

Final Report

CANCER SYMPTOMS IN THE ELDERLY: SUPPORT AND RESPONSES

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Chapter 1

INTRODUCTION AND OUTLINE OF THE STUDY

This monograph is the final report of a research project on Cancer Symptoms in the Elderly. This study capitalized on the existing national sample of older people drawn for the 1980 study, Supports of the Elderly: Family/Friends/Professionals (SSE), funded by the National Institute of Aging (R01 CA36580-02). In the study of Cancer Symptoms in the Elderly we assessed the frequency of symptoms that might indicate cancer or other illnesses in a representative community-residing sample of older persons, the response of older persons to those symptoms, and the influence of the individual's support network on those responses. The study was the first major examination of the effects of social networks and significant other persons (family and friends) on the seeking of health care for such symptoms. In this introductory chapter we attempt to:

1. Explain the place of this project in a larger program of research and outline the research questions it addresses.
2. Describe the theoretical model that has guided our research on the response to symptoms.
3. Present in outline form the substantive content and chapter organization of this monograph.

Theoretical Context

Cancer occurs primarily in the older segment of the population. Approximately 50 percent of all cancers and approximately 60 percent of all

cancer deaths occur after 65 years of age. For many years it has been recognized that early treatment will affect life expectancy. However, "early detection efforts for older persons have been minimal. There is no information on what older persons do when they become aware of themselves as ill with signs and symptoms of cancer and the factors affecting promptness in their decision to seek care" (NIH Guide Supplement, 1982, p. 3).

Understanding the determinants of symptom appraisal and the seeking of professional health care can provide the basis for attempts to increase early recognition of cancer signs by patients and thus to increase the promptness with which they seek professional diagnosis and treatment. Understanding the determinants of these behaviors will help to shape the content of educational information for this age group, to discover the channels of communication and influence to which such information should be directed, and to identify the categories of older persons most likely to benefit from interventions aimed at earlier self-detection.

This study makes several important advances in understanding the appraisal of cancer and ill health symptoms and the seeking of care by older persons. It provides a nationally representative sample of noninstitutionalized persons 54 years and older. It builds upon previous findings concerning symptom appraisal and care delay, tests their replicability concerning symptoms in an older population, and focuses on variables particularly relevant to the situations and circumstances of older persons. Most important, the study performs the first major examination of the role of social support in seeking health care for

symptoms. While some of the data are retrospective, the study also includes previously collected prospective data concerning health and social support. The analyses reflect the multiple causes hypothesized to underlie symptom appraisal and the seeking of medical care.

The research described in this final report addresses four main questions concerning Cancer Symptoms in the Elderly. Each of these questions subsumes many more specific ones, some of which we regarded as exploratory and others as the subject of explicit hypotheses. These four areas are delineated below.

1. What is the frequency of reported cancer-like or cancer-suspicious symptoms in a representative sample of older people?

Although it is well-known that the incidence of cancer increases with age, it was not clear how many older people actually experience cancer-suspicious symptoms. In addition, it was unclear what the distinguishing demographic characteristics were, if any, of people experiencing such symptoms in a normal community-residing sample of older adults. In order to identify the categories of older persons most likely to benefit from interventions aimed at early self-detection, it was important to identify the group at risk. In this study we assessed the frequency of cancer symptoms and other symptoms of ill health in older adults, as well as the demographic characteristics of people with these symptoms. Additionally, in order to shape the content of educational information for this age group, we believed it was important to identify the groups of older persons who had the least knowledge about cancer causes and cancer signs.

2. What is the impact of social support on the older person's appraisal of cancer symptoms and seeking medical care?

Little research has focused directly on the influence of significant other persons on symptom appraisal and care-seeking. In this study, we examined the role of social support in differential responses to symptoms, particularly the decision to obtain medical attention. We examined whether differences in support structure, function or satisfaction affect the responses of the older persons who experienced symptoms. We also assessed the impact of personal characteristics, symptom characteristics, and social network and support variables on promptness in calling a doctor about a symptom.

3. What is the impact of symptoms on the older person's perception of his or her support network?

By capitalizing on the preexisting dataset which focused on social support among the elderly, it was possible to examine changes over four years in network structure, function, and adequacy for older individuals who have experienced ill health and cancer-like symptoms. We also examined the impact of more general health variables (the number of health problems and the degree of functional care needs) on social support, as well as the effect of support variables on the older individual's health and care needs.

4. How much agreement is there between the older individual and a significant member of his or her support network with respect to these health events and the support received?

The availability of comparable data from a network member in the present study is an important advance in the area, since previous data are based primarily on self-reports from patients. In this study we interviewed individuals who had been identified as people that the primary respondents talked to most about their symptom. In addition to examining the similarity between network members' and principal respondents' perceptions of social support, we examined the relationship between older people's response to symptoms and network member's reactions and suggestions. Additionally, we explored similarity between network members' and principal respondents' health beliefs and knowledge about cancer signs and causes.

Finally, we conducted two small studies, one a methodological substudy with individuals experiencing cancer-suspicious symptoms at the time of the interview (N=41), and the other a pilot study with people who had been diagnosed as actually having cancer at some time since their original 1980 interview (N=19). With these data, we further assessed the role of support networks in influencing the response to symptoms, adherence to medical advice, and quality of life.

Conceptual Framework

The conceptual model which guided the design and analyses of this study is presented in Figure 1.1. Symptoms and Personal Characteristics

(demographics; personality traits; health beliefs, attitudes, and knowledge; and functional health) act jointly to determine the individual's Response. This causal sequence is hypothesized to be mediated by Social Network/Support variables (support structure, function, and adequacy variables) and Enabling Factors (availability, affordability and accessibility of medical care). Stages of Response (seeking care by calling a doctor, actually obtaining care) occur through consecutive though similar processes.

The different stages of Response highlight the dynamic quality of the model and the fact that the impact of any factor may vary for different stages of response. The decision to seek care for a serious problem, for example, is hypothesized to be a function of Symptoms, Personal Characteristics, and Social Networks/Supports. Actually obtaining medical treatment, however, may be more dependent on Enabling Factors that must be present in the environment for the individual to translate the desire for medical care into an accomplished act.

The model in Figure 1.1 subsumes a variety of hypotheses concerning the effects of various categories of variables on the responses necessary for older persons with ill health symptoms to obtain care. It was used as a conceptual framework to guide the empirical investigation of the hypothesized relationships.

Outline of this monograph

A brief description of the contents of each chapter in this monograph is presented below.

Chapter Two describes the survey methods and the dataset used in this study as well as the original dataset of Social Supports of the Elderly.

Chapter Three describes the frequency of cancer-like and other ill health symptoms in our sample and explores demographic differences in symptom frequency, symptom severity, and cancer knowledge and beliefs. The factors related to obtaining medical care, especially the role of social support, are also explored for those persons with symptoms.

Chapter Four examines the impact of ill health and cancer symptoms on the support networks of older people. Changes in structure, function, and the network adequacy are assessed in these analyses, which capitalize on the longitudinal data from the Social Supports of the Elderly Study. Additionally, the impact of more general health variables on social support and the effect of social support on health are assessed.

Chapter Five examines the similarity in principal respondents' and network respondents' perception of events, and the similarity in their beliefs about health, and their knowledge about cancer signs and cancer causes. The relationships between network members' reactions to symptoms, their suggestions for action, and whether or not the principal respondents sought medical care for their symptom are also explored.

Chapter Six focuses exclusively on delay in seeking medical care for

symptoms. The role of social support, personal characteristics, and symptom characteristics are explored as important factors in promptness in calling a doctor regarding a symptom.

Chapter Seven describes the data from the two pilot studies.

The final chapter, Chapter 8, presents a summary and overview of the study.

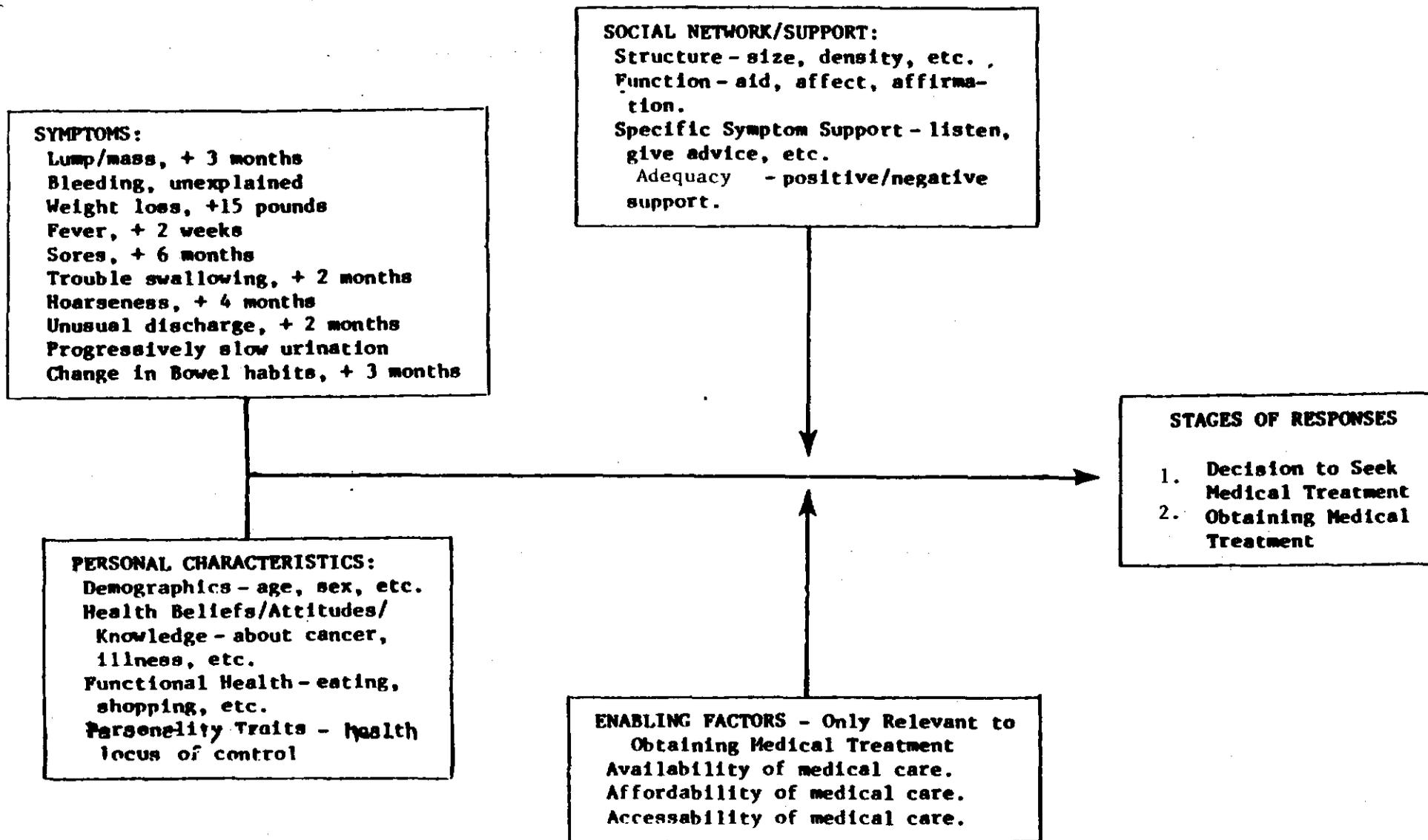


FIGURE L.1 CONCEPTUAL MODEL OF THE PROCESSES AFFECTING RESPONSE AND OTHER OUTCOMES TO SYMPTOMS

Chapter 2

METHOD

Sample

The present study capitalized on an existing national sample of older individuals drawn for the 1980 study, Supports of the Elderly: Family/Friends/Professionals (RO1 CA36580-02). The Supports of the Elderly study was designed to study the links between social support and the physical and emotional well-being of older people. The data derived from a national representative sample of households. Personal interviews were conducted with the randomly selected individuals 50 years of age or older from sample households. In addition, all household residents 70 years of age or older were interviewed. The final sample consisted of 718 respondents 50 years of age or older, 259 of whom were 70 years of age or older because of over sampling of this age group. The response rate was 73.3%. The sampling procedure and the key sample characteristics of the 1980 study are described in detail in the Final Report submitted to the National Institute on Aging (Kahn and Antonucci, 1984).

