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UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

COMPUTER-MEDIATED SOCIAL SUPPORT, OLDER ADULTS, AND COPING

A Dissertation

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

Doctor of Philosophy

By

Kevin B. Wright
Norman, Oklahoma
1999

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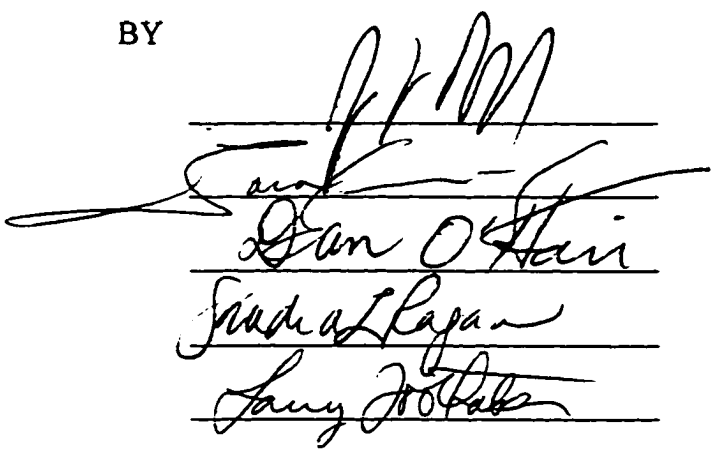
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COMPUTER-MEDIATED SOCIAL SUPPORT, OLDER ADULTS, AND COPING

A Dissertation APPROVED FOR THE
DEPARTMENT OF COMMUNICATION

BY



ACKNOWLEDGMENTS

My experience as a graduate student has changed my life in so many ways that it is difficult to provide a summary. As an individual who is interested in social support, my graduate experience taught me many lessons about how to give and receive support within the context of family, numerous friendships and professional relationships, and my relationships with faculty members in the Department of Communication at the University of Oklahoma.

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ABSTRACT

As the number of older adults continues to increase in our society, it is important to understand the variety of ways in which they communicate with each other. One important new context for communication for this population is computer-mediated communication (CMC). While the Internet has become an important resource for information, less is known about the ways in which individuals use this technology for interpersonal communication. While social support has received substantial empirical attention among a variety of academic disciplines, including communication, relatively little is known about the nature and the impact of social support within the computer-mediated communication environment.

The research on social support indicates social support networks can greatly benefit the lives of older adults in terms of helping them to adjust to day-to-day problems, and support has been linked to positive health outcomes, such as lower morbidity and mortality rates. In short, social support may either have a direct impact on a stressful situation faced by an older adult, or it may buffer the effects of stress through elevated mood and a sense of well being within companionship relationships.

One hundred and thirty-six older adults using SeniorNet and other related websites were recruited for this study via the Internet. They were asked to complete an on-line questionnaire. Each participant was asked to rate their satisfaction with their on-line support network and their face-to-face support networks, including the degree to which these support networks may have negative as well as positive effects. They also were asked to indicate the degree to which they engaged in companionship activities on the Internet. In addition, they were asked to indicate the type of support they typically

give and receive on-line. Finally, they were asked to complete a depression scale and indicate which types of coping strategies they use to overcome problems on a daily basis.

The results indicate that satisfaction with on-line providers of social support was higher than satisfaction with non-Internet providers of support for high Internet users. Low Internet users were more satisfied with their non-Internet support networks. Companionship was found to be a more common activity for the sample than social support between people per se. Greater involvement with the on-line community was found to be negatively correlated with depression. The negative aspects of support for on-line relationships were not found to significantly differ from non-Internet relationships. While social support was not found to be an adequate predictor of the types of coping strategies used, the results indicate that direct action was the most common coping strategy for the sample. Finally, the results also shed light on the nature of computer-mediated social support for older adults. Most notably, support was found to range from the dissemination of information to extremely intimate sharing of problems and life experiences on-line.

Overall, the results revealed that older adults may enjoy many of the benefits of non-Internet social support networks within on-line supportive relationships. In addition, the use of computer-mediated support networks was found to circumvent many of the problems facing older adults, such as geographical distance from family members and other providers of support, the ability to greatly increase the size and quality of their support network, and access to a vast source of information.

COMPUTER-MEDIATED SOCIAL SUPPORT, OLDER ADULTS, AND COPING

Chapter I

Introduction

Background of the Problem

The areas of social support and companionship in older adult relationships have received a substantial amount of empirical and theoretical attention by social scientists during the past twenty years (Rook, 1995; Vaux, 1988). As older adults rapidly become one of the largest segments of the population in the United States, interest in how supportive relationships change throughout the life span is increasing among a number of interdisciplinary researchers, including those within the communication discipline (Nussbaum, 1994; Rawlins, 1995; Rook, 1995; Vaux, 1988). With the advent of computer-mediated communication (CMC), individuals of all ages have access to an increasing network of supportive relationships through on-line interaction. While relatively little research has addressed how people use these networks for social support and companionship, preliminary research suggests that the interaction within these networks exhibits a variety of socially supportive messages and behaviors (Sullivan, 1997), and they appear to be an outlet for older adult friendships (Furlong, 1989).

Most empirical research within the communication and aging literature has found that companionship is related to positive health outcomes for older adults whereas social support (which is primarily provided by family members) may lead to negative as well as positive outcomes (Rook, 1987, 1995). One of the reasons for the different outcomes

related to social support and companionship is that companionship is typically entered into for the sake of enjoyment, whereas social support is most often mobilized in the presence of some specific stressor (Rook, 1990; 1995). In addition, support offered in family relationships may exhibit negative outcomes due to role obligations and expectations, whereas support offered in companionship relationships is usually more egalitarian in nature (Nussbaum, 1994; Rook, 1995).

Companionship has been found to contribute to psychological well being by buffering the effects of stress on a daily basis, while social support has been linked to more direct effects in ameliorating a particular stressor (Rook, 1987). Specifically, companionship has been found to bolster older individuals' self-esteem and coping strategies, especially when dealing with daily stressors. Social support, as opposed to companionship, is more typically sought in reaction to a significant upheaval in an older person's life. While social support researchers have examined the relationship between social support and coping strategies (Pierce, Sarason, & Sarason, 1996), relatively little research exists examining the effects of companionship on the coping strategies used by older adults to ameliorate daily stressors. No studies to date have examined the impact of on-line companions on older adults coping strategies with daily stressors.

While older adult friendships have been found to contribute to the psychological well being of older adults in more positive ways than family relationships (Nussbaum, 1994), there are a number of variables that have been found to limit the size of companionship networks in older adulthood. Among these are mobility issues, relocation, fixed incomes, and the loss of friendships due to illness or death. In addition, these

variables have also been found to contribute to diminished feelings of self-worth and personal control among older adults (Krause, 1990).

Computer-mediated communication (CMC) is a relatively new communication context that may be able to circumvent many of these problems by providing twenty-four hour access to companions through on-line relationships. Through CMC technology, older adults have access to a wealth of information and intergenerational relationships as well as relationships with other members of their age cohort. In addition to on-line relationships formed through CMC technology, older adults may also have the benefit of feeling connected with the larger on-line community (Ryan, 1986). Numerous researchers have reported social support benefits in terms of expanding one's social network, even if the individuals within the network are not interpersonally close (Adelman, Parks, & Albrecht, 1987; Albrecht & Adelman, 1987; Granovetter, 1973).

Statement of the Problem

While previous research indicates that older adults are using CMC technology at an increasing rate for a variety of activities, including: (a) information seeking; (b) social support; and, (c) companionship (Adler, 1996; Furlong, 1989; Noer, 1995), relatively little research has examined the impact of on-line older adult relationships on the psychological well being of older adults. However, the use of CMC technology by older adults may greatly facilitate the formation of larger support and companionship networks with other older adults and intergenerational contacts. Since social support, companionship, and coping with life stress appear to be extremely important concepts in

other types of older adult relationships, it is important to gain a better understanding of them within the this context.

Definition of Terms

While social support has been defined in various ways, many researchers conceptualize it as a metaconstruct that includes: (a) support network resources, which consist of variables such as the size, duration, and accessibility of a person's support network; (b) supportive behavior, that includes tangible support, emotional support, and advice; and, (c) support appraisals, which are the subjective perceptions of the support that is offered by one's network members (Vaux, 1988).

Albrecht, Burleson, and Goldsmith (1994) have argued that "social support should be studied as communication because it is ultimately conveyed through messages directed by one individual to another in the context of a relationship that is created and sustained through interaction" (p. xvii). Additionally, Albrecht, et al. (1994) define social support as "an interactional process of helping, comforting, caring for, and aiding others" (p. 421). While this particular definition is parsimonious in terms of describing the essence of social support, it understates the complexity of what are considered to be supportive relationships. Although a number of verbal and nonverbal behaviors have been identified as supportive, defining support becomes more complex when attempting to distinguish between actual supportive behaviors, availability of support, and appraisals of support (Burleson, 1990). While there is a significant body of research on social support in the communication literature alone (See reviews by Albrecht & Adelman, 1987; Albrecht,

Burleson, & Goldsmith, 1994; Duck, 1990; Sarason, Sarason, & Pierce, 1990; and Leatham & Duck, 1990), this study's focus is primarily on social support and older adults.

Rook (1990, 1995) makes a conceptual distinction between social support and companionship. Companions are typically individuals who are considered friends. The companion relationship is generally entered into for the sake of enjoyment as opposed to social obligation. According to the Rook (1995), "companionship is likely to function as an important determinant of mood and well-being in everyday life, whereas help provided by others is apt to assume special importance as a determinant of well-being in times of stress" (p. 441).

Coping can be defined as any attempt by an individual to ameliorate a stressful situation by drawing upon either personal or social resources (Kohn, 1996). The ways in which an individual copes with a stressful situation has been linked to both positive and negative health outcomes. For older adults, it is important to understand the link between social support and coping, since coping often involves drawing upon social resources, in terms of acquiring information about a problem, information about the experiences of others in dealing with the same or similar problems, and receiving emotional support and encouragement when attempting to work through a problem.

Computer-mediated communication has increasingly become a pervasive part of everyday interaction between individuals in our society. Walther (1992) defines computer-mediated communication as the "synchronous or asynchronous electric mail and computer conferencing, by which senders encode text messages that are relayed from senders' computers to receivers" (p. 52). As we continue to make the transition into the

information age, the number of CMC technology users is projected to double annually (Quarterman & Carl-Miller, 1993).

With the development of extended CMC network services, such as Netscape and America On-Line, CMC technology has been adopted faster than any other key technology (Lewis, 1995). Along with this rapid growth, many new networks of social support, which take the form of on-line discussions and chat rooms, are becoming available, and they reflect the diverse interests of CMC users. One segment of society who has become attracted to CMC technology is older adults (Furlong, 1989; Noer. 1995; Shannon, 1993). However, the ways in which older adults use CMC technology is only beginning to receive empirical attention.

Significance of the Study

This dissertation explores the impact of computer-mediated social support and companionship relationships, and the coping strategies and psychological well being of older adults. Specifically, it begins by reviewing literature on social support and older adults, social support in older adult friendships, the relationship between social support and coping strategies, daily sources of stress for older adults, coping strategies used by older adults to deal with daily stressors and age differences in coping styles. In addition, it examines literature on CMC relationships, CMC social support, older adult use of CMC technology, and what is known about the types of social support offered in older adult on-line relationships. This is followed by a rationale, research questions and hypotheses, methods, results, discussion, and limitations.

Chapter II

Literature Review

As mentioned previously, the areas of social support and coping are important to the lives of older adults, and computer-mediated communication provides a new area in which to understand these aspects of interpersonal relationships. This literature review will provide a brief overview of social support, coping, and computer-mediated communication. In addition, the ways in which these areas have been found to impact the lives of older adults will also be presented.

Social Support, Older Adults, and Health Outcomes

Conceptualizing Social Support

While the area of social support research is vast and interdisciplinary, it has focused a good deal of attention on social support and older adults. Much of the research in this area has examined social support throughout the life span. According to Vaux (1988), "needs, circumstances, and roles change as a person moves through life. These changes alter the form and amount of support considered appropriate; social support in the past affects that in the future; and, finally, age, period, and cohort effects demand reference to experiences over the life span" (p. 194). Vaux (1988) also contends that these developmental changes throughout the life span affect how we perceive socially supportive behaviors.

Wellman and Hall (1986) identified five types of social support for older adults: "informational support, emotional support, companionship, services or assistance, and financial support" (as cited in Nussbaum, Thompson, & Robinson, 1989, p. 187). Each of

these types of social support has been identified by other researchers, and in other social support contexts (Cutrona & Suhr, 1992; House, 1981; Wills, 1985).

While no one theoretical perspective encompasses the empirical findings in the social support literature, several midrange theories and models have emerged. The buffering model suggests that social support buffers the deleterious effects of stress such as weakened immunity and depression (Dean & Lin, 1977; La Rocca, House, & French, 1980). Researchers have linked the buffering model to positive effects in terms of morbidity and mortality (Berkman & Syme, 1979; Cohen, 1988; House, Landis, & Umberson, 1988). However, Cohen and Syme (1985) state "the type of support may be especially important in understanding when social support buffers the pathogenic effects of stress. Hence, buffering models may only occur when the kinds of available support match the needs elicited by the stress a person is experiencing" (p. 13). This conception is important since different members of older adults' support networks have been found to communicate different functions of support. These diverse messages and support functions may lead to a number of outcomes in terms of their appraisal by the older individual (Rook, 1995, 1990).

A second model that has received a great deal of attention in the support literature is the direct effects model, which asserts that there is a direct, rather than buffering, relationship between social support and physical and psychological outcomes (Aneshensel & Stone, 1982; Thoits, 1982). According to Flint, Query, and Rabb (1997), "it may not be essential to establish the superiority of the buffering versus direct effects models. What is most pressing, however, is that research demonstrates social support is a

fundamental process in the maintenance of health" (p. 2). Older adults have been found to benefit from the direct effects of social support in terms of reduced stress, lower levels of morbitity and mortality, and improved psychological well-being (Antonucci, 1990; Cantor, 1980; Rook, 1995).

Schwarzer and Leppin (1991) developed a more elaborate model of social support and health outcomes. Their structural model includes the social network of the person, how socially integrated the individual is within this network, personality variables such as self-esteem and social competence, different coping styles when dealing with stress, mobilization and cognitive evaluation of support, and variability in physiological responses. This model attempts to capture the complexity of social support and health outcomes by including a number of mediating variables.

For example, the authors first state that individuals vary in terms of the size and density of their social networks. They may or may not be well integrated within their network, and this will affect their access to various types of support. Also, individuals differ in terms of personality variables such as self-esteem and social competence. These factors may influence a person's ability to mobilize support within his or her network. Individuals also vary in terms of how they cope with stress. Some may have an internal locus of control and feel that they can do something about the stressor, whereas others may have an external locus of control, and they will not engage in behaviors that could ameliorate the stressor.

