+3

	Mar.1,1980 to Sept.1,'80	Sept.1,1980 to Mar.1,'81	Circle only one of the 7 numbers for the events that you have checked. extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
18. Trouble w/in-laws			-3	-2	-1	0	+1	+2	+3
19. Major change in financial status (a lot better off or lot worse off)			-3	-2	-1	0	+1	+2	+3
20. Major change in closeness of family members (increased or decreased closeness)			-3	-2	-1	0	+1	+2	+3
21. Gaining a new family member (thru birth,adoption, family member moving in, etc.)			-3	-2	-1	0	+1	+2	+3
22. Change of residence			-3	-2	-1	0	+1	+2	+3
23. Marital separation from mate (due to conflict)			-3	-2	-1	0	+1	+2	+3
24. Major change in church activities (increased or decreased attendance)			-3	-2	-1	0	+1	+2	+3
25. Marital reconciliation w/mate			-3	-2	-1	0	+1	+2	+3
26. Major change in number of arguments w/spouse (a lot more or a lot less)			-3	-2	-1	0	+1	+2	+3
27. Married male: Change in wife's work outside the home: beginning work, ceasing work, changing to new job			-3	-2	-1	0	+1	+2	+3
28. Married female: Change in husband's work (loss of job, beginning new job, retirement,etc.)			-3	-2	-1	0	+1	+2	+3

	Mar.1,1980 to Sept.1,'80	Sept.1,1980 to Mar.1,'81	Circle only one of the 7 numbers for the events that you have checked.						
			extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
29. Major change in usual type and/or amount recreation			-3	-2	-1	0	+1	+2	+3
30. Borrowing more than $10,000 (buying home business, etc.)			-3	-2	-1	0	+1	+2	+3
31. Borrowing less than $10,000 (buying car, TV, getting school loan, etc.)			-3	-2	-1	0	+1	+2	+3
32. Being fired from job			-3	-2	-1	0	+1	+2	+3
33. Male: Wife/girlfriend having abortion			-3	-2	-1	0	+1	+2	+3
34. Female: Having abortion			-3	-2	-1	0	+1	+2	+3
35. Major personal illness or injury			-3	-2	-1	0	+1	+2	+3
36. Major change in social activities,e.g., parties, movies, visiting (increased or decreased participation)			-3	-2	-1	0	+1	+2	+3
37. Major change in living conditions of family (building new home, remodeling, deterioration of home, neighborhood)			-3	-2	-1	0	+1	+2	+3
38. Divorce			-3	-2	-1	0	+1	+2	+3
39. Serious injury or illness of close friend			-3	-2	-1	0	+1	+2	+3
40. Retirement from work			-3	-2	-1	0	+1	+2	+3
41. Son/daughter leaving home (due to college marriage,etc.)			-3	-2	-1	0	+1	+2	+3
42. Ending of formal schooling			-3	-2	-1	0	+1	+2	+3

	Mar.1,1980 to Sept.1,'80	Sept.1,1980 to Mar.1,'81	Circle only one of the 7 numbers for the events that you have checked. extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
43. Separation from spouse (due to work travel, etc.)			-3	-2	-1	0	+1	+2	+3
44. Engagement			-3	-2	-1	0	+1	+2	+3
45. Breaking up with boyfriend/girl-friend			-3	-2	-1	0	+1	+2	+3
46. Leaving home for the first time			-3	-2	-1	0	+1	+2	+3
47. Reconciliation with boyfriend/ girlfriend			-3	-2	-1	0	+1	+2	+3
Other recent experiences which have had an impact on your life. List and rate.									
48. _____			-3	-2	-1	0	+1	+2	+3
49. _____			-3	-2	-1	0	+1	+2	+3
50. _____			-3	-2	-1	0	+1	+2	+3

Scoring the LES:

Negative scores were obtained by adding the minus impact score (-3, -2, -1) for each item.

Positive scores were obtained by adding the positive impact score (+1, +2. +3) for each item.

Total scores were obtained by adding negative and positive scores. Only the negative impact scores were used in the study.

APPENDIX D

Coppel Index of Social Support

COPPEL INDEX OF SOCIAL SUPPORT

Directions: People can have many different kinds of feelings about themselves and their relationships with other people in their lives. Below are some sentences which describe certain feelings that many people have. Read each statement carefully and think about yourself and your life currently. Each statement will either be 1) NOT like you, 2) A LITTLE like you, 3) SOMEWHAT like you, 4) FAIRLY MUCH like you, 5) VERY MUCH like you. Circle the number that indicates how you feel. There are no right or wrong answers. Be as accurate and honest as you can about your feelings.