Four hundred four (404) individuals, which is 65 percent of the living members of the original sample of 718, were re-interviewed for the present study in 1984. Table 2.1 shows the response rates and the reasons for sample attrition.

Of the non-respondents in 1984, 125 of the principal respondents refused to be re-interviewed. We conducted a series of analyses of the 1980 data to determine if these refusers were significantly different in

any way from the non-refusers. In general the answer is no. However, refusers were more likely to be older, by an average of two and half years (mean age of refusers: 66.68; of respondents: 64.01) and to be married (refusers: 68.9% married; respondents: 58.4% married). Refusers were not different from respondents by sex, income, functional care needs, number of health problems, employment, retirement, widowhood, or parental status.

The interviews with the 404 individuals were conducted by using the computer assisted telephone interviewing system. The initial portion of the interview consists primarily of screening for symptoms occurring during the preceding four years (the time since the initial interview in 1980). The respondents were asked whether they had experienced any symptom in a list of 19 serious symptoms, 13 of which indicate the possibility of cancer, during the four year period. One hundred and thirty-five (135) individuals who had experienced at least one of those symptoms constitute the symptom subsample. Individuals in this subsample were asked the set of interview questions concerning Symptoms, Personal Characteristics, Social Network/Supports, Enabling Factors, and Responses to symptoms. Respondents in the symptom subsample were also asked to identify members of their social network who were knowledgeable about the respondent's health and health concerns. Among 110 network members who were nominated by the respondents as the one they talked to most about their symptoms, 72 people were interviewed by telephone concerning the primary respondents' symptoms, social network, personal characteristics, and responses to symptoms.

Among those reporting the experience of symptoms at any time since 1980, 64 respondents were experiencing symptoms at the time of the

interview. This group constitutes the subsample with current symptoms. This group is particularly interesting, since prospective data could be collected on their response to these symptoms. They were interviewed again three months later to collect data concerning responses to their symptoms over that time period. Forty-one (41) respondents completed the second interview. Twenty-two (22) network members of this subgroup were similarly re-interviewed.

The final subgroup consists of 19 individuals who reported they had been diagnosed as having cancer during the four years since the original interview in 1980. Individuals in the cancer subsample were asked questions parallel to those of all members of the symptom subgroup. In addition, individuals in the cancer subsample were asked a set of supplementary items examining the role of their support network in adherence to medical advice and quality of life as well as the impact of their experience with cancer on their support network. Nine (9) members of their support network were also asked a supplementary set of parallel questions. The types of subsamples and their sizes are summarized in Table 2.2.

Measures

Symptoms All Principal Respondents were asked a series of questions designed to assess their symptom experiences, particularly those with the possibility of cancer. These symptoms include:

1. Lump or mass in breasts, neck, abdomen, under arms or groin.*
2. Bleeding from gums, stomach, rectum, or penis (men only).*
Bleeding from gums, stomach, nipples, vagina or rectum (women only).*
3. Weight loss of more than 15 pounds not caused by dieting.*

4. Pressure or tightness in the chest lasting 5 minutes or more.
5. A fever lasting longer than three weeks.*
6. Any sores which did not heal within three months.*
7. Repeated episodes of fainting.
8. Change in the size or color of a skin mole or wart.*
9. Any trouble swallowing lasting longer than two months.*
10. Repeated loss of memory, or mental confusion.
11. Any indigestion or stomach pains lasting longer than two months.*
12. Hoarseness lasting several months.*
13. Repeated numbness or loss of feeling.
14. Cough that hung on for several months.*
15. Cough that brought up blood.*
16. Repeated loss of vision.
17. Trouble urinating, stopping, or getting slower (men only).*
Any vaginal discharge lasting longer than two months (women only).*
18. Any change in bowel habits lasting several months, (e.g.,
diarrhea, constipation).*
19. Repeated weakness in an arm or leg.

* indicates a symptom with the possibility of cancer. The inclusion of "non-cancer" symptoms makes it possible to see if responses and support are disease-specific or symptom-general.

Once it had been established that a respondent had experienced any of the above symptoms since 1980, he or she was designated as part of the symptom subsample. For those respondents additional questions were asked in four additional substantive areas: Personal Characteristics; Social Network/Support; Enabling Factors; and Responses. The specific variables in these substantive areas are listed below.

Personal Characteristics

1. Demographic Characteristics: age; sex; income; education; marital status.
2. Personality traits: health locus of control.
3. Health Beliefs/Attitudes/Knowledge: perceived value of medical care; beliefs about illness; beliefs about aging and health; knowledge about cancer; expectations about symptom; location, severity and duration of symptom.
4. Functional Health: need help with personal care, e.g., eating bathing; need help with shopping, taking care of home, etc.; effects of symptom on functional health; health compared with others same age; satisfaction with energy or pep; satisfaction with physical ability to do things.

Social Network/Support

1. Structure: size; proximity; frequency of contact; stability.
2. Function: aid; affect; affirmation.
3. Specific Symptom Support: confiding about symptom; seeking advice about symptom; receiving advice about symptom; recommending action; response to networks behavior/advice.
4. Satisfaction with Support: feel positive about support received/ given; feel negative about support received/given.

Enabling Factors

1. Availability of medical care
2. Affordability of medical care
3. Assessibility of care, e.g., transportation to medical care

Stages of Responses

1. The first step in seeking medical care in response to a symptom is calling a doctor about the symptom.
2. The second step is actually obtaining medical care.

Additional Response Variables: For the pilot study, examining individuals who were diagnosed as having cancer, additional outcome variables are considered relevant. They are:

- a. Adherence to Medical Regimen: taking medication as prescribed; appropriate diet; following exercise recommendation, etc.
- b. Quality of Life; life satisfaction; happiness; comparison with others at own age.

All interview schedules used for the present study are included as appendices to this report.

Table 2.1 Sample Attrition

	Principals	Networks
Unable to Locate	48	3
Language Barrier	9	
Too Ill to be Interviewed	27	6
Incomplete Interview	13	1
Deceased	93	2
Refusal	125	13
Completed Interview	404	72
Response Rate ¹	64.6%	75.8%
Response Rate ²	73.5%	83.7%

¹ Calculated eliminating deceased only from the base N

² Calculated eliminating deceased, unable to locate, and too ill from the base N

Table 2.2 The Sample

	Principal Respondents	Network Members
Total Sample	404	
Subsample with Symptom Experience	135	72
Subsample with Current Symptoms	41	22
Subsample with Cancer Diagnosis	19	9

Chapter 3

SYMPTOM FREQUENCY, DEMOGRAPHICS, AND PREDICTING THE RESPONSE TO SYMPTOMS

Symptom Frequency

In the 1984 interview a series of questions were asked concerning symptoms (See section C of the questionnaire, Appendix B). These symptom questions were designed to be as broad as possible, with most of the symptoms being potentially indicative of cancer. Two types of questions were asked concerning these symptoms: 1) Had the respondent experienced the symptom within the past four years? 2) If there were multiple affirmative responses to this question, the respondent was also asked which symptom had occurred most recently.

Table 3.1 presents the frequency of symptoms for both the entire list and the most recent. For the entire list, frequencies ranged from 2 mentions, of both repeated episodes of fainting and cough that brought up blood, to 37, for pressure or tightness in the chest lasting 5 minutes or more and 31, for repeated numbness or loss of feeling and repeated weakness in an arm or leg. Relative frequencies were similar for most recent symptoms, although here the range was from 0 to 17, 15 and 14 mentions.

Demographics and Symptom-Related Measures

As Table 3.2 indicates there are few demographic differences in the frequency of reported symptoms. A series of analyses of variance was performed using dichotomous independent variables. When the sample was dichotomized into age groups, 50-65 and 66-95, an expected age difference

emerged in the number of reported symptoms, $F(1,134)=4.33$, $p<.05$. There were no differences in the number of cancer symptoms reported, the time at which the symptom was noticed, the severity of symptoms in general, and the severity of cancer-suspicious symptoms.

Sex differences emerged in the severity of symptom and severity of cancer symptom. Males reported greater symptom severity in both analyses, $F(1,134)=4.14$, $p<.05$, $F(1,134)=6.99$, $p<.01$. There were no sex differences in the number of reported symptoms, the number of cancer symptoms or when they were noticed.

Marital Status yielded several significant differences. Married people reported fewer symptoms, $F(1,134)=3.72$, $p <.05$ and noticed their symptom earlier, $F(1,134)=15.0$, $p<.01$. However, they also reported more severe symptoms, $F(1,134)=3.84$, $p<.05$, and more severe cancer symptoms, $F(1,134)=4.37$, $p<.05$. There were no marital status differences in the number of reported cancer symptoms. Neither work status or income (defined as less than or equal to \$15,000 or over \$15,000) was associated with differences in number of symptoms, number of cancer symptoms, when the cancer symptom was noticed, the severity of symptoms in general or of cancer symptoms.

Exploration of the relationship between functional care needs and symptom related measures yielded two significant results. Number of symptoms, $F(1,132)=19.30$, $p<.01$, and number of cancer symptoms, $F(1,132)=6.96$, $p<.01$, predictably were related to increased need for functional care. There were no significant differences in when the symptom was noticed, the severity of the symptom or the severity of the cancer symptom.

Parallel dichotomous analyses using none or one health problem versus two to ten health problems as the independent variables yielded very similar results. The same two variables, number of symptoms, $F(1,134)=14.51$, $p<.01$, and number of cancer symptoms, $F(1,134)=5.11$, $p<.05$, were the only two significant findings. People with more health problems in general also had more of both kinds of symptoms.

Cancer Knowledge

The relationships between cancer knowledge and other variables- including demographics, social support, and other medical and health beliefs- were explored. The cancer knowledge variable ranged from 2 to 10 and reflected the respondents' knowledge of the following cancer symptoms: bleeding or discharge, lump or thickening, sore throat, change in bowel habits, hoarseness or cough, indigestion, change in wart or mole and unexplained weight loss. It also assessed respondents' knowledge of non-cancer signs such as pressure or tightness in the chest and fainting. The variable was recoded to reflect low (2-6), medium (7-8), and high (9-10) knowledge of cancer signs. The distribution of these responses is presented in Table 3.3.

The analyses reported below were conducted twice: once for respondents who had a symptom indicative of cancer or other illness (N=133), and once for all respondents (N=386). The results of the analyses are reported separately.

Respondents with Symptoms

There was a significant age difference in knowledge, with older respondents demonstrating the least knowledge, and the youngest respondents demonstrating the most knowledge, $F(2,130)=4.78$, $p=.01$.

There was a significant difference in knowledge by financial situation, with those individuals with higher incomes reporting greater knowledge, $F(2,111)=3.66$, $p=.03$.

There was a significant difference among the three groups in their health beliefs: knowledge. Those respondents with medium knowledge of cancer signs were most likely to say that they would want to know if they had a serious health conditions, while those with the least knowledge were least likely to say that they would want to know, $F(2,130)=4.19$, $p=.02$.