In addition, Schwarzer and Leppin (1991) argue that social support is a transactional process, and that support providers may give different types of support

based on their perceptions of the individual seeking support. For example, if the support provider views a person as responsible for negative outcomes, or if the stressor appears to be within the person's control, then negative behaviors might be offered or fewer supportive attempts (Barbee, 1990). Finally, individuals vary in terms of their physical and psychological reactions to supportive behaviors. While Schwarzer and Leppin's (1991) model has not been examined specifically within the context of older adult relationships, the researchers indicate that previous research has tended to simplify the support process, and that the study of older adult supportive relationships would benefit by examining the complex set of variables in the relationship between social support within older adult relationships and their psychological well-being (Rook, 1995; Vaux, 1988)

In short, the literature suggests that the lives of older adults need to be examined in terms of the communication of social support and health outcomes. While the relationship between social support and health outcomes is certainly complex, the research suggests that older adults do benefit from both formal and informal social support in their relationships with others.

Social Support in Older Adult Friendships

According to Nussbaum, Thompson, and Robinson (1989), friends and neighbors "play a significant role in the informal support system of the elderly" (p. 188), and for many older adults, friends and neighbors "often serve as a surrogate family." (p. 188). While many older adults have family networks they can rely upon in times of stress, friendships and other informal social ties often "enable independence rather than

institutionalization for the elderly" (Nussbaum, Thompson, & Robinson, 1989, p. 188). Mobility problems, living away from family members, and a host of other stressors may increase an older individual's reliance on less formal ties for social support. These sources of support may be beneficial in terms of allowing individuals to decrease their reliance on formal agencies for assistance as well as providing important sources for self-esteem and ties to the community at large.

In terms of providing links to social support in the community at large, Nussbaum (1994) contends:

> An additional type of social support provided by friendship in later life, is the maintenance of the individual's contact with the larger society. Whether the elderly individual is less mobile, cannot afford certain luxuries of social interaction, or wishes to travel the world with others, the interaction that takes place within friendship can keep him or her caught up with current events in the community or the world. (p. 213)

Therefore, older adult friendships may provide support which can be beneficial in terms of helping the older individual to feel more actively involved with the community (Ryan, 1986).

According to Rook (1995), support within relationships with companions often buffers day-to-day stress, whereas in times of acute stress, individuals typically seek support from more intimate relationships. Companionship "appears to be motivated by the desire to experience hedonistic rewards (e. g. positive affect, stimulation), whereas support appears to be motivated by the desire to obtain assistance" (Rook, 1995, p. 441). Relationships with companions serve the purpose of helping an individual feel better on a day-to-day basis through shared activities and common interests.

Companions provide supportive benefits that may not be available from other sources. According to Rook (1995):

> Companionship also may help people transcend routine concerns and problems. Shared leisure, for example, represents a vehicle by which people attempt to escape work and family problems or other concerns, even if only briefly. Research suggests that leisure activities encourage a fluid, open state of mind that people find enjoyable and that helps them shift their attentions from worries and preoccupations to more pleasurable matters. (p. 443)

In short, companions provide us with relief from daily stressors. Research has found that this type of support may be more beneficial to positive health outcomes than more direct types of support which are seen only in times of acute stress (Antonucci, 1990; Bolger & Eckenrode, 1991; Bruunk, 1990; Nussbaum, 1994; Rook, 1990). While people do not necessarily perceive these interactions as supportive, they do provide a buffer against stress. Companionship has been linked to the buffering model of social support mentioned earlier in this proposal (Antonucci, 1990; Rook, 1995). However, we typically perceive our interactions with companions as sources of enjoyment and shared leisure rather than as support per se.

Rook (1995) also distinguishes between whether individuals are proactive or reactive in seeking support. Proactive support refers to when people seek relationships for diversion, pleasure, and sharing of common interests, whereas reactive support refers to seeking relationships in terms of ameliorating a specific type of problem or concern. This distinction may be useful in differentiating behaviors that are used to buffer stress and those which are used for more direct support.

In addition, Rook (1995, 1990) asserts that older adult companionship relationships may exhibit fewer social support costs compared to family members due to

less stringent role obligations. For example, in more intimate relationships individuals may feel obligated to help each other during times of need. This obligatory type of helping may cause resentment, especially if the supportive demands of the person in need become extensive. Rook (1995, 1990) contends that companionship relationships are less likely to exhibit this type of problem.

Finally, Rook (1995) distinguishes between social support and social control in older adult family relationships. Social control behaviors are defined as "regulatory actions by others [that] may be helpful even when they are not affirming" (p. 447). This definition implies that not all forms of social support are perceived positively by people, and actions may be resented although intended by others to be helpful. Close relationships, such as marriages or parent-child relationships, exhibit a number of responsibilities and obligations which can sometimes produce negative behaviors and feelings. Family members may engage in behaviors under the pretense of helping older relatives which may be more controlling rather than helpful. For example, an adult child's decision to put their parent in adult day care may be an effort to control the situation rather than help a parent who needs to be cared for. Other less extreme forms of social control also exist, such as attempting to change unwanted behaviors. While relatives of the older adult may see control attempts as being helpful, they are often resented by the older individual as "butting in." According to Rook (1995), "the psychological distress aroused by social control attempts may be short-lived, as in fleeting irritation or resentment. On the other hand, persistent social control attempts may contribute to

relationship dissatisfaction and withdrawal" (p. 452). In short, social support attempts may not be perceived as supportive depending upon the context.

Support in "Weak Tie" Relationships

Individuals, who older adults consider to be interpersonally close, such as family members and close friends, may not be the only types of supportive relationships older adults encounter. In a medium such as the Internet, older individuals are more likely to engage in communication with weaker support ties.

Research on these less developed relationships indicates that several social support behaviors may be offered (Adelman, Parks, & Albrecht, 1987). The term "weak ties" refers to the relationships we engage in that differ in terms of intimacy and frequency of interaction from close relationships (Granovetter, 1973). "Weak tie" relationships are typically individuals with whom we communicate on a daily basis, but we are not necessarily close to them.

Adelman, Parks, and Albrecht (1987) identified various types of "weak tie" relationships, such as: (a) neighbors; (b) "familiar strangers" (individuals who we encounter on a daily basis, but with whom we seldom interact); (c) "strangers on the run" (individuals who we communicate with during the course of our daily lives, but with whom interaction is limited); (d) "urban agents" (individuals who we communicate with in more depth, but only in certain contexts, such as hairdressers, fellow employees at a certain time of day, etc); and, (e) ties by telephone and other media (such as the Internet).

The authors also identified a number of features of "weak ties" that offer advantages in giving social support that differ from more personal supportive

relationships. Among these are: (a) "dyadic features," such as lower levels of mutual interdependence, lower expectations of reciprocity, minimal obligation, and absence of specialized codes found in more intimate relationships; (b) "network features," such as lower density, which means that "weak ties" are typically detached from individuals within a person's primary support network, which can lead to greater anonymity when disclosing risky topics; and, (c) "contextual features," such as the tendency for "weak tie" relationships to occur in one context, such as talk with a hairdresser in a salon, a conversation between a bartender and a patron, and talk with a friend known only via the Internet.

In addition to these features, the authors identify four distinctive functions of "weak ties:" (a) extending access to information, goods, and services; (b) promoting social comparison to dissimilar others; (c) facilitating low-risk discussion of high-risk topics; and, (d) fostering a sense of community. Each of these functions is discussed in detail below.

"Weak ties" may offer access to a wide variety of informational support as well as instrumental support beyond close networks. Access to individuals who are experiencing similar problems or who can refer the individual in need of support to resources or services is a distinctive feature of "weak tie" networks. These networks have been greatly expanded in recent years due to the advent of the Internet and computer-mediated communication.

"Weak tie" relationships also offer the advantage of allowing individuals to compare themselves to dissimilar others. Since close ties tend to be with people who are

more similar in terms of attitudes, values, and lifestyles (Berger & Calabrese, 1975), people's perceptions of themselves are evaluated against the backdrop of familiar others. "Weak ties," on the other hand, bring us into contact with dissimilar others. Social comparisons to "weak ties" can play a special role in the support process. According to Adelman, Parks, and Albrecht (1987), "self-evaluation is facilitated by comparison to weak ties because they provide a greater variety of information and thus a better ability to judge how typical or normal our behavior is" (p. 135). By comparing one's situation to dissimilar others, the information gained by the comparison can lead to comforting evaluations. For example, Taylor (1988) found that cancer patients coped by comparing themselves to cancer patients who were worse off.

Another function of "weak ties" is facilitating communication of high-risk topics. Interaction in "weak tie" relationships tends to be restricted to certain physical and temporal contexts, and these relationships are more removed from more personal networks. Thus, information disclosed to individuals in "weak tie" relationships tends not to get back to members of one's primary social network.

Many of the features of "weak tie" relationships may offer advantages for older adults using the Internet for companionship and social support, since relationships within this context tend to be less formal and interpersonally close as primary supportive relationships. However, it is unknown how satisfied older adults are with the supportive relationships they develop on the Internet.

Social Support and Coping

Pierce, Sarason, and Sarason (1996), in their discussion of the relationship between social support and coping, assert that previous research in these areas has largely been limited to how individuals use supportive resources to cope with a stressor after it has occurred. However, the authors contend that successful coping also involves the ability of an individual to draw upon social support when a stressor is anticipated rather than after the stressor has occurred.

Pierce, Sarason, and Sarason (1996) and Newcome (1990) call for an abandonment of the conception of social support as a simple provision of resources from the external environment to the individual. Instead, Pierce, Sarason, and Sarason (1996) contend, "social support theories need to incorporate the complexity of those situational, interpersonal, and intrapersonal processes that shape individuals' perceptions of their social interaction with the significant people in their lives" (p. 444). As the empirical studies on social support and coping reviewed below demonstrate, the link between support and coping appears to be a complex process.

Wolf (1969), in a well-known longitudinal study of the town of Roseto, Pennsylvania, found that community-based social networks and successful coping appeared to have an effect on the absence of several stress-related disorders, such as coronary disease and stomach ulcers. Despite the fact that men and women in Roseto tended to be overweight, and their smoking and exercise patterns were similar to other communities, the coronary death rate for men was 100 per 100,000, and the womens' rate was half that figure. The majority of Roseto's residents were from Italian descent and the

neighborhoods tended to be cohesive, while families tended to be extremely close, supportive, and traditional.

According to Greenberg (1978), rapid changes occurred in Roseto during the late 1960's and early 1970's, with neighborhoods becoming less cohesive, a decline in church attendance, and residents moving to suburban areas. By the mid 1970's there was a rapid increase in heart attacks and other stress-related illnesses, even among traditional residents. While numerous variables were obviously not controlled for in these studies, both authors contend that the features of the close social network in Roseto were probably a major contributor to the absence of stress-related diseases prior to the late 1960's and early 1970's.

More recent studies have found a consistent relationship between support, coping, and health outcomes. One theoretically interesting aspect of these studies is the finding that different sources of social support may lead to a variety of different positive and negative health outcomes.

Yates (1995) interviewed 93 heart disease patients (men only) two months and also one year after a heart procedure. Tangible support from the spouse was found to be associated with better short-term recovery. Satisfaction with and more emotional support from the spouse was associated with better short- and long-term psychological recovery. Greater satisfaction with the health care provider was associated with the patients' short- and long-term physical recoveries. While spouses gave more emotional and tangible support, health providers were found to give more informational support, and these different types of support were related to different health outcomes.

Pitula and Daugherty (1995) found differences in the type of support given to hospitalized depressed women. While spouses and partners were perceived as sources of the most support, they also provided the most conflict. Friendships were found to exhibit significantly less conflict while providing the same benefits as spouses and partners.

Martin, Davis, Barion, Suls, and Blanchard (1994) found that patients suffering from non-life-threatening illnesses differed from patients with life-threatening illnesses in terms of their perceptions of support. Non-life-threatening illness patients perceived emotional, informational, and tangible support as equally helpful, whereas patients with life-threatening illnesses found emotional support to be significantly more helpful than informational and tangible support.

Sullivan and Reardon (1985) found that satisfaction with social support was linked to different styles of coping in a study of 44 breast care patients. The results indicated that greater satisfaction with sources of social support was linked to internal locus of control coping, whereas dissatisfaction was linked to external locus of control coping. The degree to which cancer patients engage in internal locus of control coping styles has been found to be important in terms of positive health care outcomes. External locus of control coping styles have been found to be associated with less responsibility on the part of the patient as well as negative recovery outcomes.

Sullivan (1997) found that users of on-line cancer support groups differed in terms of the type of support they sought over the Internet. Gender differences were also found since the author examined both breast cancer and prostate cancer support groups. Men were found to seek more informational support whereas women were found to seek both

informational and emotional support. Both men and women used informational support to cope with uncertainty. By comparing their conditions to others who were in later stages of the disease, men and women reduced uncertainty by inquiring about different treatment options. In addition to uncertainty reduction through social comparison and information seeking, women reported enjoying the opportunity to vent frustrations and receive emotional support from similar others, whereas men did not.

Cawyer and Smith-Dupre (1995) found that members of an HIV/AIDS support group sought emotional support and esteem support (validation) during their interactions with other group members. These types of support were reported to help reduce the negative stigmitization that the members felt they received from society because of their illness. Members reported that they failed to receive emotional support from health care providers, friends, and family members. By interacting with peers facing the same issues, group members reported they were better able to express emotions as well as giving and receiving support from group members.

These studies reveal that social support plays an important role in the coping process. The size of one's support network, satisfaction with the network, satisfaction with the type of support, and similarity to others in supportive relationships have all been found to influence the types of coping strategies that individuals use to solve problems. Since the literature reviewed earlier on companionship and other informal supportive relationships suggests that these types of relationships are more likely to help older individuals cope with daily (as opposed to acute) stressors, the next two sections of this

review examine sources of everyday stress in older adults and literature on coping with everyday stress.

Coping and Older Adults

Sources of Everyday Stress for Older Adults

While many of the stressors listed in the reviewed literature above go beyond day-to-day problems, older adults may experience a variety of stressors similar to other age cohorts as well as additional problems associated with the physical aging process. However, much of the previous research on older adults and social support has focused on stressors related to negative health as opposed to more mundane day-to-day stressors. While this review will address health issues, the primary focus will be on daily stressors that are not necessarily associated with declining health.

Many older adults face a variety of daily stressors, such as living on a fixed income, adjusting to retirement, bereavement, loss of mobility, coping with developmental changes associated with aging, caretaking responsibilities, exposure to patronizing talk in intergenerational encounters, and relocation. Each of these stressors may negatively affect older adults on a daily basis. Even what appears to be a one time event, such as relocation, can create daily stress. The destruction of informal and formal social networks caused by relocation may create prolonged stress as an individual adjusts to his or her new environment. This is also true of retirement, bereavement, loss of mobility, and a variety of other stressors commonly experienced by older adults.

Krause (1990) contends that these types of stressors negatively affect older adults by "diminishing their feelings of self-worth and by eroding their sense of mastery or

personal control" (p. 72). Social support may help to bolster feelings of self-worth and self-efficacy that can help an older individual to cope with problems more easily.

Psychological Coping Strategies Associated With Daily Stressors

Hassles or mundane stressors have been identified as "ranging from minor annoyances to fairly major pressures, problems, and difficulties" (Kanner, Coyne, Schaefer, & Lazarus, 1981, p. 25). Hassles may consist of a variety of daily stressors for older adults, including: mobility issues, economic concerns, preventive health care regimes, bereavement, diminished feelings of control, and concerns about family members. Daily stressors may not actually cause immediate harm to an individual, but the perception of potential harm can create the desire to cope with the problem, and in some cases successful coping strategies may eliminate a stressor before it becomes a problem.