	Not at all like me	A little like me	Some-what like me	Fairly much like me	Very much like me
1. People have been there when I've needed them.	1	2	3	4	5
2. When I'm distressed, there are people who I can communicate with.	1	2	3	4	5
3. There are people in my life who let me know if I'm doing something right or not.	1	2	3	4	5
4. There are people who serve as good examples for me in dealing with problems.	1	2	3	4	5
5. There are people to whom I give and from whom I receive support during difficult periods.	1	2	3	4	5
6. I know what people expect of me.	1	2	3	4	5
7. When I'm distressed, there are people who treat me in a personal manner.	1	2	3	4	5

		Not at all like me	A little like me	Some-what like me	Fairly much like me	Very much like me
8.	There are people to whom I can go who can provide me with some ideas or answers to dealing with my problems.	1	2	3	4	5
9.	I depend on my family and friends to help me handle stressful situations.	1	2	3	4	5
10.	Family and/or friends help me approach difficult situations in a thoughtful rather than impul-sive way.	1	2	3	4	5
11.	There are people in my life who have the same or similar prob-lems as I do, and with whom I can discuss things.	1	2	3	4	5
12.	There are people in my life who I feel safe with.	1	2	3	4	5
13.	The people around me give me confidence in my ability to cope with stressful events in my life.	1	2	3	4	5
14.	I have a group (or groups) in which I feel I belong.	1	2	3	4	5
15.	The contact I have with my family and friends has a strong positive influence on my moods.	1	2	3	4	5

A total score was obtained for analysis by adding the value cir-cled adjacent to each item.

APPENDIX E

Demographics and Other Questions

FOR ALL RESPONDENTS:

Finally, we would like to ask you some questions about yourself.

1. What is your major occupation? Are you a housewife, electrician, clerk, logger? _____

2. Last grade in school you completed. _____

3. Your birthdate: _____
   Month Day Year

** 4. Compared with most people (the average American), how good is your current life situation? (Circle answer)

1	2	3	4	5	6	7	8	9
Worse Than Most		Worse Than Some		Same as Most		Better Than Some		Better Than Most

We would like you to rate the effect the media (television and newspapers, both local and national) has had on your recovery from your loss due to the volcano. Directions: Circle whatever number you feel applies to you.

Extremely Negative	Moderately Negative	Somewhat Negative	No Effect	Slightly Positive	Moderately Positive	Extremely Positive
-3	-2	-1	0	+1	+2	+3

	A Hindrance				No Effect			A Help
*5.	Local newspaper	-3	-2	-1	0	+1	+2	+3
*6.	Local/state TV	-3	-2	-1	0	+1	+2	+3
*7.	National TV	-3	-2	-1	0	+1	+2	+3
*8.	National news magazines or periodicals	-3	-2	-1	0	+1	+2	+3

What effect has local and national news coverage had on your dealing with this tragedy? (Circle number)

		Strongly Disagree		Somewhat Disagree		No Effect		Somewhat Agree		Strongly Agree
*9.	Dealing with my loss is harder because the media makes it hard to forget about my loss.	1	2	3	4	5	6	7	8	9
*10.	News coverage has been an invasion of my privacy.	1	2	3	4	5	6	7	8	9
*11.	Extensive news coverage has delayed my recovery from my loss.	1	2	3	4	5	6	7	8	9
12.	The media has had no effect on my dealing with my loss.	1	2	3	4	5	6	7	8	9
*13.	Dealing with my loss is easier because I believe others sympathize with those of us who had a significant loss.	1	2	3	4	5	6	7	8	9
*14.	News coverage has kept me from feeling so isolated.	1	2	3	4	5	6	7	8	9
*15.	News coverage has helped me recover from my loss sooner.	1	2	3	4	5	6	7	8	9
*16.	Dealing with my loss is easier because I believe others are sympthetic and would help if they could.	1	2	3	4	5	6	7	8	9

** 17. How well do you feel you have recovered from your loss? (Circle number)

1	2	3	4	5	6	7	8	9
Not at all		Barely		Somewhat		Quite Well		Completely

18. What kinds of things have happened to you before that helped you get through, or prepared you for, this event?

_____

Note. * indicates item was used to form the 11-item scale 'Media'.

19. Considering the best and worst things that could happen to you in your lifetime, where does this loss fit into the scale (Circle number)

1	2	3	4	5
Worst that could happen				Best that could happen

20. Are you angry with anyone at the present time for your loss? (Circle number)

1. No
2. Yes (If Yes, please explain)

_____

_____

21. Can you imagine that such a devastating loss might happen to you again? (Circle number)

1. No
2. Yes (If Yes, please explain)

_____

_____

22. How is the amount of your income now compared to 1979? (Circle number)

1	2	3	4	5
Much Less	Less	No Change	Greater	Much Greater

23. How adequate is your current income? (Circle number)

1	2	3	4	5	6	7	8	9
Not at All Adequate				Adequate				Much More Than Adequate

24. How satisfied are you right now with the progress of settling financial matters associated with your loss? (Circle number)

1	2	3	4	5	6
Very Dissatisfied	Moderately Dissatisfied	Slightly Dissatisfied	Slightly Satisfied	Moderately Satisfied	Very Satisfied

IF YOU HAD A PROPERTY LOSS, STOP HERE! IF YOU SUFFERED THE LOSS OF A PERSON, PLEASE ANSWER THE FINAL SIX QUESTIONS.