There was a significant difference among the three groups in their health beliefs regarding medical care. Those respondents with medium knowledge about cancer signs were more likely to agree that Doctors and Nurses play a large role in recovery from illness, that regular contact with a Doctor is the best way to avoid illness, and that if it "is meant to be" they will stay healthy. Those with low knowledge were the least likely to endorse these statements, $F(2,130)=3.69$, $p=.03$.

There was a significant difference among the three groups in their health beliefs regarding aging. Those respondents with the most knowledge were most likely to agree that as people get older, they will have more health problems and will not be as likely to continue to be well most of the time. Those with the least knowledge were most likely to disagree with these statements, $F(2,129)=5.23$, $p=.01$.

There was a significant difference among the three groups in their knowledge of cancer causes. Those with the least knowledge of cancer signs also had the least knowledge of cancer causes. The other two groups were virtually identical, $F(2,129)=9.94$, $p=.00$.

Those with the most knowledge of cancer signs also have the greatest number of health problems. Those with the least knowledge have the least number, $F(2,130)=3.51$, $p=.03$. It may be that knowledge increases sensitivity to health problems, and also that the experience of health problems leads to the acquisition of knowledge.

There was a significant difference among the three groups in satisfaction with the support given to their network members. Those with the least knowledge reported the most satisfaction, while those with the most knowledge of cancer signs were least satisfied, $F(2,128)=3.73$, $p=.03$. It is unlikely that this is a causal relationship. We interpret it as part of the syndrome that links knowledge to number of health problems.

There was a significant difference among the three knowledge groups on whether or not respondents saw a doctor regarding the symptom. Those with medium knowledge were most likely to see a doctor, and those with the least knowledge were least likely to do so, $F(2,129)=3.21$, $p=.04$.

There was a significant difference in work status. Respondents with the most knowledge regarding cancer signs were most likely to be working, and those respondents with the least knowledge the least likely, $F(2,130)=3.43$, $p=.03$.

There was a significant difference among the three groups in the

number of medical things their network members did to help them. Those respondents with medium knowledge reported the highest number, and those with the least knowledge reported the lowest number, $F(2,88)=4.09$, $p=.02$.

To summarize, among respondents with recent experience of symptoms of any kind, knowledge of symptoms indicative of cancer appears to be part of a more general system of information and belief. Those with the least knowledge are also least likely to believe that doctors and nurses play a large part in recovery from illness, or that regular contact with doctors and nurses is the best way to avoid illness. They are also least likely to say they would want to know if they had a serious health condition. There is a suggestion of curvilinearity in some of these relationships, for reasons that are not yet clear.

All respondents

There was a similar pattern of results when the ANOVAS were performed on all the respondents:

There was an age difference, with older respondents reporting the least knowledge, $F(2,383)=7.76$, $p=.00$.

There was a difference in financial situation, with respondents with the greatest incomes reporting the most knowledge, $F(2,320)=10.40$, $p=.00$.

There was a difference in health beliefs: knowledge, with those respondents with the most knowledge most likely to report that they would want to know if they had a serious health conditions, and those with the least knowledge least likely to report this, $F(2,381)=6.18$, $p=.00$.

There was a significant difference in health beliefs: age, again with those respondents with the most knowledge most likely to agree that health problems come with age, $F(2,383)=5.41$, $p=.01$.

There was a significant difference in knowledge of cancer causes, those respondents with the most knowledge about cancer signs demonstrate the most knowledge of cancer causes, $F(2,381)=26.52$, $p=.00$.

There was a significant difference in satisfaction with support given to network members, those with the most knowledge report the least satisfaction and those with medium knowledge report being most satisfied, $F(2,381)=3.31$, $p=.04$.

Finally, there was a significant difference among the three groups in satisfaction with family life, those respondents with medium knowledge of cancer signs report the most satisfaction, and those with the most knowledge report the least satisfaction, $F(2,381)=3.32$, $p=.04$.

Predicting Doctor's Visit

A series of regression analyses were performed to determine which factors affected the likelihood that the respondent would visit the doctor. In the first regression analysis, perceived severity of symptom, family income, health beliefs: knowledge, health beliefs: medical, health beliefs: locus of control, health beliefs: age, knowledge of the causes of cancer, average number of people the respondent talked with about the symptom, number of things the most helpful person did for the respondent, number of things done to get the respondent to the doctor, perceived availability of medical care, perceived affordability of medical care, and

perceived accessibility of medical care were each entered into the equation. As Table 3.4 indicates 28% of the variance was explained, $F=3.67$, $p<.01$. The results indicate that perceiving the symptom as severe, talking with more people about the symptom and having things done to facilitate the respondent's getting to the doctor each significantly increased the probability that the respondent would see a doctor (Table 3.4).

The analysis was repeated substituting number of symptoms for perceived severity of symptom. The analyses was again significant, $F=3.43$, $p<.01$, explaining 27% of the variance. Number of symptoms, health beliefs: knowledge, average number of people respondent talked with, and the number of things done by others to get the respondent to the doctor all significantly increased the probability that the respondent would see a physician (Table 3.5).

And finally, the same regression analysis was repeated substituting feeling fearful and worried about the symptom for number of symptoms. The results parallel those reported above. The analyses was significant, $F=3.44$, $p<.01$, with 27% of the variance explained. The significant predictors were feeling fearful and worried about the symptom, health beliefs: knowledge, the average number of people the respondent talked with about the symptom and the number of things done to help the respondent see a doctor (Table 3.6).

These three regression analyses provide very similar results. They suggest that several variables relating to the symptoms themselves and the respondent's immediate appraisal of them - number, perceived severity, and

feeling worried or fearful - were all significantly related to whether or not the respondent sought medical advice, care or treatment. Also important were interactions with and behaviors of supportive others. Talking with others and having others facilitate health care attainment were significantly related to whether or not the respondent saw a physician. And finally, these analyses suggest that wanting knowledge about one's health and illness was also significantly related to whether or not an individual sought professional counsel for their symptom.

The last set of analyses involved testing a model that varied symptom assessment and examined which additional factors contributed to whether or not the respondent saw a physician. In these three analyses the respondents perception of the severity of the symptom (labelled perceived severity); our physician co-investigator's assessment of the symptom (labelled objective severity); and, finally, both the perceived and objective severity measures were entered into the analyses. The correlation between these two variables is $-.02$, suggesting that they are measuring independent constructs. Each analyses also examined the effect of number of symptoms, sociodemographic characteristics, support variables, health and cancer knowledge, and availability of medical care on whether or not the respondent saw a doctor for their symptom.

In the first analyses, perceived severity, number of symptoms, work status, marital status, sex, need for functional care, health beliefs: health knowledge, knowledge of cancer signs, reports of reciprocity with important person right now, number of people talked to about the symptom, number of things done to get the respondents to the doctor, whether or not

the most helpful network member suggested seeing a doctor, and the availability of medical care were each entered into the regression equation. As Table 3.7 indicates 32% of the variance is explained, $F=4.51$, $p<.01$. The results indicate that perceiving the symptom as severe, wanting knowledge about one's health and illness, talking to more people about the symptom, and having a greater number of medical things done to help the respondent see a doctor all significantly increased the probability that medical care was obtained. Although being married was marginally related to seeing a doctor about a symptom, in general sociodemographic variables were not significantly related to obtaining medical consultation concerning a symptom.

The next analyses, reported in Table 3.8, substituted objective severity for perceived severity but was otherwise identical. The overall regression is significant, $F=4.56$, $p<.01$, and approximately 33% of the variance is explained. The objective severity variable is significant as are health beliefs:knowledge, number of people R talked to about symptom and number of medical help network gave R.

In the last analyses, reported in Table 3.9, both perceived and objective severity were entered into the otherwise identical regression model. Interestingly, only objective severity is shown to be significant but all other results were similar to those found in the previous two analyses. Health beliefs:knowledge, number of people R talked to about symptom; and number of medical help network gave R were each significant, $F=4.60$, $p<.01$, $R\text{ Square} = .35$.

These analyses clearly indicate that symptom severity both as

perceived by the respondent and by a physician are significant predictors of whether or not an individual will see a physician. Of particular interest for the purpose of this study is that in addition to symptom severity, support from others, as well as wanting knowledge about one's health, are also important predictors of whether or not an individual will see a physician in response to a symptom.

Table 3.1

Frequency of Symptoms List

<u>Symptom</u>	<u>Frequency</u>	
	<u>Entire list</u>	<u>Most recent</u>
Lump or mass in breasts, neck, abdomen, under arms, or groin.	19	8
Bleeding from gums, stomach, rectum, penis, nipples, or vagina.	19	12
Weight loss of more than 15 pounds not caused by dieting.	23	5
Pressure or tightness in the chest lasting 5 minutes or more.	37	17
Fever lasting longer than 3 weeks.	4	3
Any sores which did not heal within 3 months.	6	4
Repeated episodes of fainting.	2	0
Change in the size or color of a skin mole or wart.	12	4
Any trouble swallowing lasting longer than 2 months.	9	5
Repeated loss of memory or mental confusion.	17	3
Any indigestion or stomach pains lasting longer than 2 months.	14	6
Hoarseness lasting several months.	9	3
Repeated numbness or loss of feeling.	31	15
Cough that hung on for several months.	22	12
Cough that brought up blood.	2	0
Repeated loss of vision.	24	9
Trouble urinating or vaginal discharge lasting longer than 2 months.	16	11
Any change in bowel habits lasting several months.	14	5
Repeated weakness in an arm or leg.	31	14

Table 3.2

Analyses of Variance of Symptom-related Measures across
Demographics for Respondents with Symptoms

	N	# of Symptoms	# of Cancer Symptoms	When Noticed	Severity of Symptom	Severity of Cancer Symp
50-65 yrs old	59	1.95	1.12	29.5	8.88	6.37
66-95 yrs old	77	2.55	1.34	26.7	9.25	6.98
F(1,134)		4.33*	1.50	.35	.17	.39
Males	50	2.16	1.24	28.0	10.29	8.32
Females	86	2.36	1.24	27.9	8.41	5.82
F(1,134)		.45	.00	.00	4.14*	6.99**
Not Married	64	2.58	1.31	18.9	8.16	5.55
Married	72	2.03	1.18	36.0	9.90	7.52
F(1,134)		3.72*	.55	15.0**	3.84*	4.37*
Not Working	99	2.39	1.25	30.6	9.08	6.69
Working	37	2.00	1.22	20.8	9.11	6.83
F(1,134)		1.49	.03	3.60+	.00	.02
< \$15,000 inc	69	2.46	1.28	28.7	8.87	6.44
> \$15,000 inc	48	1.94	1.10	29.4	9.60	7.36
F(1,115)		2.77+	.76	.02	.59	.77
No Func Needs	82	1.83	1.06	25.6	8.98	6.68
Needs Func Care	52	3.06	1.54	32.3	9.08	6.63
F(1,132)		19.30**	6.96**	2.01	.01	.01
0-1 Hlth Prob	37	1.43	.91	31.8	9.11	6.70
2-10 Hlth Prob	99	2.61	1.36	26.6	9.08	6.74
F(1,134)		14.51**	5.11*	.99	.00	.00

+p < .10

*p < .05

**p < .01

Table 3.3

Distribution of Respondents on Knowledge of Cancer Signs

	<u>All Respondents</u>	<u>Those with a Symptom</u>
	N=386	N=133
Low Knowledge:	N=53, 13.7%	N=21, 15.8%
Medium knowledge:	N=187, 48.4%	N=59, 44.4%
High knowledge:	N=146, 37.8%	N=53, 39.8%