While daily stressors exist on a continuum ranging from potential threats to actual threats, they have been linked to a number of psychological and physical health problems as well as some potential benefits. According to Kohn (1996):

> Threat, for example, should invoke anxiety, harm or loss, and depression. Challenge could provide an opportunity for emotional uplift and personal growth, especially if successfully met; however, theoretically, the individual might encounter too many hassles, however categorized, over too long a time, which would evoke the emotional exhaustion of 'burnout.' (p. 182)

While the possibility exists that a stressor might lead to a positive outcome, the potential negative aspects of prolonged daily stress on psychological well-being may occur if coping strategies fail (Bhagat, Allie, & Ford, 1991; Leiter, 1990; and Nowack, 1991).

In terms of negative physical outcomes, prolonged exposure to hassles has been found to impair immune response (Ballieeux & Heijnen, 1989), and create damage to

internal organ systems through the maintenance of high levels of epinephrine and norepinephrine in the blood stream (Baum, Fleming, & Singer, 1982). Elevated levels of adrenaline and noradrenaline in urine samples of individuals dealing with daily stressors have been associated with colds and flu, tension and nervousness, and elevated systolic blood pressure (Kohn, 1996; Novaco, Stokols, & Campbell, 1978).

In addition, chemicals related to stress have been found to disappear from circulation from many older adults at a slower rate than other age groups (Rodin, 1979; McClure & Levine, 1977). As a result, daily stressors, if not coped with successfully, may lead to a variety of negative physical outcomes in older adults. Coping with these mundane stressors as they occur or successfully anticipating them prior to negative effects may be beneficial in ameliorating their harmful effects.

Kohn (1996) identified various modes of coping with daily stressors and their consequences. There is some disagreement within the coping literature over whether state-like coping responses to particular stressors or overall trait-like coping styles are the best frame of reference for examining responses to daily stressors. However, it appears that a combination of both state and trait styles of coping may emerge in many situations. According to Kohn (1996):

> Two consistently identified modes of coping have been problem-focused coping, which is directed at remedying a threatening or harmful external situation, and emotion-focused coping, which may be variously directed at ventilating, managing, or palliating an emotional response to a situation. In addition, researchers have also identified a third general type of coping style called "avoidance-focused coping, which entails the attempt to disengage mentally or even physically from threatening or damaging situations." (p. 186)

Empirical findings across numerous coping contexts have consistently found that problem-focused coping is predictive of positive adaptation (Bhagat, Allie, & Ford, 1991; Cornelius & Caspi, 1987; Endler & Parker, 1990a, 1990b, 1990c; Heady & Wearing, 1990), emotion-focused coping is predictive of negative adaptation (Edwards & Trimble, 1992; Forsythe & Compas, 1987; Lobel, Gilat, & Endler, 1993; Tuner, King, & Tremblay, 1992), and avoidance-focused coping can lead to both positive and negative adaptation (Heady & Wearing, 1990; Kohn, 1996; Miller, 1990).

Age Differences and Coping Strategies.

Strack and Feifel (1996), in their review of age differences and coping found that while the findings are mixed in some cases, older adults often use different types of coping strategies than other age cohorts in a number of empirical studies. For example, Pearlin and Schooler (1978) found that older people were less likely to seek advice and more likely to engage in controlled reflection than were younger adults. Quayhagen and Quayhagen (1982) measured the interpersonal coping strategies of healthy men and women ranging in age from 40 to 70 years. Participants within the 60 to 70 year range were found to use more affective coping and less problem-solving coping strategies. In addition, the same group reported less help-seeking than the younger groups, and men were found to use significantly less help-seeking than women. Aldwin (1991) examined the relationship between age, coping responses, and coping efficacy among 228 community-dwelling men and women ranging from age 18 to 78. The results indicated that older adults were less likely to use avoidance-coping techniques than younger adults.

In terms of coping with everyday stressors, Cornelius and Caspi (1987) had 126 men and women ranging from 20 to 78 in a New York community respond to hypothetical everyday stressful situations. Coping responses were categorized and rated by trained judges in terms of problem-focused, emotion-focused, and avoidance-focused categories. The results indicated that effective problem solving skills increased with age. In another study of everyday coping responses, Folkman, Lazarus, Pimley, and Novacek (1987) compared the coping responses of 75 married couples, with individuals ranging from age 35 to 74. They found that younger adults tended to use more confrontation, social support seeking, and planned problem solving than older adults. Older adult were found to use more distancing, acceptance of responsibility, and positive repraisal.

While age differences in coping styles have been found, Strack and Feifel (1996) caution that "age and coping are linked with many sorts of variables, and it is doubtful that any single methodology can capture all the contributory elements involved" (p. 488). However, they also mention that well designed experimental and survey designs can advance our understanding of this relationship. While some findings have been mixed, Strack and Feilfel (1996) report that findings from existing research "suggest that more often than not, age differences in coping exist among young, middle-age, and elderly persons dealing with everyday life situations and medical illnesses" (p. 493).

Computer-Mediated Communication and Older Adults

CMC Relationships

Since CMC technology has become more commonplace in society, communication researchers have become interested in the effects of CMC on

interpersonal relationships. While there was an initial concern that CMC technology might have adverse effects on interpersonal communication, a number of studies have concluded that CMC technology is a way of enhancing and developing interpersonal relationships (McCormick & McCormick, 1992; McGuire, Kiesler, & Siegel, 1987; Perrolle, 1987; and Rice & Love, 1987). For example, while CMC lacks many of the nonverbal cues and immediacy of face-to-face communication, these problems have been found to be compensated for by CMC technology users. Advantages such as lack of status, appearance, and social position cues have been found to contribute to greater anonymity among interactants (McCormick & McCormick, 1992), which may result in facilitating topics or relationships that might be hindered if these cues were readily available.

Walther and Burgoon (1992) found that computer-mediated groups facilitate several relational levels of interaction. In particular, they found that social penetration occurs in CMC interactions, although at a much slower rate than face-to-face interactions. As CMC messages directed toward participants using CMC technology accumulated over time, Walther and Burgoon found that relationships were formed and rated as satisfying as those in face-to-face relationships on a number of relational dimensions. In short, the depersonalizing effects of CMC were found to be limited to initial interactions, and communication differences between CMC and face-to-face interactions tend to disappear over time.

Walther (1992) found that CMC group members attempted to reduce the uncertainty associated with the lack of nonverbal and social cues by over-compensating

in the direction of playfulness, affection, and depth. The combination of asynchronous communication and uncertainty was also found to facilitate more positive relational communication. CMC users were found to compensate for the lack of information normally present in face-to-face conversations by using punctuation as well as typing in all capital letters to express emotions.

Techniques of this type are helpful in compensating for the lack of relational information which social presence theory (Rice, 1987; McGuire, Kiesler, & Siegel, 1987) purports to be important in interpersonal relationships. According to social presence theory, the fewer channels or codes used in communication, the less attention the sender pays to the presence of other social interactants. Computer-mediated communication has significantly fewer contextual and nonverbal channels of information than in face-to-face interaction, therefore diminishing the social presence of another person. In other words, communication tends to be less personalized as a result of less available information.

Walther (1992) also advocates approaching the study of CMC from a relational perspective in addition to the traditional channel-effects perspective. Although in CMC use, it takes longer to gain interpersonal knowledge about others, to form impressions about other, and for changes in relational communication to accrue, satisfying relationships can still be formed over a period of time as CMC messages accumulate. More recent studies further indicate that time is an important variable in establishing satisfying relationships over the Internet (Parks & Floyd, 1996; Walther, Anderson, & Parks, 1994).

Parks and Floyd (1996) examined how friendships are formed and maintained over the Internet. Their findings indicate that Internet users find this technology to be an effective tool for meeting other people with similar interests: "nearly two thirds (60.7%) reported that they had indeed formed a personal relationship with someone they met for the first time via an Internet newsgroup" (p. 85). The results also indicated that "nearly one third of the participants (29.7%) reported that they communicated with their partners at least three to four times a week, and over half (55.4%) communicated with their partners on a weekly basis" (p. 86).

Finally, Matheson (1991) found that users of CMC technology reported to have "less public self-awareness, that is less awareness of the dimensions of one's self that are visible to others and subject to social intervention" (p. 138). As a result, many of the self-monitoring behaviors that an individual would engage in during face-to-face interactions are absent in CMC interactions. This may lead to less inhibited self-disclosures and circumvent many of the self-imposed restrictions that an individual might put on his or her communicative behaviors during a CMC encounter.

Each of these studies indicates that it is possible for older adults to form satisfying relationships using CMC technology. While CMC relationships may not convey the immediate richness of information that face-to-face interactions offer, it appears that this problem is ameliorated over time as the number of messages accumulate. In addition, CMC users can compensate for the lack nonverbal cues by using techniques such as capitalizing letters. The lack of nonverbal information may also be beneficial in terms of facilitating self-disclosure. This aspect of CMC technology is interesting in that older

adults experiencing a physical disability or lack of mobility might prefer to communicate over the Internet since these aspects of their situation would remain invisible to others.

CMC use by older adults. Estimates of CMC network use by adults aged 55 and older show that the number has grown by 15% each year since 1990 (Noer, 1995), and the American Association of Retired Persons estimates two million current computer users among its 33 million members (Dickerson, 1995). These numbers are expected to increase as the cost of CMC technology continues to decline, computer education programs for older adults increase, and the cohort of late baby-boomers (many who are already using CMC technology) become older (Dickerson, 1995; Ryan, 1986). A recent random sample survey of computer use by 600 older adults indicates that 25% of the respondents use computers for communication and 13% report communicating on-line is the most important use of the computer (Adler, 1996). In terms of computer use in the same study, 53% of respondents indicated that they use one everyday. Twenty-five percent of the older adult respondents considered themselves experienced computer users, while 46% considered themselves to be intermediate, and 60% considered themselves to be beginners (Adler, 1996). While communication researchers have predicted an increase in the use of CMC technology to supplement interpersonal relationship needs (Giles & Condor, 1988; Nussbaum, Thompson, & Robinson, 1989; Ryan, 1986), the ways in which older adults use CMC technology for establishing on-line relationships and for seeking social support warrant further investigation.

Kerscher and Hart (1984) examined how older adults use a number of technological innovations such as computers, automatic bank teller machine, and video

games, and they found that higher levels of education, income, and perceived usefulness are related to positive attitudes toward new technology as well as its adoption. Higher educational levels of future aging cohorts have also been predicted to influence attitudes towards computer use in the future (Jay & Willis, 1988).

Another factor shown to increase the adoption of computer technology by older adults is the influence of prior experience with a computer. However, studies have reported mixed results, with some indicating positive attitude change with direct computer experience (Danowski & Sacks, 1980; Kerschner & Chelsvig-Hart, 1984; Krauss & Hoyer, 1984), and others indicating no attitude change resulting from computer use (Ansley & Erber, 1988). Jay and Willis (1992) found than an experimental group of older adults (aged 57 to 87) expressed more positive attitudes (on a multidimensional computer attitude measure) after a two-week training program than the control group. By using a follow-up measure, the authors also found that the attitude change in the experimental group was established for at least two weeks following the training program.

Other studies indicate that age may not be salient in terms of an older adult's ability to acquire computer skills. The findings from several reports of older adult training classes indicate that older adults are learning to use CMC technology as easily as other age groups (Dickerson, 1995; Shannon, 1995). Furlong and Kearsley (1986) found no differences in CMC learning ability between older adults and other age groups. The authors observed that "elders learned at about the same rate, made similar mistakes, and were equally enthusiastic about what they had learned" (p. 34).

Even for seniors with disabilities, there are a number of devices on the market such as speaking computers and large-scale type keyboards which can assist severely arthritic adults with computer operation (Noer, 1995). These findings also indicate that most older adults who choose to participate in the use of CMC technology do not appear to have difficulty in learning computer skills, and moderate age-related physiological decline does not appear to inhibit use.

Another concern with the adoption of CMC technology by older adults is the question of access. Glastonbury and LaMendola (1992) argue that the poor, the undereducated, women, and the elderly have been left out of the "information revolution." For some segments of the older adult population, access to computer hardware, modems, and software may be too expensive for individuals to participate in computer-mediated communication. Wealthy and upper-middle-class families currently comprise the majority of the 30% of American households that own computers (Price, 1995). While it is true that many older adults are affluent, there are many more who may not be able to afford the luxury of a home computer due to factors such as a fixed income. In other age groups in the United States, researchers have found that women participate as often as men in the use of CMC technology. A recent survey (Adler, 1996) found that 38% of computers were owned by men compared to 23% of women over the age of 55. For age 75 and above, 37% of males reported owning a computer compared to 17% for females. Men were found to be the primary users of CMC technology (76% versus 64%) regardless of marital status. In addition to gender differences, 53% of the respondents

reported having a college education. Most computer-related research with older adults has largely ignored socio-economic and gender differences among users.

One of the few studies examining a computer-mediated forum exclusively for older adults is Furlong's (1989) study of SeniorNet. Established in 1986 at the University of San Francisco, SeniorNet established five "SeniorNet sites" around the United States, where older adults could gain access to computer training for a small annual fee. Prior to this time, many older adults lacked access to CMC technology education and training. Since that time SeniorNet has expanded its operation to include 75 computer training centers and schools (Noer, 1995), and it reports a membership around 15,000 people (Dickerson, 1995).

Furlong (1989) identified a number of motivations that older adults expressed for using CMC technology. Many SeniorNet users mentioned that CMC technology offered "an opportunity to meet people with similar interests and to share not only information, but also communication on emotional and social issues that are particularly relevant to older adults" (p. 145). Sixty-four percent of surveyed SeniorNet users indicated a desire to access new information related to their interests.

The findings also indicate that older adults often use CMC technology to interact specifically with members of their own age group for both companionship and emotional support. In response to a survey question asking why they became involved with SeniorNet, participants reported the following motivations: 64% reported that they wanted to gain access to information; 48% reported the desire to keep up with new technologies; 54% desired a convenient way to interact with their extended family; 6%

reported using SeniorNet for purely social reasons; and 47% indicated the desire to "connect with others" (p. 147). According to Furlong, "although 'information access' is the most frequently cited reason for joining the network, communicating with others is in fact the network's most popular activity" (p. 147).

In a six month study of usage patterns, it was found that SeniorNet members spent the majority of their time interacting with each other. There are some specific sites on SeniorNet for social support. For example, one site entitled "Coping," is an interactive column where people can express problems and receive advice related to "traumatic changes in one's life" (p. 150). The majority of the interaction, however, appears to take place in general conferencing and forum sites, where more informal types of social support take place.

Summary

While the areas of social support, companionship, stress and coping, and computer-mediated communication are vast, they are becoming increasingly important to lives of older adults as these areas converge within the context of computer-mediated social support. The literature suggests that social support and companionship are important to older adults using this technology. In addition, it is important to understand the impact that computer-mediated social support has on the health outcomes for older adults.