25. What was the relationship and age of the person(s) who died? (Circle all numbers that apply to your situation.)

1.	Husband	Age_____
2.	Wife	Age_____
3.	Intimate Friend	Age_____
4.	Mother	Age_____
5.	Father	Age_____
6.	Son	Age_____
7.	Daughter	Age_____
8.	Other (Specify) (Colleague, grandparent, grandchild)	Age_____

26. If husband or wife, how long were you married to your spouse? If intimate friend, approximately how long did you know the person who died? _____years

27. Describe your relationship with the person who died as the result of the volcanic eruption. For each of the following statements, circle the number which best describes your relationship.

**a.	Not a very important person in my life.	1	2	3	4	5	6	7	8	9	Very important person in my life.
b.	Very unhappy	1	2	3	4	5	6	7	8	9	Very happy
c.	Unresolved problems at time of death.	1	2	3	4	5	6	7	8	9	No problems in relationship at time of death.

28. Compared to other deaths of close friends and relatives you have experienced, this one was:

1. Much more difficult
2. More difficult
3. About the same
4. Less difficult
5. Much less difficult
6. No previous experience with loss of a significant other.

29. How satisfied are you with the rescue operations undertaken for people not found within the first 72 hours following the eruption? (Circle number)

    1. Not at all satisfied
    2. Slightly satisfied
    3. Moderately satisfied
    4. Very satisfied

** 30. Whom do you blame for the death of your loved one(s)? (Circle number)

    1. God
    2. Myself
    3. The person(s) who went to area
    4. Those responsible for rescue
    5. Other (Specify)_____
    6. No one

31. Finally, is there anything else you would like to tell us which might help us understand what you have gone through? Write on the other side of this sheet of paper if you wish.

Note. **Question 4 - Used to assess current life situation.
**Question 17- Used to assess recovery rate.
**Question 27a- Used to determine central/peripheral relationships with the deceased person.
**Question 30- Used to evaluate preventability/unpreventability of the death (Murphy, Copyright 1981. Reproduced by permission of the author).

AN ABSTRACT OF THE THESIS OF

MARY ELLEN COWAN

FOR THE MASTERS OF NURSING

DATE OF RECEIVING THIS DEGREE: June 11, 1982

TITLE: IDENTIFICATION OF THE HIGH RISK BEREAVED OF THE MT. ST. HELENS DISASTER

APPROVED: [redacted]

SHIRLEY MURPHY, R.N., Ph.D. THESIS ADVISOR

High risk bereaved individuals may develop psychological or physiological pathology if not identified promptly and the appropriate intervention initiated. The risk markers of age and sex and the risk factors or perception of social support, perception of the event as preventable/unpreventable, perception of one's prior relationship with the deceased as central/peripheral, and concurrent life stress were examined to determine their predictiveness toward high risk bereavement.

An ex post facto design utilizing a post test only and equivalent group was used. The data obtained in the study by Murphy (1981) was examined by secondary analysis. The data from 119 subjects were analyzed. The subjects were bereaved persons (N=69) who had lost a significant other due to the volcanic eruption. The control group (N=50) were persons who had not experienced a loss. The data were collected approximately 11 months after the disaster. The subjects' physical and mental health status, and impact of negative life events were assessed by the Hopkins Symptom Checklist, The Life Experiences Survey, The Coppel Index of Social Support, the Physical Health Index and

additional items utilized by this investigator.

The risk variables were examined against the health outcome measures of somatization, depression, and physical health through the use of Pearson correlations, multiple regression anlysis and comparisons with scattergrams. The major results are as follows:

1. Bereaved persons under 40 years of age demonstrated a greater amount of morbidity than bereaved persons over 40.

2. Bereaved females demonstrated the highest ratings in depression, and in general had higher levels of morbidity.

3. The importance of the deceased person was significantly correlated with bereaved females, indicating increased stress.

4. Younger persons viewed the death of a significant other as being preventable more frequently than older persons. This also was correlated with increased stress.

5. Persons who perceived they had poor social support demonstrated higher scores on the depression scale.

6. Stress was the highest predictor of risk on all of the morbidity outcomes.

7. The risk variables were highly correlated and when used concurrently accounted for 42.5% of the variance with depression, 33.6% of the variance with somatization, and 29% of the variance with physical health.