Table 3.4

Factors Predicting Doctor's Visit: Perceived Severity

Multiple Regression Analysis

	b	beta
Perceived Severity	.16*	.21
Family Income	.02	.10
Health Beliefs: Knowledge	.05+	.15
Health Beliefs: Medical	.03	.08
Health Beliefs: Locus/Control	-.04	-.09
Health Beliefs: Age	.00	.00
Cancer Knowledge: Causes	-.03	-.04
Average Number R Talked to about symptom	.09*	.19
# of Things Helpful Person did for R	-.02	-.06
# of Things done to get R to Doctor	.07**	.28
Availability of Medical Care	.02	.03
Affordability of Medical Care	.00	.01
Accessibility of Medical Care	-.01	-.02
Intercept	.38	
2 R	.28	
F-ratio	3.67**	

+p < .10
 *p < .05
 **p < .01

Table 3.5
Factors Predicting Doctor's Visit: Number of Symptoms
Multiple Regression Analysis

	b	beta
Number of Symptoms	.04*	.16
Family Income	.02	.11
Health Beliefs: Knowledge	.07*	.20
Health Beliefs: Medical	.02	.05
Health Beliefs: Locus/Control	-.02	-.06
Health Beliefs: Age	.01	.01
Cancer Knowledge: Causes	-.04	-.05
Average Number R Talked to about symptom	.11**	.25
# of Things Helpful Person did for R	-.03	-.07
# of Things done to get R to Doctor	.07**	.28
Availability of Medical Care	.02	.04
Affordability of Medical Care	.01	.04
Accessibility of Medical Care	.00	.00
 Intercept	 .20	
 2 R	 .27	
 F-ratio	 3.43**	

+p < .10
 *p < .05
 **p < .01

Table 3.6

Factors Predicting Doctor's Visit: Fearful and Worried

Multiple Regression Analysis

	b	beta
Fearful and worried about symptom	.08*	.16
Family Income	.02	.09
Health Beliefs: Knowledge	.06*	.18
Health Beliefs: Medical	.01	.03
Health Beliefs: Locus/Control	-.03	-.07
Health Beliefs: Age	.01	.03
Cancer Knowledge: Causes	-.02	-.03
Average Number R Talked to about symptom	.10*	.21
# of Things Helpful Person did for R	-.03	-.07
# of Things done to get R to Doctor	.08**	.29
Availability of Medical Care	.03	.07
Affordability of Medical Care	.01	.02
Accessibility of Medical Care	-.02	-.03
Intercept	.22	
R^2	.27	
F-ratio	3.44**	

+p < .10

*p < .05

**p < .01

Table 3.7

Factors Predicting Doctor's Visit: Perceived Severity only

Multiple Regression Analysis

	b	beta
Perceived Severity	.13*	.17
Number of Symptoms	.02	.09
Work Status (0=Not Working, 1=Working)	-.11	-.13
Marital Status (0=Not Married, 1=Married)	.11+	.14
Sex of Respondent (0=Male, 1=Female)	.06	.08
Need for Functional Care	.03	.07
Health Beliefs: Knowledge	.06*	.20
Knowledge of Cancer Signs	-.01	-.02
Mean Reciprocity Right Now	.04	.08
# of People R Talked to about Symptom	.11**	.23
# of Medical Help Network Gave R	.05*	.18
Did Network Recommend See Dr. (0=No, 1=Yes)	.08	.09
Availability of Medical Care	.00	.01
Intercept		
2		
R		.32
F-ratio		4.51**

+p < .10
 *p < .05
 **p < .01

Table 3.8

Factors Predicting Doctor's Visit: Objective Severity only

Multiple Regression Analysis

	b	beta
Objective Severity	-.01*	-.17
Number of Symptoms	.03	.12
Work Status (0=Not Working, 1=Working)	-.11+	-.13
Marital Status (0=Not Married, 1=Married)	.11+	.14
Sex of Respondent (0=Male, 1=Female)	.04	.05
Need for Functional Care	.03	.09
Health Beliefs: Knowledge	.08**	.24
Knowledge of Cancer Signs	.01	.01
Mean Reciprocity Right Now	.03	.06
# of People R Talked to about Symptom	.12**	.25
# of Medical Help Network Gave R	.05*	.21
Did Network Recommend See Dr. (0=No, 1=Yes)	.11	.13
Availability of Medical Care	.01	.02
Intercept	-.04	
2		
R	.33	
F-ratio	4.56**	

+p < .10
 *p < .05
 **p < .01

Table 3.9

Factors Predicting Doctor's Visit: Objective and Perceived Severity

Multiple Regression Analysis

	b	beta
Perceived Severity	.12+	.15
Objective Severity	-.01*	-.16
Number of Symptoms	.02	.10
Work Status (0=Not Working, 1=Working)	-.11+	-.14
Marital Status (0=Not Married, 1=Married)	.12+	.16
Sex of Respondent (0=Male, 1=Female)	.04	.05
Need for Functional Care	.03	.08
Health Beliefs: Knowledge	.07**	.21
Knowledge of Cancer Signs	-.00	-.01
Mean Reciprocity Right Now	.03	.07
# of People R Talked to about Symptom	.11**	.23
# of Medical Help Network Gave R	.05*	.20
Did Network Recommend See Dr. (0=No, 1=Yes)	.10	.11
Availability of Medical Care	.00	.01
Intercept	.04	
R^2	.35	
F-ratio	4.60**	

+p < .10
 *p < .05
 **p < .01

Chapter 4

Causal Relationships Between Social Support and Health

We have seen growing evidence of the relationship between social support and health. Although the majority of the existing literature has shown that social support has a positive effect on health (Cohen & Syme, 1985), the evidence for a positive relationship between the two variables is not unanimous, as Wallston, Alagna, DeVellis, & DeVellis (1983) recently pointed out. Social support, apparently, is not always supportive. Recent research has begun to detail the characteristics of social support which contribute to its effectiveness.

In this chapter, the causal relationship between specific characteristics of social support and the health of older men and women is analyzed, using two-wave panel data. The chapter begins with a series of analyses to examine the effect of support variables on the older individual's health. Then the opposite causal relationship, the impact of health on social support, is investigated.

Since the principal respondents in the present study are part of the larger sample interviewed for the Supports of the Elderly study, comparable data are available for 1980 and 1984 on three aspects of their support networks (structure, function, and adequacy of social support) and two health criterion variables. The social support and health variables used for analyses in this chapter are listed in Table 4.1.

Effects of Social Support on Subsequent Health

First, the question of whether social support influences an individual's health status is addressed. A follow-up question asks what characteristics of social support contribute to its effectiveness once a relationship between social support and health has been established. This is an especially important question for the elderly, who have an increased probability of losing network members over time. A series of regression analyses were performed to assess the impact of specific social support variables on the health of older individuals over the four-year period. Including the time-lagged support variables in the ordinary regression equation produces b-coefficients that are no longer unbiased estimates, however, due to the presence of auto-correlated disturbances. Therefore, two-stage least-squares regressions were used to arrive at an equivalent equation providing unbiased estimates. Markus (1979) provides a concise description of the conceptual basis and computation procedure for two-stage least-squares regression analysis. These analyses were conducted separately for each support variable in order to assess its effect on a health measure in 1984 while controlling for the same health measure in 1980.

The analyses indicate no statistically significant effect of social support on the number of health problems. However, the support variable "the number of network members to whom a respondent would talk about health" was significantly related to the degree of functional care needs in 1984 controlling for functional care needs in 1980. As the standardized regression coefficient in Table 4.2 indicates, individuals who report talking to more network members about health tend to require more functional care. The effect of this particular support variable is

consistently significant in two separate regression equations in which the number of network members available to talk about health in 1980 and the same variable in 1984 were entered respectively as a predictor. One possible interpretation of this unexpected finding is that some individuals begin to discuss health matters with their network members early in the illness process. Thus, some people who were not feeling well in 1980 but did not yet have a physician's diagnosis of their health problem were actively seeking help from their support network by discussing their health with them. Their increased needs for functional care, however, were not evidenced until four years later.

Effects of Health on Subsequent Social Support

The effect of health on social support of older persons over time was examined. A series of two stage least-square linear regression analyses was performed by entering each social support variable in 1984 as a dependent variable and a health variable as a predictor controlling for the same support variable in 1980. The results of these analyses indicate no significant impact of either the number of health problems or the degree of functional care needs on any social support variable.

The Relationship between Symptoms and Social Support

Finally, we examined the impact of the presence of symptoms, most of which are cancer-suspicious, on social support of older individuals. The symptom variable was dichotomized by coding the presence of one or more symptoms as 1 and no symptom as 0. Of 404 respondents, 136 individuals reported the presence of at least one symptom. Since the presence of

symptoms was assessed only in the 1984 study, time-lagged data on this variable are not available and two-stage least squares regression analyses are not feasible. Instead, a series of step-wise regression analyses were conducted to assess the effect of symptom experience on the level of each social support variable in 1984, controlling for the level of similar support in 1980. In each regression analysis, a support variable in 1980 was entered into the equation first. Controlling the effect of the level of support in 1980 on the level of support in 1984 in this way, the magnitude of regression coefficient of the symptom variable was examined to assess the impact of the presence of symptom on the level of support in 1984.

The presence of symptoms had a statistically significant effect in two of the regression equations for which summary statistics are presented in Table 4.2. Those two support variables are: (1) the number of network members "who would make sure that you were cared for if you were ill;" and, (2) the number of network members "who get on your nerves." The signs of the regression coefficients indicate that, compared to respondents who report no symptoms, those who report experiencing symptoms report having fewer people who would care for them in case of illness and more people who get on their nerves. It appears that in these respects the presence of a symptoms is associated with less social support, or at least the perception of less support. Despite their greater present or impending need for sick care, those individuals who are experiencing symptoms report fewer people willing to take care of them.

Healthy persons may tend to overestimate the number of people who

would care for them in case of illness and, once they become ill, the number who are actually willing to take care of them may become clearer and is often smaller. It is also conceivable that individuals without symptoms or with a symptom in an early stage actually have a larger pool of people who provide sick care, but that they lose some of those people during a prolonged illness. Consistent with this interpretation is our finding that the presence of symptoms negatively affects the emotional relationships of older persons with their network members. Those individuals experiencing symptoms report more people who get on their nerves. The stress caused by illness on both sick persons and their care providers could be considered an intervening factor, although further analyses are required to make a conclusive statement about this.

In general, the results of these analyses indicate few causal linkages between social support and health of older individuals (Figure 4.1 & 4.2). Contrary to our expectations, there was no empirical evidence that adequate social support had a positive impact on the health of older persons over time, and little evidence that good health would help older persons to develop or maintain a supportive social network. However, before definitive conclusions can be drawn on these issues, several additional analyses should be performed. Specifically, the linkages between social support and health should be further examined by taking other related variables into consideration, as opposed to assessing only their direct linkages. We intend to conduct a series of path analyses to assess possible indirect linkages between social support and health by including intervening variables such as stress level and exogenous variables such as age and income, which might have a suppressive effect on the social

support/health linkage but these could not be completed within the time frame of the present study.

The existing literature also suggests that the importance of social support may differ according to the health status of an individual (Arling, 1985). Social support, or its absence, may have a greater impact on the health and well-being of people in poor health than on those in good health. We plan to test this hypothesis. If this hypothesis is supported, future analyses will be directed towards identifying the specific social support variables that make effective contributions to the well-being of older individuals with health problems.