Rationale and Research Questions

While the number of older adults using CMC technology is projected to increase as the population increases, the ways in which social support and companionship are

offered and received within this context is only beginning to be examined by social scientists, including communication researchers. While theories of social support and companionship have proliferated in recent years, these theories have not been adequately investigated within the context of older adults and their use of CMC technology. Specifically, the degree to which older adults are satisfied with on-line relationships, the relationship between on-line support and coping strategies used by older adults, the types of supportive messages that are exchanged between older adults in on-line relationships, have not received adequate empirical attention.

While the literature on computer-mediated relationships suggests that satisfying relationships can develop over the Internet, including supportive relationships (as in on-line support groups), few studies have investigated the lives of older individuals with the social support they receive from on-line relationships as opposed to non-Internet relationships. While access to CMC technology creates the opportunity for older adults to increase the size of their social support network, little is known about how satisfied older individuals are with the support they receive within this context.

RQ1: What are the differences in the perceived satisfaction of older adults with the support offered by on-line relationships as opposed to non-Internet relationships?

In addition to the question of older adult satisfaction with on-line supportive relationships as opposed to non-Internet relationships, little is known about the types of supportive messages that are exchanged in forums such as SeniorNet. Does support take the form of useful information, esteem support, emotional support, or does the forum

simply provide a sense of identity with a larger community of others? Do participants give more support or receive more support within these forums? Are the supportive relationships on-line viewed as superficial, or as important relationships by participants? In short, little is known about how social support is communicated by older adults using the Internet. By analyzing the actual messages exchanged within forums such as SeniorNet, we will be able to detect the various types of social support that is being given to and received by members.

RQ2: What is the nature of the supportive communication messages that occur between individuals within on-line forums exclusively for older adults?

While older adult companionship, social support, and psychological coping have received extensive empirical attention, these broad areas of research have rarely been examined in terms of their influence on each other. Although social support within older adult friendships has been linked to psychological well being, the specific ways in which social support and companionship within older adult on-line relationships affects specific coping strategies has not been examined. Social support offered and received in family relationships has been studied extensively, but less is known about support offered in older adult friendships and other types of informal ties. Additionally, previous research has limited its focus on how older individuals cope with major life events rather than daily stressors, although the cumulative effect of these types of stressors has been linked to negative health outcomes.

Given the impact of friendships and other informal ties on the well-being of older adults that has been identified in research so far, the relationships between the areas

mentioned above deserve empirical attention. By increasing our knowledge of the relationship between informal on-line support networks and psychological coping with daily stressors among older adults, life span researchers may be able to offer information that may help to improve the quality of life for older adults. With the projected increase of older individuals over the next twenty years, information regarding the impact of informal networks on the psychological well being of these individuals is an important area for researchers to understand.

RQ3: Is satisfaction with the type of support offered by on-line companions and on-line providers of support predictive of the types of coping strategies used by older adults when dealing with daily problems?

Numerous studies have examined the relationship between social support and perceived stress (Aneshensel & Stone, 1982; Ballieux & Heijen, 1989; Berkman & Symes, 1979; Billings & Moos, 1981; Dean & Lin, 1977). Size and satisfaction with one's social support network consistently have been found to be inversely related to measures of life stress. Even informal ties, such as "weak ties" (Adelman, Parks, & Albrecht, 1987; Granovetter, 1973) are assumed to be helpful in terms of reducing life stress. These less formal ties are likely to be found in relationships on the Internet. However, the effects of more informal ties on overall perceived life stress have been downplayed in the social support literature (Vaux, 1988).

Perceived amount of participation in one's support network has been linked to lower levels of life stress, and it has also been found to be a more reliable indicator of satisfaction with one's support network than network size (Lin, Dumin, & Woefel, 1986).

While older adults appear to benefit in terms of reduced life stress by expanding their support networks (both formal and informal), little is known about the relationship between participation in less formal ties such Internet relationships and perceived life stress. Specifically, research has not examined whether the inverse relationship between participation in a support network and perceived life stress holds for older adult on-line relationships.

RQ4: What is the relationship between degree of on-line participation and perceived life stress for older adults?

Much of the research on the distinction between formal support networks and more informal support networks indicates that there are fewer social support costs associated with companions and other informal ties (Rook, 1995; Vaux, 1988). Due to the lack of role obligations present in more formal supportive relationships, such as family members and close friends, it would be expected that there would be fewer costs associated with more informal network members on the Internet. Support costs, in this case, refer to the negative psychological effects of receiving support from others, such as feelings of obligation (such as family role obligations), feeling controlled by the support provider, and feeling that accepting support is a sign of personal weakness. For example, the literature suggests that less intimate partners communicating over the Internet should be less likely to exhibit controlling behaviors (such as social control seen in family relationships), and there should be less of an obligation to provide support than with more intimate ties.

H1: Participants will perceive fewer support costs associated with on-line relationships than in face-to-face supportive relationships.

One of the few empirical findings regarding older adult companions and health outcomes is that companions tend to help buffer the effects of daily stressors, whereas more intimate ties, such as family members or close friends, are called upon to help older adults cope with major stressful events (Rook, 1995)). While there is some overlap between these informal and formal ties, they have emerged as empirically distinct types of support networks based upon the type of stressor the individual is faced with. While there may be times when older adults may use on-line relationships to cope with major stressful events, based on the findings from previous research, it is more likely that older adults would engage in companionship relationships on the Internet rather than for social support per se. Companionship in this case would be more directly related to the buffering hypothesis in that it serves to buffer minor stressors and elevate mood. While it is reasonable to assume that older adult on-line relationships will be used more for companionship than social support due to the more informal nature of the relationships in this context, this idea has not been tested empirically. In addition, it is unknown whether satisfaction with on-line companionship differs from satisfaction with on-line social support.

H2: Seniors will use computer-mediated communication more for companionship than for social support.

RQ5: What are the differences between satisfaction scores for on-line companions and satisfaction scores for on-line providers of social support?

Chapter III

Methods and Procedures

This chapter will review: (a) the recruitment of participants into the study; (b) provide a description of those participants based on their demographic variables; and, (c) describe the procedures used to answer the proposed research questions and hypotheses.

Participants

Power Analysis

An estimate of an appropriate sample size for the study was determined by a power analysis. According to Maxwell and Delaney (1990), "the exact number of subjects ultimately chosen should depend on factors such as availability of subjects and costs of including subjects" (p. 573). However, while there is no single correct value of the number of subjects needed, a power analysis can "provide guidelines for choosing a reasonable sample size in repeated measure designs" (Maxwell & Delaney, 1990, p. 573). Since it was determined prior to data collection that a number of repeated measure statistical analyses would be conducted, estimates of expected effect size, levels of the repeated factor, and the minimum correlation between scores at these levels were determined from published data on the scales used in the current study. All analyses were determined to have only two levels of the repeated factor.

Based on previous research, it was not unreasonable to expect that the groups of participants for all of the repeated measure analyses would have mean scores that differed from each other by one half standard deviation, and a minimum correlation between scores at the repeated level of approximately 0.1. This information was entered into the

tables provided by Maxwell and Delaney (1990, pp. 568-572), and it was determined that in order to detect a one half standard deviation difference with a minimum correlation of 0.10, with a minimum power level of .95 and an alpha set at 0.05, a minimum of 96 participants would be needed. Therefore, the power analysis indicated that 96 participants would be an appropriate goal for the study.

Recruitment of Participants

This study involved the use of an on-line questionnaire that was linked to the main SeniorNet web page between the months of September, October, and November, 1998. During the course of the study, several other websites exclusively for older adults (e. g., ElderWeb, SeniorSite, and Age of Reason) became interested in the study and contacted the researcher for permission to place a link to the survey. The on-line survey also asked each participant to refer another older adult Internet user to the survey if possible. Each member was presented with a brief explanation of the study and asked if they would voluntarily consent to complete the questionnaire (See Appendix B for on-line informed consent form). All respondent information was anonymous (e.g. no e-mail or contact information was asked), and only a reference number (along with the date and time of questionnaire completion) and demographic information such as age, gender, hours of Internet use, etc. was used to identify respondents. All other questions and scales were related to the research questions and hypotheses. There was no risk or harm to participants in this study. The data from the responses to the questionnaire was sent to a database webpage that could only be accessed by the researcher. The on-line survey initially yielded (N = 184) responses, however after examining the data, the researcher

determined that only (N = 136) were accurately completed, and therefore usable to answer the study's research questions and test hypotheses.

Sample Characteristics

Of the 136 participants in the study, the average age was 62.14 (SD = 6.5, Median = 61), with ages ranging from 55 (the minimum age for inclusion) to 87 years old. In terms of gender, 52 of the respondents were male and 84 were female (chi-square = 7.52, $p < .01$). Of these, 92% identified themselves as White, 3% as Pacific Islander, 2% as Native American, 2% as Asian, and 1% as African American. While the questionnaire did not ask participants to indicate where they were from, many mentioned this information in addition to other qualitative information asked for within the questionnaire. Since the participating websites were international, some respondents indicated that they were from various regions of the United States, Canada, Australia, England, the Philippines, and Sweden.

Self-reported frequency of communication on the Internet (defined as using e-mail, message boards, or chat rooms) indicated that 86% of the respondents communicate daily on the Internet (Table 1), and an average of 17.27 hours a week (SD = 15.26, Median = 14). In terms of the number of years communicating on the Internet, 79% of the respondents indicated that they have been communicating with others less than 5 years (Table 2).

Participant reports of marital status indicated that 63% of the sample were married, 24% were widowed, 21% were divorced, and 9% were single. In terms of education, 44% of the participants indicated that they had some college, 23% held a

college degree, 18% held a graduate degree, 13% held a high school diploma, and 2% had less than a high school education. The high proportion of individuals with some college or a college degree is consistent with prior research on older adults who use computers (Adler, 1996).

On-Line Questionnaire and Instruments

The on-line questionnaire (Appendix A) consisted of a number of established social support, companionship, and coping scales from the literature in these areas. Many of the measures were brief versions of the instrument that have been empirically demonstrated to have good psychometric properties. A description of all instruments and the corresponding research questions they are used in is reported below. In addition, the reliabilities of all instruments for this study, as indicated in the literature, also are included.

The first research question asked if there were differences in the perceived satisfaction of older adults with the support offered by on-line relationships as opposed to non-Internet relationships. The Social Support Questionnaire (Sarason, Sarason, Shearin, & Pierce, 1987) was used to ask participants to rate their satisfaction with both the support offered by exclusively on-line relationships and exclusively non-Internet relationships. The Social Support Questionnaire measures both the average number of individuals in a person's social support network, and it contains a measure of perceived satisfaction with different types of supportive behaviors (measured on a six point, Likert-type scale, ranging from "very dissatisfied" to "very satisfied"). Sarason, et al. (1987) found the network measure and the satisfaction measures to have good reliability (alpha

coefficients = .85 and .87). In addition, amount of time communicating on the Internet was also asked, since the CMC literature suggests that satisfying on-line relationships may take time to develop. Therefore, amount of usage is a mediating variable that was controlled for by including it in the design. Participants were grouped into two broad usage categories based on the median number of on-line communication hours indicated on the questionnaire.

The second research question asked about the nature of supportive communication messages that occur between on-line companions. A sample of on-line conversations from SeniorNet chat rooms was downloaded and analyzed. The downloaded sample from SeniorNet was randomly selected (using stratified random sampling) over a two month period. The day in which the sample was downloaded was randomly selected during this time period as well as the forum. On the selected days, two forums (all of which appear on the SeniorNet homepage) were randomly selected to be downloaded. The researcher used thematic analysis to identify themes within this sample of qualitative data. Briefly, this method consists of identifying themes that emerge from the data and accepting them as themes only after they have been repeatedly verified in a variety of contexts.

In addition, a thematic analysis was also conducted on the types of supportive communication reported to be given and received by the participants. The on-line questionnaire contained an open-ended question that asked participants to indicate the types of support that they typically offer and receive on the Internet. The open-ended responses then were used to find examples of support as perceived by the participants. This step was necessary since the literature suggests that researcher accounts of what

constitutes supportive behavior often differ from accounts of perceived support by participants.

The third research question asked if satisfaction with the support offered by on-line companions and providers of support is predictive of the types of coping strategies used by older adults when dealing with daily problems. The questionnaire used Rook's (1987) Companionship Scale satisfaction measure (alpha coefficient = .74), Sarason, Shearin, and Pierce's (1987) Social Support Questionnaire network satisfaction measure (see the discussion of this instrument and its reliability in the discussion of research question one above), and Stone and Neale's (1984) Daily Coping Measure (alpha coefficient = .70). Rook's (1987) Companionship Scale satisfaction measure asks respondents to indicate their level of satisfaction with various companionship activities on a six point, Likert-type scale (ranging from "very dissatisfied" to "very satisfied"). Stone and Neale's (1984) Daily Coping Measure asks participants to indicate which of several types of coping strategies they use to overcome daily hassles. In this way, the satisfaction scores with the older adults' companionship and support networks were measured to determine if they predict certain types of daily coping strategies.

The fourth research question asked about the relationship between degree of older adult on-line participation and perceived life stress. The questionnaire used Lin, Dumin, and Woefel's (1986) Community Support Measure (alpha coefficient = .88), and Cohen, Kamarck, and Mermelstein's (1983) Global Measure of Perceived Stress (alpha coefficient = .86). The Lin, Dumin, and Woefel (1986) instrument measures the amount of participation in less formal types of relationships, such as involvement in the

community. Specifically, it asks respondents to indicate, on a four point, Likert-type scale, their degree of involvement with people in their community (ranging from "none of the time" to "most of the time"). This measure was altered slightly to ask specifically about the amount of participation in the on-line community. Cohen, Karmarck, and Mermelstein's (1983) Global Measure of Perceived Stress scale asks respondents to indicate how often they felt or thought a certain way to questions about stressful events on a five point, Likert-type scale (ranging from "never" to "very often").

Hypothesis one predicted that there would be fewer perceived costs associated with on-line relationships than in more intimate supportive relationships. The questionnaire used Eckenrode's (1983) Efficacy of Help-Seeking Scale (alpha coefficient = .61). This instrument was designed to "assess the beliefs in the benefits versus the costs of seeking and accepting help from others" (Eckenrode, 1983, p. 516). Briefly, this instrument asks respondents to indicate their level of agreement with various statements about negative and positive aspects of supportive relationships (on a four point, Likert-type scale ranging from "Strongly Disagree" to "Strongly Agree"). Support costs were operationalized as the participant's mean score on this scale. According to Eckenrode (1983), the higher the score on this instrument, the more negatively support from others is perceived. This measure was used in the on-line questionnaire by asking participants to complete the scale first with on-line companions in mind and to complete it a second time with family members and close friends in mind.

The second hypothesis predicted that older adults would use the Internet more for companionship than for social support. The questionnaire used the support network size

scale in the Social Support Questionnaire (Sarason, et al., 1987) to determine the number of supportive relationships participants have on the Internet (see description of the instrument and its reliability in the discussion of the first research question above), and it also used the companionship network size portion of Rook's (1987) Companionship Scale (alpha coefficient = .80) to determine the number of companions in on-line relationships. The support network size scale in the Social Support Questionnaire asks participants to list the number of people they can turn to for various kinds of support, whereas Rook's (1987) measure asks participants to list the number of individuals that a person engages in various types of companionship activities. The average number of people in the support network and the average number of companions is used to determine the final support network and companionship network scores on both scales.

Finally, the fifth research question asked about the differences between satisfaction scores for on-line companions and satisfaction scores for on-line providers of social support. The questionnaire used the network satisfaction scale in Sarason, et al.'s (1987) Social Support Questionnaire, and the network satisfaction scale in Rook's (1987) companionship measure (see discussion of both of these measures and their reliabilities above).

Data Analysis

After all of the completed on-line surveys were received, the streams of data that were sent to the data collection webpage were color coded by instrument, and then cut and pasted into a PC SAS 6.11 data file. All statistical analyses were performed using this

statistical package. All qualitative responses were cut and pasted into a separate word processing file for analysis.

Chapter IV

Results

This chapter will review the results of the analyses. First the reliabilities will be discussed, then the results for each research question and hypothesis.

Reliabilities

In order to assess internal consistency reliabilities for each instrument (including each subscale of Sarason, et al.'s (1987) Social Support Questionnaire and Rook's (1987) Companionship Scale), Cronbach's alpha was used (Table 3). Reliabilities obtained from the instruments in the current study were then compared to the reliabilities reported in the literature. In some cases, the reliabilities exceeded those reported in previous literature while in other cases the reliabilities of some instruments were not as strong in the current study. One reason for the discrepancies in reliabilities may be that the reliabilities of the scales in the literature were not assessed within the context of a repeated measures design. In the current study, some scales, such as Sarason, et al.'s (1987) Social Support Questionnaire were used twice (See Questionnaire, Appendix A), in order to assess support from on-line and non-Internet networks. It is reasonable to assume that placing two versions of the same scale (with directions indicating the participant should respond with a different support network in mind) next to one another may have affected the way in which the participants responded to the scales.

Research Question One

To answer the first research question, which asked about perceived differences in satisfaction with support from exclusively on-line individuals versus exclusively non-Internet relationships, a two-way repeated measures ANOVA was used to detect differences between Social Support Questionnaire satisfaction scores for the on-line relationships versus non-Internet relationships for one factor, and length of time communicating on-line as the second factor. A median split on the number of hours per week participants reported to spend communicating on the Internet was used to determine the high versus low levels on the length of time factor (Median = 14).

The two-way repeated measures ANOVA determined that there was a significant on-line communicator group (high versus low) by network satisfaction (on-line versus non-Internet) interaction effect $F(1, 134) = 10.44$, $p < .001$, a significant main effect for high versus low on-line communication time $F(1, 134) = 5.40$, $p < .05$, but no significant main effect for network satisfaction (on-line versus non-Internet) $F(1, 134) = .48$, $p > .05$.

The individual cell means were analyzed using Tukey's studentized range multiple comparison procedure, and they were also plotted to better understand the significant interaction effect (Figure 1). Tukey's multiple comparison procedure controls alpha error rate familywise for all pairwise comparisons, and it has been found to have adequate power (Toothaker, 1993). Since not all possible comparisons were of interest to the researcher, Cicchetti's (1972) number of means parameter approximation solution was used to find the number of means parameter needed to determine the Tukey's studentized range critical value (q crit = 3.68).

Four pairwise comparisons revealed that the non-Internet network satisfaction mean was significantly higher than the Internet satisfaction mean score for the low Internet communicator group, $t = 2.776$, $p < .05$, and the high Internet communicator group mean was significantly higher than the low Internet communicator group mean for Internet network satisfaction scores, $t = 3.707$, $p < .01$. All other pairwise comparisons were nonsignificant (Table 4). The plotted cell means (Figure 1) revealed that satisfaction with on-line versus non-Internet relationships interacts with low or high Internet communication time. Specifically, satisfaction with on-line supportive relationships tended to be higher for high on-line communicators and lower for low on-line communicators, and low on-line communicators tended to have higher non-Internet satisfaction scores.

Two post hoc tests were used on the network size portion of the Social Support Questionnaire to shed additional light on this research question. A two-dependent sample t-test was used to determine whether the number of supportive individuals exclusively on the Internet was different from the number of supportive individuals exclusively not on the Internet, and while not significantly different, the t-statistic value approached significance, $t(134) = -1.9078$, $p = .058$. A Pearson's product moment correlation coefficient indicated that there was a significant positive linear relationship between the number of on-line supporters and non-Internet supporters, $r(134) = .32$, $p < .001$.

Research Question Two

The data from research question two, which asked about the nature of the social support messages that occur among older adults within on-line relationships, was

downloaded from a stratified random sample of SeniorNet conversations. A thematic analysis was conducted on the downloaded samples of supportive interactions, and self-reports of supportive behaviors data generated by the participants through the open-ended survey question.

Themes from the Sample of Downloaded SeniorNet Interactions

A total of 360 pages of conversations were downloaded from SeniorNet, representing 20 randomly selected SeniorNet forums. The randomly selected forums were stratified in terms of those forums which were determined most likely to exhibit supportive behaviors prior to the study (See Table 5 for a list of the forums included in the sample). Since these conversations were asynchronous, many of the conversations were traced to early ones in order to find their origin, and to gain a better understanding of the context of the interaction (SeniorNet provides an archive of all posted messages within a forum up to two years prior to the current date).

From this sample of downloaded conversations, four social support themes repeatedly emerged from the data. These include what I identified as: (a) promoting community support; (b) advice-giving disguised as self-disclosure; (c) informational support; and, (d) shared life events. I will discuss each of these themes in detail below.

The first theme, promoting community support, was found to occur throughout all of the 20 downloaded SeniorNet forums. SeniorNet members repeatedly promoted SeniorNet within conversations by mentioning how helpful the website was, how caring and supportive other SeniorNet members are, and how diverse the website is in terms of

interests and available information. Within conversations, self-disclosure, and other types of interactions, members would frequently promote SeniorNet as a community.

For example, members would often interject phrases such as: (a) "The loving and caring here [SeniorNet] is a blessing for all of us;" (b) "You will get the love and support you need here;" (c) "This is the last stop for loneliness, from here on life does get better on SeniorNet;" and, "I'm so grateful that Caregivers [a forum] is here on SeniorNet" during conversations with a diverse range of topics. SeniorNet appeared to be promoted as a way to encourage new members to come back to SeniorNet, and to remind regular members that SeniorNet as a community was there for support.

Community support was promoted in more subtle ways throughout numerous conversations by the use of inclusive pronouns such as "we" and "us."
When encouraging other members, people would post messages such as "Just hang in there. We love you," "Let us know what is wrong," and "Our love and warm thoughts are with you." In addition, the use of metaphors such as "family" and "home" frequently appeared throughout conversations, such as "Hi! Stopped in just for a minute to read up on my family," and "You are not loved anywhere as much as you are by your SeniorNet family."

Promoting community support occurred most frequently when a new person joined the discussion within a forum. Members would try to make SeniorNet sound as helpful and caring as possible, and they would often go out of their way to offer encouragement, support, and information to new members.

For example, after a new SeniorNet member joined a discussion within the "Do You Know Anyone Who is Lonely" forum and he indicated that he was new within his posting, the following responses from other members occurred:

> **Respondent A**: Welcome ____. It's so nice that you have come to SeniorNet. You will find this site to be very friendly and caring, and you'll find many friends here so that you won't be lonely. Many folks here with a multitude of different interests. I have sent you a letter to help you find your way around.
> **Respondent B**: Welcome to SeniorNet! There are a lot of nice, friendly people here, so hope you will come back often.
> **Respondent C**: Welcome and good morning ____! This is a great friendly place. Hope you will be back soon and often.

A second theme that emerged from the data, what I termed "advice-giving disguised as self disclosure," occurred frequently throughout the majority of the downloaded conversations. Rather than outwardly giving advice, SeniorNet members most often dealt with advice by disguising it within some type of self-disclosure. Advice was only directly given when it was directly asked for, but this did not occur as often in the downloaded sample. Even then, it was often qualified by a statement such as, "This may not work for you, but I have found it to be helpful." In terms of advice-seeking, SeniorNet participants would sometimes indirectly ask for advice by disclosing problems, however, it was more common to see people specifically ask for advice or help if they needed it.

Advice-giving disguised as self-disclosure took the form of one member telling another member what types of things had been done to overcome a problem or a situation for him or her as opposed to suggesting that the other member take a certain course of action. For example, in the following excerpt from a conversation within a forum on depression, a member mentioned that she had been very depressed lately. Several other

members of the forum offered advice to her by disclosing the ways in which the combated depression:

> **Respondent A**: ___ , I felt so much better on a low carb diet...my mood was better, my anxiety went away, and I just felt better all over. What I do is get rid of anything in the house that might tempt me.
> **Respondent B**: I'm trying to eliminate sugar too, and fat, from my diet. Also, I'm trying to walk every day right now. I try to do exercises I did in the water aerobics class I took a few years ago.
> **Respondent C**: Another suggestion is something that is absolutely invaluable to me but is not a helpful solution for everyone. Do you have a pet? Maybe you do, or they are not acceptable to you, I know they are not for everyone. For those of us who like them, a warm furry body can go a long way to make up for that lack of touch.

A third theme that appeared throughout the sample of conversations was giving and seeking informational support. This was the most common type of social support that appeared within each of the discussions. The types of information that was given as support were as diverse as the types of issues being discussed in the 20 different forums, and they most commonly included advice, personal testimony, facts from other websites or other sources, and links to websites. Informational support as advice and personal testimony were typically given in a way that appeared to be self-disclosure (see above discussion), unless a SeniorNet member specifically asked someone for their opinion about what should be done about their situation. Therefore, there appeared to be a gray area between advice and personal testimony in most situations. Members mostly posted suggestions that they said had worked for them to overcome the same or similar problems.

When a member posted a question that could not be answered by another member's personal experience, this often resulted in a search of informational resources

by other members (typically other Internet-based resources). While a number of people responded to queries about various subjects the same day, it often took two or three days before someone would post a link to resources that could be used to answer questions. When several people had the same questions, they would typically discuss their questions on one day and then the same participants would reappear on another day to report the types of information they had found about the subject at hand.

For example, in a forum entitled, "Retirement Topics," several SeniorNet members began asking questions about retirement, Medicare, and social security benefits. While some people gave some advice based upon their experience, after a number of postings it appeared that the interested parties did not possess adequate information:

> **Respondent A**: I'm not sure if this is a good idea or not, but it seems that some of us "mature" folk are not familiar with what to do when one retires. Who to call first? What does one do? I wonder if it might be a good idea to post a few 800 numbers for those that are floundering and have no idea where, who, or what? What do the rest of you think?
> **Respondent B**: Good idea, ____ I'm about to take the plunge, and although I'm too young for SS or Medicare, there are probably things I should be aware of.
> **Respondent C**: Excellent idea! Social security is one for sure, I guess...
> **Respondent D**: Yes, Social Security is the most important. I guess they tell you about Medicare too so it would be a good place to call. I believe the government has an 800 number where we can call for a booklet on age, excuse me, maturing. Not sure what it is. Boy, you pinned me to the wall and I'm coming up empty handed here. I am sure that some of the users here can help with this. If we had maybe 5 of the most important ones posted and maybe those would lead to others. Who knows? It's just a scary thing for so many, especially when one faces it alone.

While nobody specifically mentioned that they would research this area, over the next couple of days, many of the original participants who had asked questions began to post information they had located regarding this issue:

Respondent A: Folks: I found a SS [social security] site on the web and called their 800 number (800-772-1213) and asked about Medicare, etc. Here's what the lady (Mary) said: If you already draw social security benefits, the Medicare card will automatically be sent to you when you turn 65. If you wish Medicare, it's all set. If you don't want it, you return the card. If you have individual questions, I'd call the number above. I got right in about 10 minutes ago.
Respondent B: I found some AARP numbers that might be useful for retirement [questions]:
Group Health.....523-5800
Auto Insurance.....932-9922
Life Insurance.....795-9990
AARP VISA card...283-3310
Respondent C: You might want to take a look at a SeniorNet interview with Bob Otterbourg on his book Retire and Thrive [link to interview].

In this way, SeniorNet members pulled together their resources to provide informational support to anyone who had similar questions about these issues. Most members within forums voluntarily provided information for other people. In no cases did individuals specifically ask another member to find information about a given subject.

A fourth theme that emerged from the data is the way in which SeniorNet members shared life events with each other. Throughout all of the forums in the sample, members repeatedly shared information about events that had occurred in their lives, especially those events that were related to the topic of the forum. These self-disclosures were usually followed by postings from other members which offered words of encouragement, self-disclosure dealing with a similar situation, or nonverbal types of acknowledgements such as "cyber-birthday cards," "cyber-hugs," or the sharing of scanned photographs of events such as vacations, birthday parties, weddings, births, etc. When a member disclosed an important life event, such as the birth of grandchild, other members responded by giving words or encouragement, or some type of

acknowledgement. This type of support appeared to validate the life experience that the member had disclosed. While this type of behavior occurred in all of the forums in the sample, some forums in particular, such as "SeniorNet Cafe," exhibited this type of behavior more frequently since this forum is a place specifically where members catch up on life events with one another.

One of the numerous exemplars:

> **Respondent A**: My son (32), who didn't do well in high school (squeaked by to graduation by a teacher who gave him one point!), has overcome his educational deficiencies and, by force of will and great determination has studied his way through all the developmental courses in college and graduated as a nurse. Today he called-HE'S AN RN! He just got his notification that he passed the Georgia licensing exam. That's on top of my daughter (25) who worked her way through to her own nursing degree in May and passed her RN certification in June.
> **Respondent B**: ___, that is wonderful news. I am so happy for you and your son and daughter!
> **Respondent C**: ___, I know you are really proud of your son and daughter...and rightly so! Wow, two RN's in the family!
> **Respondent D**: ___, what wonderful news from your neck of the web tonight. And how proud you must be of your son...it's so wonderful when someone finds their path and is able to overcome past weaknesses.

In addition to validating shared life events, SeniorNet members frequently posted questions asking where other members had been if they had not posted for a while. In many cases, members would post a message telling others within a forum that they were going on vacation so that others would not worry about them if they did not post messages. Members frequently inquired about other members' families, spouses, and the life events that had been disclosed in earlier postings.

Themes from Open-Ended Survey Question

Several themes also repeatedly emerged from the data generated from the open-ended survey question which asked about the types of support that participants typically

give and receive on-line. While some respondents gave only a few examples of the types of support they encounter, others gave extensive accounts of the social support behaviors they had engaged in. These descriptions were thematically analyzed in terms of repeating patterns that emerged from the data.

The first social support theme that emerged is the continuum of on-line social support for participants, ranging from little emotional involvement, such as informational support on one end of the spectrum to extreme emotional involvement, such as reports of a "surrogate family" on the other end of the spectrum. In between the two extremes are numerous examples of supportive behaviors that could be positioned along the continuum based upon the amount of emotional involvement exhibited in the supportive behaviors appearing on-line. However, the reported supportive behaviors were not mutually exclusive, and the majority of the sample indicated that they engage in a variety of supportive behaviors that include types of support between both extremes.