Figure 4.1

Causal Relationships between Social Support and Health

Based on the 1980 and 1984 data

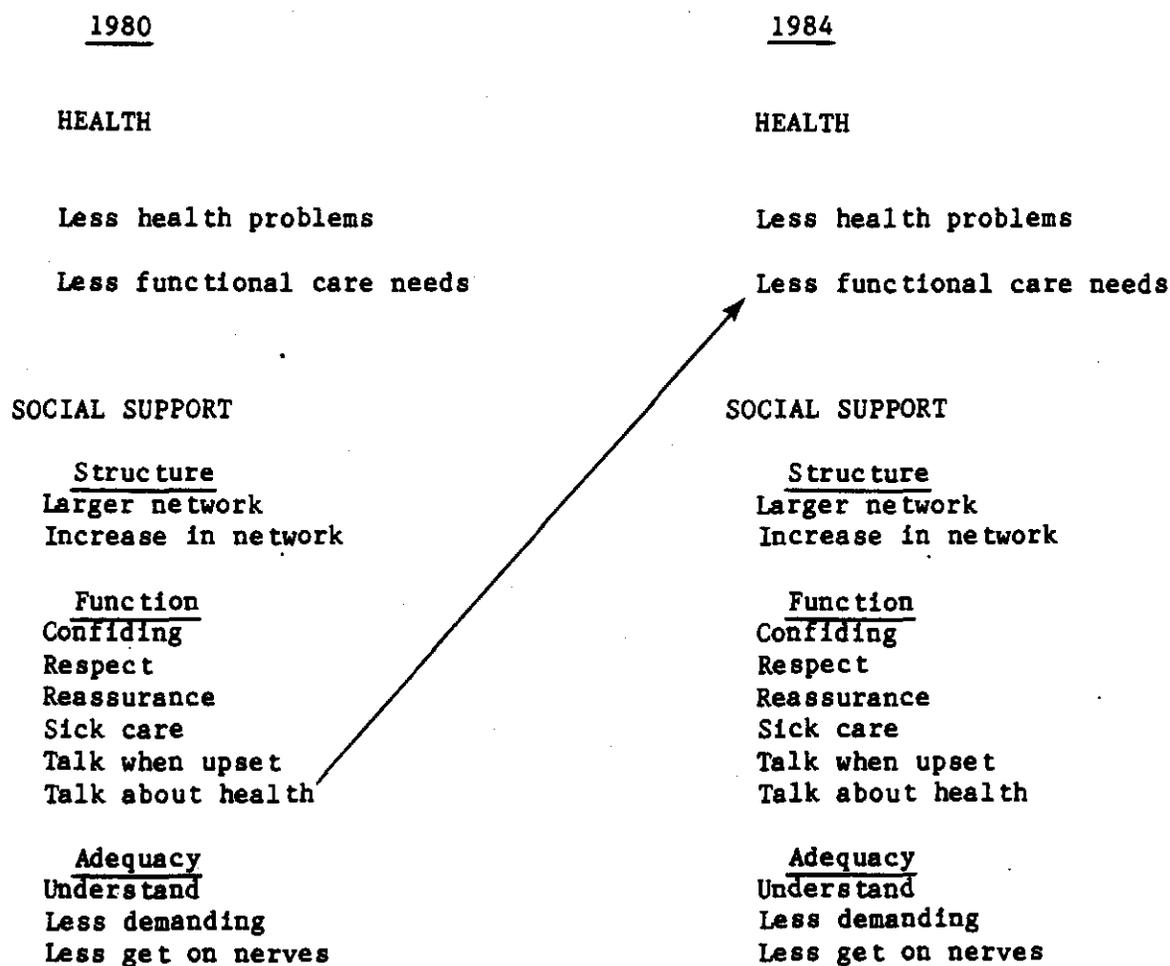


Figure 4.2

Relationships between Social Support and Health based on 1984 Data

1984

SOCIAL SUPPORT

Structure

Larger network

More friends

Increase in network

Function

Confiding

Respect

Reassurance

Sick care

Talk when upset

Talk about health

Adequacy

Understand

Less demanding

Less get on nerves

HEALTH

No symptom

Less health problems

Less functional care needs

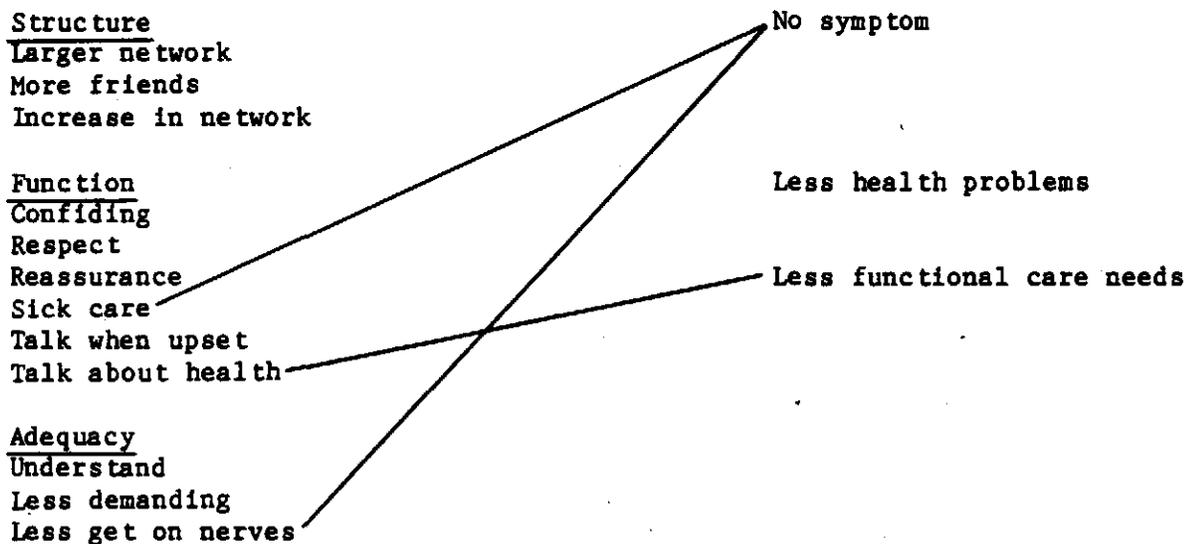


Table 4.1

Variables Entered into Two-Stage Least-Square Regression Analyses

Social Support

Structure

Network size

Change in network size during the past 5 years

Function

Confiding

Receiving respect

Receiving reassurance

Receiving sick care

Talk when upset

Talk about health

Adequacy

Understanding

Demanding

Get on nerves

Health

Number of health problems

Level of functional care needs

Table 4.2

Summary Statistics of Relationships between Social Support and Health^a

Dependent variable = Functional care needs in 1984

Predictors	B	STD ERR
Functional care needs in 1980	-.172	.103
Talk about health in 1980	1.256	.583

Dependent variable = Functional care needs in 1984

Predictors	B	STD ERR
Functional care needs in 1980	1.124	.473
Talk about health in 1984	.162	.061

Dependent variable = Sick care in 1984

Predictors	B	STD ERR
Sick care in 1980	.17	.049
Presence of symptom in 1984	-.11	.051

Dependent variable = Network get on nerves in 1984

Predictors	B	STD ERR
Network get on nerves in 1980	.22	.048
Presence of symptoms in 1984	.10	.048

^a the statistics of only regression models significant at the $p < .05$ level are presented.

Chapter 5

PRINCIPAL RESPONDENT AND NETWORK ANALYSES

In this chapter, we examine the relationship between respondents' reactions to symptoms and various aspects of their support networks. Of interest, and presented in the following pages, is the ability of network members' reactions and suggestions to predict the principal's response to symptoms; the similarity between principal and network respondents' perceptions of social support; and the similarity between principal and network respondents' health beliefs and knowledge about cancer signs and symptoms.

Predicting Principal's Behavior from Principal and Network's Reactions and Suggestions

In order to examine the relative predictive influence of principal and network members, reactions to the symptom on the probability that the principal respondent would see a doctor, parallel regression analyses were performed. Table 5.1 presents both sets of regression analyses. Both principal and network member's responses were available for the following variables: perception of severity of symptom, feeling fearful about symptom, feeling worried about symptom, feeling one should pray (before seeing a doctor), and feeling one should administer self-treatment (before seeing a doctor). Each of these variables was entered into parallel regression analysis. Whether principal respondents saw a doctor (coded 0=no, 1=yes) was the dependent variable in each analyses. As Table 5.1 reveals, the findings suggest that the network respondent's perception of the symptom has a greater influence on the respondent's behavior than do

the principal respondent's own perceptions. The overall regression analyses using principal's responses as predictor variables did not significantly predict whether or not the principal respondent saw a doctor. However, identical network respondent variables were significantly related (R Square = .22). The fear and concern of network respondents about the meaning of the principal respondents' symptoms predicted significantly to the principals' getting to a doctor. Our presumption is that the network respondents' fear was expressed directly as urging medical treatment, or that their fear was nevertheless apparent and led less directly to the same outcome.

Conversely, the belief of network respondents that prayer was a preferred course of action was negatively related to the principal respondents' seeking medical care. Apparently prayer was seen as an alternative to medical care rather than as a complement to it, at least as relatively early symptom stages.

We had expected that network respondents' belief of advocacy of self-treatment would, like prayer, tend to defer the seeking of medical care by the principal respondents. This is not the case, however; belief in self-treatment by network respondents is positively related to the seeking of medical care by the principals. Self-treatment is perhaps seen as a preliminary or adjunct to medical care, rather than a substitute for it.

Principal and Network Similarity in General Perceptions of Support

The relationship between principal and network respondents,

perceptions of support are presented in Table 5.2. The principal respondents generally reported quite high satisfaction with the support received from the person they named as most important. On a scale of 1 to 7, with 1 being completely dissatisfied and 7 being completely satisfied, the mean score was 6.37. Network respondents were also highly satisfied with the support they provided to the principal respondent. On the same 7-point scale their mean response was 6.04. Pairwise t-tests indicated that principal and network respondents, satisfaction scores for support received and provided were not significantly different from each other (see Table 5.2).

Two questions, different with respect to time frame, explored the views of principal respondents and network members regarding the degree of reciprocity in their relationship. When asked about the degree of reciprocity in their relationship over an extended period of time, both principal and network respondents were more likely to feel that the other respondent had provided more. For principal respondents, the five point scale was scored 1 = I provided more; 3 = about equal; and 5 = network member provided more. Their mean score was 3.20. Network respondents reciprocity measure was scored 1 = principal respondent provided more; 3 = about equal; 5 = I provided more. The mean score for network respondents was 2.76. Pairwise t-tests indicate that these perceptions were significantly different, $t(100)=2.04$, $p<.05$ (see Table 5.2).

Similar questions were asked concerning reciprocity right now. In this case the principal respondents again reported that network members were providing more, mean = 3.32, but this time network members were likely

to agree with them, mean = 3.48. Analyses indicate that these scores were not significantly different from each other (see Table 5.2); that is, both principal and network respondent reported that at the time of the interviews network members were providing slightly more support than they were receiving.

Principal and Network Similarity in Perceptions of Symptom Support

Both the principal and network respondents were asked several questions that focused specifically on the principal respondent's symptom. The mean responses of principal and network respondents are presented below and the results of the comparison are presented in Table 5.3. Agreement between the two sets of responses is substantial, although the direction of the differences suggests that network members responded to the symptoms somewhat more seriously than the principal respondents. For example, 47% of the principal respondents felt their symptom was serious but 55% of the network members perceived the symptom as serious. Pairwise t-tests indicate, however, that this difference was not significant.