Approximately 70% of the participants indicated that they typically give and receive information about common interests and activities within supportive interactions with other on-line. The reported types of interests and activities were as variable as any large group of people, ranging from discussions about cooking and gardening to religious discussions and complaining about family members. About 44% of the sample reported that within interactions with others on-line they regularly exchange links to websites dealing with similar interest. According to one 67 year old male respondent:

> I provide computer advice to others. I communicate with old shipmates and others sharing my past career. My friends and I share websites and Internet information. I communicate with others about camping and associated interests, and I glean technical information through Internet contacts.

This quotation is an exemplar of the types of supportive messages that I would classify as being on the more informational side of the continuum. Numerous examples from other respondents shared the same emphasis on the value of giving and receiving information about various activities and interest. The above description of this participant's social support activities, and others like it, lack any account of deeper emotional involvement between members of the on-line network.

On the other side of the spectrum, approximately 20% of the respondents indicated that their on-line supportive relationships took on the characteristics of a "surrogate family," involving the sharing of intimate problems and emotions a variety of supportive behaviors seen in the most intimate non-Internet relationships. These people often reported that they were not receiving adequate support from non-Internet family members and friends, for reasons such as widowhood, isolation due to physical mobility problems, or dissatisfaction with more traditional support networks due to issues such as lack of similarity, life experience, or approachability. According to one 63 year old female participant:

> These people are not only friends, but I consider them "family." We are always there for each other, to comfort, console, to listen and share the love that we feel in our hearts. I feel closer to some of these [people] more than my own family. I belong to SeniorNet and spend most of my time there. We have many folders (discussions) to take part in. My computer has saved me from being lonely, etc. I have not been able to get out and do the things I used to because of health matters, so this has saved my sanity for me. There is nothing that I cannot talk to my friends about.

This exemplar is typical of the respondents who reported to engage in more intimate supportive exchanges on-line. While many of these respondents also mentioned less intimate types of support, such as sharing of websites and information, the emphasis

of their supportive accounts clearly focused on the more intimate aspects of their relationships.

Other prominent themes that emerged from the self-reported data that can be positioned at different points along the informational/intimate continuum were: (a) the use of humor for companionship and fostering a sense of well being; (b) discussing family issues with non-family network members; (c) sharing "happenings," or daily life events, and giving encouragement and moral support; and, (d) using network members as a "sounding board" to vent frustrations or to "try out ideas on." I will briefly discuss each of these themes below.

Twenty percent of the participants mentioned humor in their description of social support activities on the Internet. Humor was reported to take the form of jokes distributed by e-mail or posted in forums, humorous sayings, or joking banter between respondents in chat rooms or in discussion groups. Humor was reported as way to elevate moods, to ease stressful situations either by casting negative circumstances in a more favorable light, or by diverting attention away from the stressor. Also, humor was reported to foster a sense of well being among members of discussion groups and forums.

Another theme that was reported by 18% of the participants was discussing family issues with non-family network members. Many of these people indicated that forums such as SeniorNet allowed them the opportunity to discuss family issues and problems with individuals who have had similar experiences, and to obtain advice about the problem, moral support, encouragement, or sympathy. In some cases, participants

reported that these forums gave them the opportunity to complain about problems with family members to people outside of their immediate network.

Also, within this group of respondents, a number of people specifically mentioned seeking and giving advice about grandparenting and caregiving issues (mostly for Alzheimer's patients). For new grandparents, the ability to seek advice about grandparenting on-line was reported to be a useful way to learn about how to deal with grandchildren issues through the experience of others, and subsequently circumventing the trial and error of grandparenting without advice. In terms of caregiving, communicating on-line was reported to be a convenient and satisfying way to reach other caregivers without having to leave the house (which is difficult for Alzheimer's caregivers). According to a 71 year old female respondent:

> Being a caregiver is sort of like house arrest, and the days are long and the nights are longer. I get a constant stream of URLS and e-mail from on-line friends and strangers. Being on the net has been for me a Godsend, and I would be one for all who are trapped at home for one reason or another.

Sharing life events or "happenings" was also a frequently reported theme that emerged from this data (approximately 14% of the respondents). Forums such as SeniorNet were reported as convenient ways to share daily "happenings" with other seniors. These events were reported to range from the mundane (talk about the weather or a person's mood for the day) to special events in the participants' lives or the lives of their family members (weddings, birthdays, etc.). Many participants reported that the sharing of these events helped to validate their lives, and they appreciated the emotional support and encouragement they received from on-line companions. This sharing of lives goes

beyond non-intimate sharing of information, and would be closer to the intimate side of the informational/intimate continuum. According to a 64 year old female respondent:

> I truly feel as though I KNOW [her emphasis not mine] these people and that we care about one another's welfare. We exchange birthday greetings, applaud new grandbabies and milestones in our lives. No one here need ever feel alone or that nobody care what happens to them. In fact, when someone doesn't post for a few days, you can bet at least one or more will follow up with a long distance phone call just to be sure they are okay. We laugh with one another, and cry together when someone has bad news or loses a loved one, we virtually hold hands and hug each other. You can actually "feel" the warmth and caring exhibited here.

The use of on-line relationships as "sounding boards," and for "trying out ideas" emerged as a theme for about 10% of the sample. In addition to venting frustration with family members to on-line companions, participants reported that on-line friends were valuable in terms of allowing them to talk about "life's problems big and small." Several people mentioned that is important to "e-listen well," when people are discussing problems. Many people said that they felt it was inappropriate to offer other people advice on-line unless they specifically ask for it. Moreover, on-line partners were reported to be important in terms of allowing participants to safely "try out" tentative solutions to problems or other ideas by discussing them on the web. One 65 year old male respondent described the essence of this theme:

> My on-line friends let me vent my frustration with family problems, personal problems, and problems with house, car, etc. I can discuss serious questions of faith and spirituality. I can advance theories to them, and charm them out of their socks.

Finally, two other themes that emerged from the data that are outside of the informational/intimate continuum were the benefits of increased availability of on-line companions and the Internet as a low cost means of communicating with others. A

number of participants mentioned how they enjoyed having an expanded network of people with similar interests, problems, and emotions. One participant mentioned "the most important aspect of Internet support is it's immediate availability...24 hours a day...7 days a week," while another mentioned enjoying "companionship on tap." In terms of the Internet as a low cost medium for communication, a number of respondents mentioned that they had access to the Internet through senior citizen centers, and that it was cheaper than communicating by phone and more immediate than writing a letter. The low cost of the Internet was especially important to those seniors who reported to be living on a fixed income.

Research Question Three

The third research question asked about the relationship between satisfaction with older adults' on-line support and companionship networks and the type of daily problem coping strategies used. The frequencies of each of the daily coping strategies were assessed from the Daily Coping Measure (Stone & Neale, 1984), and satisfaction with on-line support was assessed by Sarason, et al.'s (1987) mean social support satisfaction score, while satisfaction with on-line companionship support was assessed by Rook's (1987) companionship network satisfaction score. Since the Daily Coping Measure (Stone & Neal, 1984) gives a frequency count of participant usage of various qualitative coping categories, a chi-square goodness of fit test was conducted to test if there were differences in the type of coping category chosen by participants. The chi-square test revealed that there was a significant difference among the frequencies of the chosen categories, chi-square (7) = 244.44, $p < .00001$.

A frequency count of the number of participants who used specific categories indicated that 55% of the sample reported using the direct action category. This was followed by the seeking social support category, which was used by 16% of the participants. This was followed by the religion category, which was used by 9% of the sample. The remaining categories were used somewhat equally by the remaining 20% of the participants, with the exception of the other category, which was reported to be used by only one participant (Table 6).

A canonical discriminant analysis was then conducted to determine if there was a predictive relationship between satisfaction scores for companions, satisfaction scores for providers of on-line support, and the types of coping strategies chosen by participants. Given two or more groups of observations with measurements on several quantitative variables, canonical discriminant analysis uses a linear combination of the quantitative variables that has the highest multiple correlation with each of the groups. Since canonical discriminant analysis gives an approximate MANOVA F test, this allowed for a hypothesis test that the class means were equal in the population. This enabled the researcher to determine if the companionship and on-line support satisfaction scores were predictive of daily coping strategy choice.

The results of this test indicated that there was no significant predictive relationship between companionship satisfaction scores, on-line support provider scores, and the types of daily coping strategies chosen, Wilk's Lambda approximate

$F(14, 254) = .7815$, $p > .05$. Therefore, neither companionship satisfaction or satisfaction with on-line providers of support were found to be reliable predictors of daily coping strategy choice.

Research Question Four

The fourth research question asked about the relationship between degree of older adult on-line participation and perceived life stress. Data from Lin, Dumin, and Woefel's (1986) Community Support Measure, the social support network satisfaction scale in Sarason, Sarason, Shearin, & Pierce's (1987) Social Support Questionnaire, and Cohen, Kamarck, and Mermelstein's (1983) Global Measure of Perceived Stress were correlated. The degree of on-line participation and number of hours communicating on the Internet were used as predictor variables and perceived life stress as the criterion variable. A significant negative linear relationship was found between degree of on-line participation and perceived life stress, $r(134) = -.22$, $p < .01$.

While significant, only 4.86% of the variance of perceived stress can be accounted for by degree of on-line participation (r-square = .048). Although the number of hours an individual spends communicating on the Internet was found to have a significant positive correlation with degree of on-line participation, $r(134) = .29$, $p < .001$, there was not a significant negative linear relationship between number of hours communicating on the Internet and perceived stress, $r(134) = .08$, $p > .05$.

To determine how predictive degree of participation is for perceived stress, stepwise multiple linear regression was used, including age and usage time into the prediction equation model. Only degree of involvement was found to be a significant

predictor of perceived stress, R-square = .048; adjusted R-square = .044; $F = 6.84$, $p < .009$.

Hypothesis One

To test the first hypothesis that there were fewer perceived costs associated with on-line older adult relationships than more intimate supportive relationships, the researcher used data from Eckenrode's (1983) Efficacy of Help-Seeking scale. Scores on the scale for on-line relationships were compared to scores on the scale for non-Internet relationships. A two-dependent-sample t-test determined that there was no significant difference between the perceived costs of on-line supportive relationships ($M = 16.4$) versus the perceived costs of face-to-face supportive relationships ($M = 16.3$), $t(134) = -.48039$, $p > .05$, therefore failing to support Hypothesis One.

Hypothesis Two

The second hypothesis, that older adults would use the Internet for companionship more than social support, was analyzed by comparing the frequency of supportive relationships from the network size scale in the Social Support Questionnaire (Sarason, Sarason, Shearin, & Pierce, 1987), and the companionship network size portion of Rook's (1987) companionship scale. A two-dependent-sample t-test determined that older adults engage in companionship relationships on the Internet significantly more ($M = 26.08$) than supportive relationships ($M = 11.93$), $t(134) = 3.859$, $p < .0002$, supporting Hypothesis Two.

Research Question Five

Finally, the fifth research question, that asked about the differences between satisfaction scores for on-line companions versus on-line providers of social support, was analyzed by comparing the network satisfaction scores from the Social Support Questionnaire (Sarason, Sarason, Shearin, & Pierce, 1987) and Rook's (1987) companionship network satisfaction measure. A two-dependent-sample t-test determined that satisfaction scores did not differ significantly for on-line companions ($M = 5.1$) versus providers of social support ($M = 4.8$), $t(134) = .2355$, $p > .05$.

Chapter V

Conclusions, Implications, and Recommendations

Conclusions and Implications

This chapter will provide a review of the purpose and rationale for this study followed by a discussion of: (a) the results of the research questions and hypotheses; (b) implications for the communication discipline; (c) limitations of the study; (d) directions for future research; and, (e) some concluding remarks.

Review of Purpose and Rationale

This study had several goals in terms of understanding computer-mediated social support among older adults, and the results shed light on a number of interesting aspects of the relationship between: (a) computer-mediated social versus non-Internet support networks for older adults; (b) the nature of computer-mediated support for older adults; (c) the relationship between on-line network satisfaction and psychological coping; (d) the relationship between participation in on-line support networks and perceived stress; (e) the perceived negative aspects of on-line social support versus non-Internet support; and, (f) the relationship between support and companionship within this context. As the number of older adults increases and they gain access to the Internet, the more computer-mediated communication they will engage in. Since a number of older adults currently use computer-mediated communication for social support and more are expected to do so, it is important to understand the interpersonal aspects of supportive acts within this context, particularly because they have been linked to the physical and psychological well

being of older adults. Prior research has not focused on the use of computer-mediated communication among older adults for this purpose.

The Research Questions and Hypotheses

On-line versus non-Internet support satisfaction. The significant interaction between on-line versus non-Internet network satisfaction and on-line communication time indicates that older individuals who spend more time communicating on-line are more satisfied with their on-line support network than their non-Internet support network. In addition, older individuals who spend less time communicating on-line are more satisfied with their non-Internet support network than on-line supportive relationships. This finding is consistent with previous research on computer-mediated relationships in that other scholars have found that satisfying relationships in general on the Internet take time to develop (Walther & Burgoon, 1992). The current study extends on this work by examining this aspect of on-line relationships within the context of supportive relationships among older adults.

While Walther and Burgoon (1992) found that in time on-line relationships were rated as satisfying as face-to-face relationships, the current study found that participants with high communication time rated on-line supportive relationships to be more satisfying than non-Internet relationships. This finding may be a result of some of the advantageous that on-line communities such as SeniorNet offer older adults, such as easy access to people from the same age cohort who have similar life experiences and common interests. Outside of cyberspace, it may be more difficult for older adults to develop such an extensive network of relationships due to factors such as geographical distance.

This is consistent with other CMC research (Parks & Floyd, 1996) which has found that the Internet is being used by people to develop and maintain satisfying relationships among people with common interests. In addition, having access to, and being able to pick and choose between, a large number of individuals with common experiences and interests may be particularly attractive to individuals seeking social support, since the type and quality of support that an individual offers can be seen by participants through interactions with others on-line prior to a supportive relationship being established. In addition, those individuals who spend more time communicating on the Internet and who are more satisfied with Internet support may not have a satisfying non-Internet support network, thereby motivating them to seek support elsewhere. Other advantages of CMC social support may be due to factors such as anonymity and twenty-four hour access to others.

For those individuals who spend less time communicating on the Internet, and who are more satisfied with non-Internet supportive relationships, it is unclear whether they are unsatisfied with on-line support due to the fact that they have not invested as much time in on-line relationships as high on-line communicators, or if they do not spend a great deal of time in supportive relationships on-line because they are satisfied with the support they receive from their non-Internet network. If the latter is the case, then there would be little motivation for these individuals to seek support on the Internet.

Perceived satisfaction with one's support network appears to be the key variable in this case, since a positive linear relationship was found to exist between the size of an individual's on-line support network and his or her non-Internet support network. In other

words, a large on-line or non-Internet support network may or may not influence whether a person is satisfied with the support he or she receives.

A growing body of research known as media richness theory (Daft & Lengel, 1986; Schmitz & Fulk, 1991; Trevino, Lengel, & Daft, 1987; and Valacich, Paranka, George, & Nunamaker, 1993) may be helpful in further interpreting the findings of this research question. Briefly, media richness theory proposes that a primary objective of organizational participants (including on-line communities) is to reduce ambiguity through media selection. According to Schmitz and Fulk (1991), "ambiguity reduction is a function of the medium's richness, that is, the capability of (a) facilitating feedback; (b) communicating multiple cues; (c) presenting individually-tailored messages; and, (d) using natural language" (p. 488). Media can be either "rich" or "lean" based upon these criteria, with face-to-face interaction being the richest and formal written text (documents, bulletins) being the most lean. Computer-mediated communication has been found to be somewhere in the middle of the continuum because feedback, some multiple cues (often delivered over time), individually-tailored messages, and natural language are all possible, albeit in less rich form than face-to-face interaction. In addition, factors unique to computer-mediated communication, such as the ability to send immediate personalized messages over great distances at any time, have been found to increase its desirability as a medium choice (Schmitz & Fulk, 1991; Valacich et al., 1993)

Schmitz and Fulk (1991) found that employees who had more experience with e-mail (including usage hours) were more likely to prefer using e-mail over face-to-face communication. In addition, the authors found that positive perceptions of the usefulness

of e-mail were influenced by the attitudes of their co-workers, with those individuals who worked with co-workers with positive attitudes adopting more positive attitudes themselves than those individuals who worked with people who had negative attitudes about e-mail.

For older adult on-line users, it may be that increased familiarity with using computer-mediated communication (which has was found to be a covariate of usage time by Schmitz & Fulk, 1991) may stimulate preference for computer-mediated communication over face-to-face interaction while decreased familiarity may stimulate a preference for face-to-face interaction. In addition, the results from the qualitative analysis of the current study suggest that SeniorNet members engage in a large amount of promoting the SeniorNet on-line community. Attitudes about communicating on-line appeared to be overwhelmingly positive throughout the discourse of the SeniorNet community. Therefore, it holds that individuals who spend a great deal of time communicating within on-line communities such as SeniorNet may be influenced by the attitudes of other on-line participants, further stimulating a preference for computer-mediated communication, and subsequently computer-mediated social support. Clearly, media richness theory may be important in helping to explain the results of the current study. Further research needs to be done to empirically validate the relationship between familiarity of the medium and preference for computer-mediated social support.

The nature of supportive on-line messages for older adults. The qualitative analyses of downloaded conversations and self-reports of giving and receiving social support by the participants revealed that social support is an important aspect of

communicating in on-line forums such as SeniorNet. Moreover, the different themes that emerged from this data indicated a number of interesting aspects about the nature of computer-mediated social support for the participants and those individuals whose conversations were downloaded from SeniorNet.

Specifically, the themes shed light on several areas of social support within the computer-mediated context, such as: (a) the range of social support behaviors used by seniors on-line; (b) benefits and problems resulting from communicating support with on-line partners; and, (c) community support for older adults within the on-line context.

First, the range of social support behaviors for this sample was extremely rich and varied, which suggests that computer-mediated support for these individuals is not limited to a specific type of support, but it varies depending upon the support needs and support resources that these individuals are willing to share with each other on-line. For some individuals, the Internet appears to be a place where one can gain access to large amounts of information about interests, while for others the Internet is a place where the interactions with others serves as a substitute or an addition to more traditional sources of support. An interesting question arises when considering the relationship between the amount of time these individuals spend communicating on-line and the types of supportive relationships they engage in. Could it be that spending more time on the Internet is related to the depth of intimacy that is seen within on-line supportive relationships, or are the supportive needs and resources of an individual more salient? Again, media richness theory could be helpful in terms of advancing research questions and hypotheses about this relationship in future work in this area.

The types of social support that participants reported to offer and receive serve a number of different functions. For example, the informational support offered may help these individuals to better understand problems or concerns, or it may simply help them to be more knowledgeable about interests. The sharing of information may also be an integral part of developing companionship relationships on-line, since many companionship relationships are based upon discussing and participating in common interests.

The reported use of humor by participants is interesting in that humor has been found to serve an important function in supportive relationships, particularly for individuals who are experiencing acute stress (Vaux, 1988). Humor has long been suspected to buffer stress by elevating mood and by diverting the concerns that an individual has for a short time. There appears to be physical benefits to communicating humor in that physical and psychological reactions to laughter have been reported to increase positive health outcomes (See du Pre, 1998). In addition, humor is also an important aspect in developing relationships, whether these are companionship relationships based upon common interests or more intimate relationships.

Given the qualitative data, it is obvious that on-line support is not limited to informational support and humor for these individuals. Other types of support, such as encouragement, validation, and concern for another's well being, were reported by participants and observed in the downloaded conversations. The sense of community and the opportunity to share life events with others appears to be an important function of support for these individuals. It is not uncommon for many older adults to have reduced

social networks (Nussbaum, Thompson, & Robinson, 1989), and the Internet appears to provide an expanded social network for these seniors to share their lives with others. The sharing of one's life with others may serve an important function in helping these individuals to feel more connected with society and to help validate their experiences as human beings.

The reduced nonverbal cues associated with computer-mediated communication did not appear to limit the ability of individuals to engage in more intimate types of support. In fact, for some individuals, the Internet was the only place where they could give and receive intimate support with others. This is an encouraging finding for older adults who have limited social contacts due to factors such as mobility problems, but who do have access to the Internet. For these individuals, it appears that satisfying intimate supportive relationships can be developed over the Internet.

The communication of social support on-line appeared to pose a number of benefits as well as problems for the participants. Some benefits of computer-mediated communication for older adults, such as increased access to others within the same age cohort, twenty-four hour access, and increased information about a variety of topics, has been found in previous studies (Furlong, 1989). However, the current study also found that the participants enjoyed other benefits of communicating support on-line, such as the ability to share information and feelings with individuals who are outside of their traditional support networks.

For example, the ability to converse with nonfamily members about family problems, the ability of caregivers to vent frustrations about their situation to other

caregivers, the ability of widows to share feelings with other widows, the opportunity for new grandparents to learn about grandparenting from more experienced grandparents, and the opportunity for individuals to share ideas with an expanded network of people outside of one's traditional support network, are all benefits of support in "weak tie" relationships.

According to Adelman, Parks, and Albrecht (1987), expanded networks of "weak tie" relationships can be helpful in terms of: (a) acquiring information from a more diverse network of individuals and comparing one's circumstances with dissimilar others; (b) providing an opportunity to share information with others that is unlikely to get back to closer ties; and, (c) providing an opportunity to safely share information that might be too risky to disclose to closer ties.

In terms of acquiring information from a more diverse network, the Internet appears to allow the participants in this study the opportunity to receive information and experience from others that would be difficult to obtain in a more limited network of strictly closer ties. This may be beneficial for individuals who enjoy learning from other people's wisdom about topics such as caregiving, grandparenting, and others, as opposed to learning about these things on their own, which may involve gaining experience through trial and error. The Internet may allow these individuals to gain experience vicariously through interacting with others with similar interests.

For other individuals, the benefit of being able to interact with others outside of closer support networks appeared to be helpful. When a person is angry with a family member, or if he or she has a problem that they fear will be judged more harshly by a member of a closer network, "weak ties" allow the opportunity to discuss these situations

without the information getting back to the members of the stronger tie network. For example, it is often difficult to vent frustrations about a particular family member or close friend to those people who are close to you because there is more of a risk of that information getting back to the person that an individual has a problem with. Also, closer ties may not be able to offer objective feedback because they are more familiar with and possibly more involved in the situation.

Some problems, such as being frustrated as a caregiver or a widow, may not be understood by other family members or close friends. Closer ties may view venting frustration about caregiving responsibilities more negatively than weaker ties, because they may let perceived role obligations influence their opinion of the complaint. Also, previous research on bereavement has found that family members and close friends often misunderstand the feeling that a widow is going through (Cluck & Cline, 1989). The grieving person is often expected to "get over it" by family and close friends after a given amount of time. Other widows who can be contacted via the Internet, and who are experiencing similar feelings, may be able to provide better support than members of more traditional support networks.

In addition, many of the participants mentioned that they enjoyed the opportunity to "try out ideas" on people they interact with on the Internet. The ability to safely talk about subjects that may be judged more harshly by closer ties appears to be beneficial for these participants. Not only can ideas be communicated to multiple people at one time within forums, but a variety of suggestions from others can be safely given. For those

individuals who have close on-line relationships, the Internet offers no shortage of forums to try out ideas on new people.

Not only did a number of benefits appear to emerge from the qualitative data, but also several disadvantages of communicating support on-line. First, it appeared that people are reluctant to freely offer advice on-line without either qualifying it or disguising it as self-disclosure. Perhaps it is more difficult to give advice to someone who you not know very well, or it may be a social norm not to give advice within SeniorNet forums. Whatever the reason, it was a rare occurrence for people to directly give advice. This is an area that deserves further empirical attention.

In addition, it was apparent from both the downloaded conversations and self-reports that users of SeniorNet and other on-line forums for older adults are sometimes frustrated by the inability to reach others for support. Sometimes, this was reported to be due to situations such as a server malfunctioning, and other times the frustration centered around the asynchronous nature of computer-mediated communication, such as when someone would not respond to a message for several days.

Finally, the promotion of community support within the SeniorNet forums raises some interesting questions. While it is apparent that many different types of support are given and received throughout these forums, it does not explain why SeniorNet members feel the need to promote SeniorNet as a community. One reason may be that because SeniorNet is a virtual community, participants feel the need to legitimize it as a "real" community by frequently making reference to the benefits of SeniorNet as a community and refering to the interactions with other using pronouns such as "us" and "we" as well

as metaphors suggesting family. Perhaps SeniorNet members feel more comfortable about being a bona fide community when they engage in these behaviors. Whether this is true of other on-line communities, is unclear. Regardless, it appears that SeniorNet members find the community aspect of the forums to be comforting. Clearly, more research needs to be done in this area.

Network satisfaction and coping strategies. This study failed to find any reliable predictive relationship between satisfaction with on-line companions and providers of support and the type of coping strategies used to cope with daily problems. However, the findings indicate that the majority of participants in this study use the direct action strategy as a means of coping with their daily problems.

While previous research has suggested that it should be an important goal to study the relationship between social support and coping, it also indicated that it might be difficult to find a predictive relationship between support and coping due to the complexity of this relationship (Pierce, Sarason, & Sarason, 1996). First, people may decide to choose a particular type of coping strategy to deal with a stressor regardless of the size or satisfaction with one's support network. While it has been suggested that satisfaction with one's support network is a helpful resource in terms of coping with problems, individuals may choose not to seek support if they feel that they can cope with the stressor on their own. While individuals may be completely satisfied with their support network, this does not necessarily guarantee that these individuals will be called upon on a daily basis. This may be especially true in companionship relationships where people may not want to burden their partner by asking for advice or help. However, the

findings from the qualitative data suggest that people in this study and the sample of individuals using SeniorNet do give and receive a variety of support within companionship relationships. Future work focusing on the relationship between support and coping needs to examine additional support variables that may be predictive of coping strategies.

The use of the direct action coping strategy by the majority of participants is an interesting finding. While the reasons why these people indicated the use of this coping strategy are unclear, it is encouraging because previous research on coping has suggested that this particular strategy is predictive of positive adaptation to stressful situations (Bhagat, Allie, & Ford, 1991; Cornelius & Caspi, 1987; Heady & Wearing, 1990; Kohn, 1996). Direct action is a form what has been identified as problem-focused coping since it involves behaviors such as seeking more information about the problem or actually doing something to solve it, as opposed to emotion-focused coping (venting frustrations), and avoidance-focused coping (seeking distraction or ignoring the stressor). Of these broad approaches to coping, problem-focused coping appears to be the most beneficial to helping individuals deal with stressful situations. Therefore, the majority of the participants in this study were found to use a type of coping strategy that has been related to the most beneficial approach to coping with daily problems. However, it is unclear how social support and companionship are related to this choice.

It should also be noted that very few of the participants reported using coping strategies that have been found to be predictive of more negative adaptation in previous research, such as emotion-focused strategies and avoidance-focused strategies (Edwards

& Trimble, 1992; Lobel, Gilat, & Endler, 1993; Heady & Wearing, 1990; and Kohn, 1996). For example, only seven participants indicated they used distraction as a coping strategy (avoidance-focused), and only five participants indicated they used catharsis as a coping strategy (emotion-focused). This suggests that most of the participants may be coping with daily stressors effectively. Whether this is a function of the social support they receive on the Internet or other factors such as life experience needs further investigation.

On-line participation and perceived life stress. The results support previous research that has found a significant negative linear relationship between support network participation and perceived life stress (Aneshensel & Stone, 1982; Ballieux & Heijen, 1989; Berkman & Symes, 1979; Billings & Moos, 1981; Dean & Lin, 1977; Lin, Dumin, and Woefel, 1986). Moreover, the findings also indicate that this relationship holds true for the computer-mediated relationships within older adult on-line support networks. As with participation in other types of support networks, increased participation in on-line support networks such as SeniorNet was found to be related to lower perceived stress. Since only about 4% of the variance of perceived life stress can be accounted for by network participation, this implies that network participation has only a slight relationship to perceived stress within older adult on-line support networks. However, network participation was found to be a better predictor of lower perceived life stress than age or on-line usage time.

This finding suggests that while there are many unknown factors contributing to the relationship between on-line participation in forums such as SeniorNet and perceived

life stress, on-line participation appears to be related to and predictive of lower perceived stress. The inverse relationship between on-line network participation and perceived life stress levels suggests that those individuals who participate more frequently and to a greater degree enjoy the benefits of lower perceived stress. It is unknown whether individuals with lower perceived life stress participate in on-line networks more or if on-line participation lowers perceived stress, and these questions need to be investigated in future research.

An important implication of the answer to this research question is that the inverse relationship between network participation and perceived life stress found in more traditional types of older adult support networks appears to hold true for computer-mediated support networks. Previous research has found that a number of interpersonal relationship variables in face-to-face encounters do not differ from computer-mediated encounters in ways that make the relationship less satisfying (McCormick & McCormick, 1992; McGuire, Kiesler, & Siegel, 1987; Parks & Floyd, 1996; Perrolle, 1987; and Rice & Love, 1987). This suggests that computer-mediated supportive relationships are not unlike traditional networks in terms of this phenomenon, and they may be an adequate substitute for more traditional supportive relationships. Older adults who do not have access to more traditional support networks, due to mobility issues or large geographic distances from family and friends, may find participating in on-line forums to be helpful in terms of using the on-line support network to reduce stress. However, the inability to draw conclusions about causality using correlation and regression analysis makes this speculative.

It is also unclear whether these findings support the direct effects model or the buffering effects model of social support. While a positive outcome such as reduced stress is certainly important to the lives of older adults, it is unclear whether participation in on-line support networks directly reduces perceived stress or if it contributes to a cumulative reduction in overall stress along with other factors in the lives of older adults. While one model is not necessarily superior to the other in terms of outcomes (Flint, Query, & Rabb, 1997), it is important to understand how increased participation in an on-line support network may contribute to reduced stress. This is an issue that needs to be confronted in future research.