Similarly network members appeared to be slightly more fearful and worried than the principal respondents about the symptom. On a scale from 0-2, with 0=neither fearful or worried, 1=either fearful or worried, and 2=both fearful and worried, the principal respondents' mean score was .90 and network members' average was 1.09. Analyses indicated, again, that these scores were not significantly different (see Table 5.3).

There appears to be agreement between the principal and network respondents about the things that network members did in response to the

symptom. Principal respondents report that network members did an average of 3.44 things for them (on a four-point scale of support in which listening, comforting, giving advice, and helping them take action each counted as one), and network respondents report doing an average of 3.59 things for their principal respondent friend or relative. Principal respondents also report that their network members did an average of 1.78 things for them that were more specifically treatment oriented (on a five point scale consisting of making medical appointments, driving them to the doctor, talking to the doctor for them, offering to help with medical expenses, and any other medical assistance). Network respondents indicate that they provide the principal respondent with slightly more medical supports, mean = 1.84. Paired t-tests indicate no difference between principal and network members on these variables, however (See Table 5.3).

Network respondents report that they recommended some action to principal respondents 92% of the time. This was considerably higher than the report by principal respondents, who report that network respondents suggested some action only 80% of the time. This difference was significant, $t(130)=-2.20, p<.05$. There was agreement that the network respondent recommended that the principal respondent see a physician. Ninety-six percent of the principal respondents said the network respondents so recommended and 96% percent of the network respondents reported that they recommended that the principal respondent see a physician.

There was some discrepancy on the follow up question which asked if the network member did anything else to make it easier for the principal

respondent to see a physician. Here the discrepancy is quite interesting and perhaps somewhat different from those noted previously. Overall, principal respondents say their network members are providing additional help quite a bit more often (54% of the respondents said network members did something else to make it easier for them to see a physician) than network members so report (only 29% of network members report that they did something else to help the principal respondents see a physician). Pairwise t-tests indicated that this difference is significant, $t(124)=2.90$, $p<.01$ (see Table 5.3).

Principal and Network Similarity in Health Beliefs and Cancer Knowledge

A series of questions were asked concerning health beliefs of both principal and network respondents and their knowledge about cancer signs and causes. In this section the means of both respondents are presented on these items and the results are summarized in Table 5.4. None of the mean differences on the health beliefs items are significantly different. There is a difference, however, in principal and network members, knowledge of cancer causes.

An index was created which was labelled Health Beliefs: Knowledge. This index combined two items: Would you like to know if you had a life threatening condition? and, Would you like to know as soon as possible? The responses of principal and network respondents showed a high degree of similarity. On a 1 to 5 scale, with 5 indicating high agreement with these items, the mean for principal respondents is 4.16 and for network respondents it is 4.29.

The index labeled Health Beliefs: Medical included questions which assessed the respondents, beliefs that the medical system, and doctors and nurses are what "gets me well". Again, using a five point scale with 5 indicating high agreement with these items, there was a great degree of similarity: the mean for principal respondents is 4.12 and for network respondents the mean is 3.89.

The variable labeled Health Beliefs: Locus of Control tapped the respondents' belief in whether or not their own behavior would determine recovery. The similarity in scores is again quite high, with principal respondents reporting a mean on the Health Locus of Control scale of 3.54 and network respondents reporting a mean of 3.51.

A series of questions assessed the degree to which the individual felt that age was an important and negative influence on health. These questions were labelled Health Beliefs: Age. Principal respondents generally agreed that age itself was a negative factor in health, mean = 3.72, as did network respondents, mean = 3.54.

The relationship between principal respondents' and network members' knowledge and beliefs about cancer and cancer signs was also examined. Although principal respondents were somewhat less knowledgeable than their network members concerning cancer causes, both were familiar with the major causes identified by current medical expertise. On a scale from 1 to 5, with 1 indicating low and 5 indicating high knowledge, the mean for principal respondents was 4.14 and for network respondents was 4.34. Paired t-tests indicated that this difference is significant, $t(138)=-2.68$, $p<.01$. Both network respondents and principal respondents were also

knowledgeable concerning cancer signs, with means of 8.41 and 8.06, respectively, on a 10-point scale (Table 5.4). The difference in means is not significant.

Table 5.1

RESULTS OF PARALLEL REGRESSION ANALYSIS FOR PRINCIPAL AND NETWORK MEMBERS

N = 70

	Did R see Dr?			
	Network		Principal	
	b	beta	b	beta
Perceived severity	-.04	-.06	.03	.04
Feel fearful	.04*	.26	.02	.14
Feel worried	-.01	-.08	.04*	.27
Before Dr: Pray	-.04*	-.27	.00	.03
Before Dr: Self-treatment	.04*	.24	.02	.10
Intercept		1.02		1.18
² R		.22		.11
F-ratio		3.53**		1.63

Table 5.2

PAIRWISE T-TESTS ON VARIABLES IN PRINCIPAL-NETWORK ANALYSES OF GENERAL SUPPORT

	MEANS		T-STAT
	PRINCIPAL	NETWORK	
Satisfaction with support received/given	6.37	6.04	1.29
Reciprocity (all the time)	3.20	2.76	2.04*
Reciprocity (right now)	3.32	3.48	-.89

* $p < .05$

** $p < .01$

Table 5.3

PAIRWISE T-TESTS ON VARIABLES IN PRINCIPAL-NETWORK ANALYSES OF SYMPTOM SUPPORT

	MEANS		T-STAT
	PRINCIPAL	NETWORK	
Perceived severity of symptom	.47	.55	-.90
Fearful and worried about symptom	.90	1.09	-1.46
# things network did for principal	3.44	3.59	-1.09
# medical things network did for principal	1.78	1.84	-.27
Did network member recommend anything?	.80	.92	-2.20*
Did network recommend principal see Dr?	.96	.96	0
Did network member do anything else to facilitate principal seeing the Dr?	.54	.29	2.90**

* $p < .05$ ** $p < .01$

Table 5.4

PAIRWISE T-TESTS ON VARIABLES IN PRINCIPAL-NETWORK ANALYSES OF HEALTH BELIEFS
AND CANCER KNOWLEDGE

	MEANS		T-STAT
	PRINCIPAL	NETWORK	
Health beliefs: knowledge	4.16	4.29	-.76
Health beliefs: medical	4.12	3.89	1.79
Health beliefs: locus of control	3.54	3.51	.20
Health beliefs: age	3.72	3.54	1.31
Knowledge of cancer causes	4.14	4.34	-2.68**
Knowledge of cancer signs	8.06	8.41	-1.44

* p < .05

** p < .01

Chapter 6

FACTORS PREDICTING DELAY IN SEEKING MEDICAL CARE

In this chapter, the important factors which delay the seeking of medical treatment for cancer symptoms are identified. From 35 percent to 50 percent of patients with diagnosed cancer delay seeking professional care for more than three months after symptoms first appear (Antonovsky & Hartman, 1974). Previous research on the factors associated with delay in seeking care has found that delay tends to be longer for individuals with low socioeconomic status and little education and for older individuals. Additionally, delay is longer if the symptom is not painful, not perceived as severe, or not considered immediately threatening. Delaying medical attention is also affected by people's knowledge about cancer symptoms and treatment, as well as their beliefs about health and illness. Finally, aspects of the health care system such as the availability, affordability and accessibility of medical care may affect delay. There has been little work on the influence of significant other persons on the decision to seek care for symptoms, although supportive others have been shown to affect preventive health behavior and adherence to prescribed medical regimens (Antonovsky and Hartman, 1974; Rosenstock and Kirscht, 1979). With this study, we were able to assess the effect of social support on promptness in seeking medical attention and to explore what it may be about social networks and support that gets people to call a doctor more quickly.

The bivariate relationships between symptom characteristics, personal characteristics, social network/support variables, enabling factors and delay were examined first. Table 6.1 presents the variables that were

examined within each of these five categories. The correlations among the variables indicate the strongest predictors of delay within each category, but also indicate collinearity among predictors that could make the results of multivariate analyses unstable. The correlation matrix is presented in Table 6.2. Based on the results of the bivariate analysis, we proceeded to test our model of the multivariate relationships.

The dependent variable in these analyses was the length of time before the respondent called a doctor. This variable ranged from 1 week to 6 or more months. Those respondents who never called a doctor about their symptom were assigned the value of 6 months or more. The mean on the dependent variable was between 1 month and 2 months. Symptom characteristics tested in the model included both the perceived severity of the symptom as perceived by the respondent, the objective severity as judged by our medical colleagues, and the individual's first response to the symptom (e.g., thought symptom would go away by itself). The personal characteristics included in these analyses were the respondents' beliefs regarding knowledge about their health and their knowledge about recovery from cancer being improved with early detection. Social network/support variables included two symptom support and satisfaction items: the number of people who advised the respondent to see a doctor, and how helpful the respondent perceived the person he or she talked to most about the symptom. Finally, the perceived accessibility, availability and affordability of medical care were used as enabling factors.

In the first analysis, presented in Table 6.3, the length of time before the respondent called a doctor about the symptom was regressed on the number of people in the network who advised them to see a doctor; how

helpful talking to the person they talked to most about the symptom was; perceived severity of symptom; objective severity of symptom; health beliefs: knowledge; how much they believed that the chance of recovery from cancer improved with early detection; whether their first response to the symptom was that it would go away; and the enabling factors. As Table 6.3 indicates, 26% of the variance was explained, $F=3.54$, $p<.01$. The results indicate that the number of people who advised the respondent to see a physician regarding the symptom, the objective severity of the symptom, and the respondent's health beliefs regarding wanting to know if they had a life threatening condition were positively related to promptness in calling the doctor (i.e., negatively related to delay).

The analysis was repeated without the enabling factors. The results are again significant, $F=4.57$, $p<.01$, with 23% of the variance explained. As Table 6.4 indicates, this analysis confirmed that advice from supportive others, the objective severity of the symptom, and the respondent's own beliefs about health and illness influence promptness in calling a physician. Those individuals who are advised by more of their network members to see a doctor exhibit less delay in actually calling the doctor. The interactions and behaviors of others spur individuals to seek medical attention more promptly. In fact, this is the strongest predictor of promptness. Additionally, those individuals who want knowledge about their own health call the doctor more quickly than do those individuals who are more likely to say that they would rather not know if they had a life threatening condition.

Finally, the objective (physician-judged) severity of the symptom is positively related to promptness in calling the doctor, while whether or

not the individual perceived the symptom to be severe is not. The low correlation between these two variables ($r=-.02$) indicates that they are measuring independent constructs. Those symptoms that are rated most severe by our medical colleagues demand attention and are difficult to ignore. Initial perceived severity is a much more psychological judgment, and was assessed in our data retrospectively, after the respondent had either called or seen a physician. The results support the idea that obtrusive and conspicuous symptoms (e.g., bloody discharge, lumps) move people to seek medical attention more promptly than do other symptoms, independent of the reactions of network members or the medical significance of the symptoms themselves.

Table 6.1

LIST OF VARIABLES IN DELAY ANALYSIS

N = 113

SYMPTOM CHARACTERISTICS: perceived severity of symptom
objective severity rank of symptom*
symptom seen as life threatening
thought symptom would go away
feel helpless about symptom
feel fearful and worried about symptom

PERSONAL CHARACTERISTICS: financial situation
age
health beliefs: knowledge
health beliefs: locus of control
health beliefs: medical
health beliefs: age
cancer knowledge re: signs of cancer
beliefs about early detection

SOCIAL NETWORK/SUPPORT: did R talk to anyone about symptom?
talked to about symptom
how many advised seeing dr?
how helpful was talking to one talked to most?
things person did for R (listen, comfort,
advise, help take action)

ENABLING FACTORS: availability
affordability
accessibility

DEPENDENT VARIABLE: length of time before called Dr about symptom

* coded 1=bleeding, 2=fever lasting longer than 3 weeks, 3=lump or mass, 4=change in size/color of mole or wart, 5=loss of vision, 6=repeated numbness, 7=loss of memory, 8=sores that do not heal, 9=weakness in a limb, 10=pressure in chest, 11=indigestion/stomach pains lasting longer than 2 months, 12=cough that hung on for several months, 13=hoarseness lasting several months, 14=cough that brought up blood, 15=change in bowel habits, 16=unexplained weight loss of more than 15 pounds, 17=fainting, 18=trouble swallowing, 19=trouble urinating/vaginal discharge

Table 6.3

Delay Analysis with Enabling Factors, N=113

	Length of time before called Dr.	
	b	beta
# People who advised R see Dr.	-.57**	-.29
How helpful was talking to network member	-.17	-.07
Perceived severity	-.36	-.06
Objective severity ¹	.14**	.23
Health beliefs: Knowledge	-.54*	-.20
Chance of recovery from early detection	-.25	-.08
1st response: Symptom would go away	-.15	-.10
Availability of medical care	-.35	-.09
Affordability of medical care	-.17	-.06
Accessibility of medical care	-.50	-.10
Intercept	14.01	
R ²	.26	
F-ratio	3.54**	

*p < .05

**p < .01

¹

Medical rating on a 19-point scale, coded from most severe to least severe

Table 6.4

Delay Analysis without Enabling Factors, N=113

	Length of time before called Dr.	
	b	beta
# People who advised R see Dr.	-.57**	-.30
How helpful was talking to network member	-.25	-.09
Perceived severity	-.46	-.07
Objective severity ¹	.13*	.22
Health beliefs: Knowledge	-.53*	-.19
Chance of recovery from early detection	-.22	-.07
1st response: Symptom would go away	-.15	-.10
Intercept	9.64	
R ²	.23	
F-ratio	4.57**	

*p < .05

**p < .01

¹

Medical rating on a 19-point scale, coded from most severe to least severe

Chapter 7

PILOT STUDIES: FOLLOW-UP OF CURRENT SYMPTOMS AND RESPONDENTS WITH CANCER

The study was designed to collect pilot data from two subgroups of respondents: those currently experiencing symptoms and those who had cancer in the past four years. The general purposes were to estimate the size of these subgroups and to obtain some preliminary insight into processes within them. The number of respondents who would fall into the two subgroups was expected to be fairly low (approximately 40 to 50), limiting the amount of analyses that could be performed. However, the pilot studies were expected to be worthwhile because of the the small marginal cost of collecting the supplementary data.

Follow-up of Current Symptoms

When interviewing respondents it was anticipated that some of them would be currently experiencing the symptoms described in Chapter 3 (see Table 3.1). A subsequent interview with these individuals would provide a prospective study of how many would go to see a doctor concerning the symptoms and of factors that resulted in this decision. For those who had already seen a doctor or who did not eventually see a doctor, a follow-up interview would provide information on the across-time reliability of reports concerning responses to symptoms.

As noted in Chapter 2, of the 404 primary respondents interviewed, 61 currently had one or more of the symptoms listed in Table 3.1. Of the 61, 41 (67%) were available for a follow-up interview three months

following their initial interviews. The follow-up interview repeated portions of the initial interview concerning the respondent's social support network, the respondent's responses to the symptoms, and the respondent's general health.

The extent to which this subgroup of 41 with current symptoms paralleled the larger sample with symptoms during the past 4 years (N = 135) was checked by reviewing the frequency of the current specific symptoms. The results for the subgroup with current symptoms paralleled the distributions for the more inclusive sample fairly closely in the relative frequency of the various symptoms (see Table 3.1 for the larger sample distribution).

Extent of change. The initial analysis examined the extent to which respondents with current symptoms had already seen a doctor by the time of the main interview and how many respondents had seen a doctor by the follow-up interview. The results are presented in Table 7.1. Nine individuals (22%) reported on the main interview that they had not seen a doctor for the symptom. Three months later, four of the nine individuals reported having seen a doctor for the symptom. Recognizing the very small sample size, the results generally correspond to the reported delay of one to two months in seeking medical attention for a symptom (see Chapter 6).

Thirty-two (78%) of the respondents reported on the main interview that they had already seen a doctor about the symptom. However, three of those individuals subsequently indicated that they had not seen a doctor for the symptom. These responses are clearly inconsistent, indicating that at least 7% of the responses are unreliable for this item in this sample.

With only nine individuals not having seen a doctor by the main interview, no analyses were performed on this group to examine factors measured in the main interview that predict seeing a doctor by the follow-up interview. However, with the substantial majority reporting that they had seen a doctor for the symptom before the main interview, the follow-up interview provides the opportunity to examine the across-time reliability of responses in more detail.

Response reliability across time. The analyses of across-time reliability have been limited to a few that could be easily performed and can provide general indications of the stability of various responses over time.

Consideration was given to excluding from the across-time reliability analyses the four individuals who reported first seeing a doctor between the two interviews. These data would inappropriately lower somewhat the results concerning stability of reported responses to symptoms. However, the responses to social network items and general health items were not expected to vary more overtime for these four individuals than for the other 37 respondents. Therefore, to simplify the analysis all 41 respondents were included.

Across-time reliability was examined using product-moment correlations between measures that were found to be significant predictors or dependent variables in previous chapters of this report. Product-moment correlations (the usual "correlation") are sensitive to similarities in patterns, but not to differences in the absolute level of scores when patterns are similar. With our data the correlation coefficients will be somewhat imprecise, but

should still indicate whether agreement is relatively high or low across several measures. The analyses are limited to significant predictors in order to examine more closely the variables most likely to be included in future studies.

The follow-up interview included three measures that were associated with seeing a doctor about the symptom (see Chapters 3 and 5), one measure associated with delay in seeking care (see Chapter 6), and four measures with significant across time relationships between social support and health (see Chapter 4). These measures and the correlation of the responses between the main and follow-up interviews are presented in Table 7.2. The correlations range from .30 to .76. They indicate a moderate or better level of reliability in most responses across three months.

Extremely high correlations were not expected because actual changes during the three months will appropriately change responses at follow-up and some changes occurred at least for the four respondents who saw a doctor between interviews. However, actual changes do not account for all of the unexplained variance between responses across time. The three clearly inconsistent responses to seeing a doctor in Table 7.1 suggest that some of the unexplained variance is due to inconsistent responses. While the level of reliability is acceptable for analyses of aggregate data, some inconsistency in the data must also be recognized.

Respondents with Cancer

A primary focus of the present study is the relationship between social support and the respondent's handling of symptoms that may indicate

cancer. The interview also provided the opportunity to collect some data concerning related issues for patients who acutally have cancer: the role of social support on adherence to the prescribed regimen and the impact of cancer on the social network. A set of items concerning these issues were appended to the interview schedule. Respondents who indicated they had had cancer during the past four years were asked these questions in addition to the regular interview schedule.

Sample size and characteristics. Based on the 718 respondents in the original interview conducted four years prior to the current study, approximately 45 respondents were expected to have had cancer during the four year period. During the current interviews 19 individuals indicated they had cancer during the previous four years. This discrepancy is probably due to selective attrition among respondents with cancer. Table 2.1 indicated that 93 members of the original sample had died, 27 were too ill to be interviewed, and 48 could not be located. Recognizing the low five-year survival rate for some of the more common types of cancer in the older population, it is reasonable to expect that an appreciable portion of individuals with cancer would have died or become inaccessible for the present study.

Table 7.3 presents data for the cancer subgroup on characteristics of their cancer and its treatment. Almost three-quarters of the group noticed symptoms. For those that noticed symptoms, the delay before seeking medical help was approximately two months, generally corresponding to the one to two month delay found for the entire sample with symptoms (see Chapter 6). A review of the individual responses on delay supports the

large standard deviation in indicating substantial individual variation in delay, with the delay ranging from the same day to more than 6 months.

The average length of time since diagnosis is approximately two years, with substantial individual variation. Seventeen (89%) of the 19 individuals were treated, with surgical removal being the most frequent treatment. Treatment is concluded for 12 (71%) of the individuals being treated. Also 12 (71%) of the treated individuals indicated the treatment produced little or no interference in their usual activities. Of the total subgroup, 11 (58%) are completely recovered while the other 8 are somewhat or not at all recovered.

Both the information from the respondents and their survival from 1980 to 1984 indicate that approximately two-thirds of these respondents had cancers for which treatment was early, direct (surgical removal), and did not interfere with the respondent's life over a long period of time. Approximately one-third of the respondents had more extended treatment (radiation therapy, chemotherapy) and substantial interference in their lives.

Role of social support on adherence. Who is most helpful when someone first finds out about the cancer and must deal with it? As indicated in the first entry of Table 7.4, a spouse is usually the most important person, with physicians and children having this role for some persons. The person identified in Table 7.4 was also the most important person in the network in 10 instances and was always the person who was most helpful with the symptom when there was a symptom.

The role of children and physicians should not be underestimated. In naming the second most helpful person, children were named eight times and physicians were named twice. In naming the third most helpful person, physicians were named eight times. The primary support group for the majority of individuals appears to consist of the spouse, children, and physician.

The middle portion of Table 7.4 presents data on several things the most helpful person might do (listen to you, remind you to take your medicine, etc.). In all of these areas the most helpful person usually did "a lot" to "a great deal," with the greatest and most uniform amount of help being "listening to you." The higher standard deviation on the other five items indicates more variability for a few respondents.

The last section of Table 7.4 presents a somewhat different list of types of help and indicates the percentage of respondents who received that type of help from the "most helpful person" and from others. Help given by the "most helpful person" ranges from 40% with offers to help pay medical expenses to 91% who visited the respondent in the hospital.

These data indicate the help actually given and should not be confused with the help wanted by the respondent. When respondents indicated the "most helpful person" had not done the activity, respondents were asked whether they wanted this person to do the activity. In most instances the respondents said they did not want the most helpful person to do the activity. The "most helpful person" had done what the respondent wanted in all instances for visits to the hospital, helping plan the future, talking to the doctor, and offering to help with medical expenses. One respondent

would have liked the "most helpful person's" assistance in buying things needed for the cancer, two respondents would have liked to be driven to medical appointments, and three respondents would have liked the person to make medical appointments for them. These data indicate the "most helpful person" almost always meets the respondents' wishes on this list of activities. This conclusion is supported by the subsequent item in the questionnaire to which all of the respondents but one indicated they were "completely satisfied" with the support received from the "most helpful person."

The second column of the last section of Table 7.4 indicates the extent to which people other than the "most helpful person" helped in these areas. While others tended to visit the hospital, they typically did not provide other types of help. On a subsequent item, all but two respondents reported being "completely satisfied" with the support received from others.

The data concerning support provided to respondents indicate high reliance on oneself, high reliance on "the most helpful person," and typically low expectations for others concerning these types of support. These results are consistent with the characteristics of the sample -- the majority of the respondents having a straightforward treatment and experiencing full recovery.

Impact of cancer on the support network. Several questions were asked concerning the longer range impact of the cancer on the support network of the respondent. The data are presented in Table 7.5.

The overall impression is that the cancer episode has not appreciably affected the longer term operation of the support network. The responses of "about the same" range from 84% to 95% across the items. Even for the four items where changes occurred for two or three respondents, the changes tended to be more positive (less nervous, more showing they care, less sadness) than negative (more worried). Again, it is recognized that these results are for a sample with the majority having straightforward treatment and experiencing full recovery. However, even for this sample the longer term impact on the support network is less than could have been expected. These results are consistent with the results in Chapter 4 that found health status at the original interview had little effect on social support four years later.

Table 7.1

Number of Respondents by Response on Main and Follow-up Interviews:

"Have you seen a doctor for this symptom?"

Main Interview	Follow-up Interview (3 months later)		
	No	Yes	Total
No	5	4	9
Yes	3	29	32
Total	8	33	41

Table 7.2

Correlations Between Responses to a Measure
In the Main and Follow-up Interviews

Measure	Correlations	N	p<
<u>Predictors of Seeking Doctor for Symptom</u>			
Average number of network members that the respondent talked to about the symptom	.41	41	.01
Number of things done to get respondent to the doctor	.43	27	.02
Now feel worried (about symptom)	.50	31	.01
<u>Predictor of Delay in Seeking Care</u>			
Number of people who advised respondent to see doctor	.30	33	.09
<u>Across Time Relationships Between Support and Health</u>			
Number of network members to whom a respondent could talk about health	.44	40	.01
Number of network members who would make sure you were cared for if ill	.31	39	.05
Number of network members who get on your nerves	.52	40	.01
Functional care needs	.76	41	.01

Table 7.3

Characteristics of the Subgroup with Cancer

Measure	Responses
Did you notice any symptoms before you sought medical help?	Yes: 14; No: 5
If noticed symptom: How long did you wait before seeking medical help?	Mean: 65 days; SD: 59 days
How long ago were you diagnosed as having cancer?	Mean: 26 months; SD: 18 months
Did you have treatment for cancer?	Yes: 17; No: 2
If treated: Type of treatment (More than one treatment can apply.)	Surgical removal: 15 Radiation therapy: 6 Chemotherapy: 2 Other: 1
If treated: Is the treatment concluded?	Yes: 12; No: 5
If treated: To what extent (did/does) the treatment interfere in your usual activities?	Not at all: 7 A little: 5 Some: 2 A lot: 0 A great deal: 3
To what extent have you recovered from this cancer?	Completely: 11 Somewhat: 4 Not at all: 4

Table 7.4

Support Provided to Respondent with Cancer

Measure	Responses	
Who was the one person most helpful to you when you first found out about the cancer?	Spouse: 10 Physician: 3 Child: 2 Friend: 1 Grandchild: 1 Other: 2	
Things the most helpful person did:	^a <u>Mean</u>	^a <u>S.D.</u>
Listen to you	4.8	0.8
Remind you to take your medicine	4.6	1.7
Comfort you	4.5	1.2
Give you advice	4.5	1.3
Discuss doctor's recommendations	4.2	1.5
Help you take action	4.2	1.5
Things done by the most helpful person and by others:	Most Helpful ^b <u>Person</u>	^b <u>Others</u>
Visit you at the hospital	91%	57%
Help you plan for the future	87%	6%
Drive you to medical appointments	73%	18%
Help you buy things you needed for cancer	60%	20%
Make medical appointments for you	47%	18%
Talk to the doctor for you	47%	12%
Offer to help with medical expenses	40%	12%

^a

These items were scored on a scale with doing: a great deal=5; a lot=4; some=3; a little=2; not at all=1.

^b

The percentage of "yes" responses is presented. The number of responses varies somewhat because of missing data and items that did not apply to some individuals.

Table 7.5

Effect of Cancer on Support Network

Measures	Number Responding:		
	More Often	About the Same	Less Often
How has having cancer changed the way members of your network act toward you? Do they:			
Seem to be nervous around you	0	16	3
Show they care	3	16	0
Seem to be sad	0	17	2
Seem to be happy	0	18	1
Seem worried	3	16	0
Seem to be busy with other things	1	18	0
Seem overwhelmed with things to do	1	18	0
How often do you see the people in your network since having cancer			
	1	18	0

Chapter 8

SUMMARY OF FINDINGS

This study of cancer symptoms among older people, or rather of symptoms that might indicate cancer, was undertaken primarily to discover the factors that lead to prompt medical diagnosis. The model that we developed involved four main categories of predictors: the nature of the symptoms themselves, the individual characteristics of the person affected, the convenience (availability, affordability, accessibility) of medical treatment, and the social support provided by others to the person suffering the symptom.

The medical reasons for undertaking the study are immediately apparent; early diagnosis of cancer is a key element in treatment success and patient survival. And for the majority of patients, who learn that their symptoms are not caused by this feared disease, the rewards of seeking medical diagnosis and treatment is enhanced peace of mind and relief from fear.

From a theoretical point of view, we were particularly interested in the role of social support as a factor in determining whether or not people sought medical treatment for their symptoms and, for those who sought treatment, determining the length of time between symptom onset and the visit to the doctor. A substantial body of research had demonstrated various positive effects of social support, both with respect to subjective well-being (Cohen and Syme, 1985) and longevity (Berkman and Syme, 1979). Some investigations (LaRocco, House, and French, 1980) reported both main

effects of this kind and interactions or buffering effects, in which social support acted to mitigate the negative effects of specific stressors on health. And a few studies (Caplan, Robinson, French, Caldwell, & Shinn, 1976) had found social support to be a factor in adherence to medical regimens.

We were interested in whether social support would have similar positive effects in people's decisions to seek medical examination for symptoms, and to do so promptly. It was not obvious that this would be true, partly because it seemed likely that some well-intentioned and seemingly supportive remarks might have just the opposite effect. For example, a spontaneous response of a friend to a person's expressed concern about a symptom might be reassurance: "It's nothing," or "It will go away by itself," or "My grandfather had a lump like that and he lived to be 98 years old."

Methodology

These research aims became readily feasible because of the availability of a nationally representative data set on older men and women and their membership in supportive networks of family and friends. These data, collected in 1980 from people aged 50 or over and from selected members of their support networks, included information about subjective well-being and specific health problems. By re-interviewing the 1980 respondents in 1984, we could learn whether they experienced relevant symptoms, whether they sought medical care, and how soon they did so after experiencing symptoms. Moreover, the longitudinal design established by the re-interview procedure would allow us to predict these behavioral

responses to symptoms on the basis of data collected in 1980 about hypothetical determinants such as social support.

The conceptual model on which this two-wave research is based is summarized in Figure 1.1, Chapter 1, which also shows the specific variables in each of our three main categories of predictors: symptoms, personal characteristics, enabling factors (convenience of medical care), and social support.

The data included 718 interviews with principal respondents in the 1980 national sample, and 1984 re-interviews with 404 of these respondents. All had been 50 years of age or more at the time of the 1980 interview. From each of these people we attempted to obtain identifying information about key network members (family, friends, professionals) and permission to conduct interviews with at least one network member. 497 interviews with network members were conducted in 1980 and 72 in 1984.

Results

Frequency of symptoms. Of the the 404 principal respondents who were re-interviewed in 1984, 135 had had symptoms during the preceding four years that might be considered cancer-suspicious, and 64 were continuing to have such symptoms at the time of the second interview. Forty-one of this group were interviewed a third time, and thus provided the basis for a prospective sub-study within the larger longitudinal design.

As one might expect in a population of this age range, symptoms were frequent. Almost one-third of the national sample reported having had one or more of the 19 symptoms on our list at some time during the preceding

four years, and about one-sixth reported one or more of these symptoms as current.

Factors affecting the seeking of medical care. A series of regression analyses showed that the supportive behavior of others (friends, family members) was a significant determinant of whether or not people sought medical care for their symptoms and, for those who did so, how long they waited before seeing the doctor. Two kinds of support are relevant: socio-emotional support, measured in terms of talk between principal respondent and network members, and instrumental support, measured in terms of specific facilitative behaviors (making appointments, offering transportation, and the like). The number and severity of the symptoms themselves, plausibly enough, were also determinants of the decision to seek medical care and the promptness in doing so.

Less predicted but important in their implications were the findings that enabling factors and demographic characteristics made little difference in the decision to seek medical care for symptoms. The accessibility, affordability, and availability of medical care are traditional epidemiological criteria in public health, and they must be important in extreme situations. That is, great distances and great poverty must logically affect the decision to see a doctor and the carrying out of that decision. But in our national sample, these enabling factors did not account for significant amounts of the variance in individual care-seeking behavior.

Demographic effects, few as they are, appear to be mediated by other factors. For example, married people are marginally more likely to seek

prompt treatment, but they are also more likely to notice symptoms earlier than unmarried people. Both facts suggest the supportive functions of the spouse. Age does not show similar effects, but it is related to number of symptoms (positively) and to knowledge (negatively). The former finding merely corroborates other data about the increasing incidence of symptoms and many illnesses with age; the latter is probably a reflection of the educational difference between older and younger cohorts.

Two methodological characteristics of this research permit us to address issues that are inaccessible to cross-sectional surveys. One of these issues is the direction of causality and the other is the validity and reliability of survey responses.

Validity and reliability of survey responses. The issue of causal directionality is well illustrated by the frequent finding of a positive correlation between social support and subjective health or well-being. It is plausible that close personal relationships may have a health-promotion effect, but it is also plausible that healthy people may be more able to form and maintain close personal relationships. In a longitudinal design of the kind used in this study, it becomes possible to look at the relative magnitudes of both these directional relationships.

We did so and found that people who report actually experiencing any of the cancer-suspicious symptoms also report fewer network members who would care for them in case of illness and more network members who get on their nerves. Whether this pattern reflects the optimism of health and the reality-testing effect of illness is yet to be determined. It is also possible that the finding indicates the network-attenuating effect of sick care.

The validity of survey responses is a persistent issue, and it is peculiarly difficult to address when all data about each respondent emanate only from that respondent. In this study, we have data on key variables from both the principal respondents and the members of their networks, so that we can examine the convergence or divergence of response between the principal and a network member in 70 cases.

The results are encouraging for the providers and users of survey data. Principal and network respondents show high agreement on most issues, and the differences that occur are not suggestive or obvious or persistent biases. For example, both principal and network respondents recognize that the network member is providing more support than he or she is receiving at the time of the interview.

The reliability of responses was examined further in a subgroup of 41 individuals who were experiencing symptoms at the time of the 1984 interview. In a follow-up interview three months later, their responses to items were fairly stable, indicating reasonable across-time reliability for the interview measures.

Social support and individuals with cancer. A preliminary study of the role of social support for primary respondents who actually had cancer was also performed. Nineteen individuals reported being diagnosed as having cancer during the four years preceding the 1984 interview. The primary support group for most individuals included the spouse, children, and the physician. The most helpful members of the support network perform

a variety of helping activities that provide affective, affirmative, and substantive support. However, support in all areas was not necessarily wanted. Many individuals with cancer wanted to perform several of the activities without assistance and tended to look for little help from individuals other than one or two central people. The episode of cancer appears to have little impact on the longer term functioning of the individual's network so long as reasonable recovery occurs.

Conclusions

It is perhaps appropriate to conclude with a few interpretative comments about the implications of these research findings for the prevention, diagnosis, and cure of cancer.

First, it appears that the great effort at public education has met with considerable success. Most people recognize the "danger signals" of cancer. Not all do, however, nor are all convinced that prompt medical attention is important and helpful. The educational task is not complete; it must include more than symptom recognition and it must be repeated for each new generation.

Second, it is clear that social support from family and friends is important in the decision to seek medical attention and to do so promptly. The educational implications of that finding are clear. People must not only be educated with respect to symptom recognition; they must learn how to encourage and facilitate the seeking of medical care by those to whom they are connected through the bonds of family or friendship.

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