Perceived costs of on-line versus non-Internet relationships. Contrary to what was originally hypothesized, the results of this study indicated that there was no significant difference between the perceived costs of on-line versus non-Internet relationships for older adult users. While previous literature suggests that "weak tie" relationships and companionship relationships will have fewer interpersonal costs than more intimate relationships (such as family), the data suggest that the costs of on-line versus non-Internet relationships are perceived as similar. There are a number of reasons that may help explain why this hypothesis was not supported.

First, a number of participants reported that they spend a great deal of their time communicating on the Internet. Since the median amount of communication time was fourteen hours a week, this suggests that the sample as a whole typically spend a great deal of time interacting with others on-line. Therefore, for a good portion of the sample (particularly those in the upper half in terms of communication time) spends enough time

to develop stronger relationships over the Internet. Some individuals reported that most (in some cases all) of their relationships with others took place on-line. Rather than being "weak ties," many of the individuals participating in forums such as SeniorNet may have relatively strong ties with other on-line members, particularly in the case of those people who reported that SeniorNet served as a "virtual family." It follows then, for many people, that some of the costs that are seen in more intimate relationships may also appear in on-line relationships.

As some participants indicated, SeniorNet members (and similar groups) can be very close, with people checking up on each other if they do not hear from them for a while on-line. If a person is seeking advice and is expecting an answer to some situation, this creates a role obligation as an on-line friend that is as real as any face-to-face relationship. For example, anyone who has received e-mail from numerous people after being away from the office for a week realizes that obligations (and other costs) in relationships certainly exist in cyberspace. Therefore, while it has been found that companionship relationships and "weak ties" exhibit fewer costs than more intimate relationships, it appears to be the case that many older adults using the Internet do not perceive these relationships as necessarily "weak ties," especially in the case of people who reported engaging in very intimate communication on-line.

In addition, while companionship relationships may be perceived as being less costly than more intimate relationships, there does not appear to be any reason based upon the findings of this study to suggest that on-line relationships exhibit any fewer

costs that non-Internet companionship relationships and other more intimate relationships.

Finally, if true differences do exist for older adults in terms of the costs of on-line versus non-Internet relationships, part of the problem could exist in terms of measuring this construct. Both Eckenrode (1983) and the current study found only modest reliabilities using Eckenrode's (1983) Efficacy of Support Scale. Since this scale is one of the few in the literature that reports to measure the perceived costs of supportive relationships, it was used for the study. However, newer scales that specifically addresses the costs of on-line versus non-Internet support may need to be developed.

On-line support versus companionship. The results strongly support the idea that older adults use on-line relationships for companionship more than for social support per se. This finding is supplemented by the analysis of the qualitative data, in which the majority of the sample (70% of respondents) indicated types of social support activities that imply companionship, such as sharing common interests, websites and other informational support, and the sharing of daily life "happenings." These findings are also consistent with previous research on the distinction between social support and companionship within older adult relationships in general (Rook, 1995), and they provide additional empirical evidence for the idea that companionship is also an important variable in older adult on-line relationships.

In addition, while it was found that while older adults have more companionship than supportive relationships per se on the Internet, their satisfaction for either the support or companionship they receive does not differ significantly. This supports the idea that

older adults in on-line relationships are just as satisfied with their companionship relationships as their supportive relationships. While each type of relationship functions in somewhat different ways, neither was rated more or less satisfying.

Part of this finding reflects the fact that there is a great deal of overlap between support and companionship. While older adult Internet users may engage in more companionship types of behaviors on a regular basis, there is always the potential that support may be sought or given if needed within this type of relationship. In other words, supportive relationships and companionship relationships are not mutually exclusive, therefore it is not surprising that the satisfaction scores for each network did not differ, and it would be difficult to find a purely supportive relationship and a purely companionship relationship. What may be more interesting to examine is how communication changes from when people are engaged in companionship activities and when they are engaged in supportive behaviors.

There are a number of important implications of these findings in terms of the previous literature in this area. If older adults are using the Internet more for companionship than for social support, this implies that they may be attracted to this technology for the purposes of proactive versus reactive support (Rook, 1995). This means that companionship is entered into for its own sake rather than as a reaction to a particular type of stressor. Rook (1990, 1995) contends that proactive support is more satisfying than reactive support in that many people do not want to burden others with their problems. Proactive support may serve the purpose of alleviating stress and potential problems through the mutual support that exists within companionship relationships.

However, what an outsider might classify as social support behaviors (e. g. sharing information, validating each other's feelings, etc.) may not be perceived as support but rather part of being in a companionship relationship. Therefore, within companionship relationships, support is typically offered, but it may not be perceived as such due to the context of the relationship.

Preference for companionship over support also implies that on-line relationships may be used more as a means for staying connected with others and feeling part of a community than as a resource for solving specific problems. Researchers have contended that this sense of belonging to a community and staying connected with others is an important part of an older person's informal support network (Nussbaum, 1994; Ryan, 1986). As indicated by the responses from the participants, the Internet is a relatively convenient and inexpensive way to stay connected with a large number of individuals with similar interests and life experience. For some individuals the Internet may be used more for diversion, the pursuing of interests, an opportunity to share personal information to others, and entertainment. For others, staying connected with a larger community may serve as a "surrogate family," or at least an important extension of one's non-Internet support network.

In terms of the work of "weak tie" relationships, companionship on the Internet allows older adults to meet a diverse group of individuals, not only from the same age cohort but also intergenerational contacts. According to Adelman, Parks, & Albrecht (1987), contact with a diversity of individuals serves an important function of social comparison in "weak tie" relationships, and this may help older adults feel more

integrated in society through extending their social network. In our increasingly age segregated society, the Internet may be one of the few outlets that older people have to establish intergenerational contacts and develop intergenerational companionship relationships with individuals who have similar interests. Many of the social cues that have been found to inhibit satisfying intergenerational relationships, such as aging talk and age stereotyping (Giles & Harwood, 1995; Hummert, 1994), are absent on the Internet since only through self-disclosure does a person have access to any cues about their partner's age.

In addition, an expanded companionship network allows individuals to safely discuss topics that may be more difficult within closer ties. For example, the qualitative data suggests that many of the participants enjoyed the opportunity to safely discuss family issues (even complaining about family members) with individuals who are more removed from one's immediate social network. Even for those individuals who implied that their on-line relationships were their primary social contacts, the potential for contacting numerous other people on the Internet allows opportunities to continually develop more on-line companions.

In terms of psychological and physical outcomes, companionship has been linked to the buffering model of social support (Antonucci, 1990; Rook, 1995). Recall that this model suggests the negative effects of stress are buffered by the positive aspects of being in relationships or part of a community. Consistent with prior research, participants reported that their moods were elevated within on-line companionship relationships through the use of humor, the opportunity to vent frustrations, having access to increased

information, and the validation of feelings. Researchers have indicated that these types of supportive behaviors may be more beneficial to positive health outcomes than more direct types of support due to the fact that they occur frequently within relationships, as opposed to more direct support which is typically seen only in times of acute stress (Antonucci, 1990; Bolger & Eckenrode, 1991; Bruunk, 1990; Nussbaum, 1994; Rook, 1990). The buffering model contends that these relationships are helpful in reducing the negative effects of stress on a day-to-day basis, and cumulatively this has been found to contribute to long term positive psychological and physical health outcomes. Among these are: (a) less depression; (b) positive coping with problems; and, (c) reduced frequency of stress-related diseases (Antonucci, 1990; Flint, Query, & Rabb, 1997; Pierce, Sarason, & Sarason, 1996; Vaux, 1988).

Therefore, on-line companionship relationships may be beneficial to older adults in terms of the buffering model of social support in several ways. First, access to the number of potential companions is greatly facilitated by the Internet. With the increasing number of on-line interest group forums and chat rooms, older adults can pursue many different interests on-line, and they can increase their opportunities to meet and develop companionship relationships. Also, the availability of companions is conveniently facilitated by twenty-four hour access as well as the advantage of not having to exert the physical energy to meet with companions. In addition, as reported by many of the participants, on-line companions often develop into face-to-face companions when people live within the same geographical locations, or when people travel to other parts of the country or world.

Implications for the Communication Discipline

This study has several implications for the communication discipline. First, it gives us better insight into the nature of social support, an important communication behavior among older adults, who are increasingly becoming the largest segment of our population. Social support has been found to be crucial to the physical and psychological well being of older adults, as well as an important part of successful aging. With the advent of computer-mediated communication, and the increased adoption of this technology by older adults, it is important to gain a better understanding of the nature and effects of social support within this new communication environment. For many individuals, computer-mediated communication provides an important link to an expanded social network that would be difficult to gain access to through traditional resources. While social support has been identified as an important communication behavior within our discipline, the use of the Internet for social support by older adults has been largely ignored by communication scholars.

The findings of this study suggest that older adults are effectively using this new technology for social support. As they become more familiar with this medium, the findings suggest that they may prefer the benefits of this type of support over more traditional networks, or at least computer-mediated communication may become an important addition to established networks. In a time when older adults are being unfairly stereotyped as reluctant users of this technology, this study indicates that this group has learned to use this the Internet to gain access to many different types of support from their peers and intergenerational contacts. However, there may be several risks for older adults

in terms of relying on computer-mediated support networks to the exclusion of traditional support networks. For example, the computer-mediated environment may not be sufficient in terms of providing the relational closeness of face-to-face networks. This may lead older adults who spend most of their time on-line to become more socially isolated.

As our society becomes more and more involved with computer-mediated communication, it also is important to assess the outcomes of using this technology for behaviors such as social support. This study found a number of interesting outcomes of interest to the communication discipline. The findings indicate that satisfying supportive and companionship relationships can be developed by older adults, with companionship emerging as the most important type of relationship for this group of individuals. In addition, the negative aspects of supportive relationships seen in more traditional support networks appear to be similar in on-line relationships.

The variety of supportive behaviors on-line appear to be nearly as rich as non-Internet supportive relationships for the participants in this study. While SeniorNet members appear to circumvent many of the problems, and appear to enjoy the benefits associated with giving and receiving support, communicating support within the context of the Internet also may create problems as well.

Although it could not be determined that on-line participation has a causal relationship with reduced life stress, a small predictive relationship between these variables indicates that those individuals who participate more in on-line forums such as SeniorNet do enjoy the benefits of reduced perceived stress. In addition, while the

relationship between support, companionship, and coping strategies is unknown, the findings indicated that the older adults in the study are using coping strategies that have been found to be predictive of positive adaptation to stressful situations. Each of these outcomes shed light on the nature of older adults using the Internet for social support, and they should be of interest to communication scholars in terms of further understanding computer-mediated supportive relationships and the communication of social support among the older segment of the population.

Limitations

There are a number of limitations to this study. First, conducting research on-line presents several challenges in terms of gathering a reliable and representative sample. While this study made every attempt to limit its advertisement to older adults within selected on-line forums tailored to older adults, there is a concern that other Internet users may have found the on-line survey and contaminated the data. It is assumed that those individuals who completed the survey were, in fact, older adults who use the on-line forums. Fortunately, the survey was long enough that it may have discouraged would-be age imposters, and response bias is certainly not limited to on-line surveys. I feel as confident about the integrity of the data as I would with a survey that I might have given to a sample of undergraduate students participating for course credit. In addition, while the use of an on-line survey limits the ability of a researcher to answer questions about particular survey items, increasing the chance of inaccurate responses, I found that this problem was circumvented when some participants e-mailed me to ask about questions they found to be confusing. Although there were a large number of surveys that were unusable due to

inaccurate completion, the completed surveys were surprisingly thorough in terms of responses to qualitative items. Despite efforts to reduce bias, there is always a concern when conducting on-line research that the participants may give biased responses, especially if they have the perception that their responses are not anonymous. Future on-line researchers need to develop better systems for safeguarding data and assuring anonymity as well as the integrity of the data.

A second limitation is the conclusions about generalizability that can be drawn from the relatively small and self-selected sample of respondents. It is unclear whether the older adults who responded to the survey are different than other on-line users of these types of forums. Therefore, the results of this study should be interpreted with this limitation in mind. The sample tended to be relatively high Internet users, therefore it is unknown how these individuals differ from older adults who are less frequent users. Additionally, the length of the survey may have discouraged a number of people from responding. While the number of women who responded to the survey is not unusual given the proportion of older women to older men in the current aging population, the large number of women who responded is somewhat inconsistent with previous surveys of older adults using the Internet (Adler, 1996; Glastonbury & LaMendola, 1992). Therefore, it is unclear whether women use the Internet more for social support than men, or if women tended to respond more for some other reason.

A third limitation is the repeated measure analyses used in many of the statistical procedures for this study were not true repeated measures in that the same participants completed different instruments at different times within the survey as opposed to the

same instrument at different times. While this does not pose great problems in terms of the statistical analyses and interpretation of findings (Toothaker, 1999, personal communication), the conclusions should be interpreted with this in mind.

An additional limitation is the cross-sectional nature of this study. Only a longitudinal study would be able to determine whether the findings of the current study hold true for participants over time. In terms of preference for on-line supportive relationships over non-Internet relationships, it would provide stronger evidence for the notion that familiarity with computer-mediated communication increases the satisfaction with on-line support if a study could be conducted that followed older users of CMC technology from the time they begin using it to several years of using it.

In terms of the findings from the qualitative data, a longitudinal study would be beneficial as well. While every attempt was made to randomly select conversations from SeniorNet, the cross-sectional nature of this data only with the self-reports from participants limit any generalizability of the findings to the larger population of older adult CMC users. While no generalizations to a larger population were made in the presentation and interpretation of this data, the themes that were reported were the subjective interpretation of the researcher, and future studies would benefit by attempting to validate these findings with other empirical evidence.

Future Studies

A number of potential problem areas within the study of computer-mediated social support and older adults were uncovered by the current investigation, and they should be included as research goals in future work.

One potential goal would be to gain a better understanding of the relationship between increased on-line communication and preference for either face-to-face support networks or computer-mediated support networks. The findings of the current study suggest that increased familiarity and expertise with computer-mediated communication may influence satisfaction with on-line support networks. Here, a longitudinal study would be particularly helpful if social support satisfaction of participants with little or no prior on-line communication experience can be measured before learning to communicate with others on-line. After a period of time, a second phase of the study could track individuals in terms of their usage time and measure whether their preference for the medium of support changes as a function of familiarity with computer-mediated technology. Media richness theory would be an excellent theoretical model for conducting this type of research.

A second potential goal would be to further investigate the nature of on-line support within the conversations of older adults in forums such as SeniorNet. While it appears that a wide variety of social support behaviors occur within these conversations, more research needs to focus on the ways in which requests for support or companionship are initiated by participants, as well as the way in which these requests are responded to. The current study found that people are often hesitant to offer advice per se, and will circumvent this by couching advice as self-disclosure. Future work should focus on the underlying reasons behind this behavior. Other conversational rules and behaviors need to be identified specifically within the area of giving and receiving support in these forums in order to gain a better understanding of the potential benefits and negative aspects of

support in this context. In addition, more work needs to be done in terms of better understanding the benefits and negative aspects of computer-mediated social support as perceived by older adults.

A third potential area for investigation would be to find additional support and companionship variables that may help to predict the types of coping strategies older adults use when confronting daily problems. While previous research has speculated that a relationship between support and coping exists, future research needs to find reliable predictors of coping strategies in order to empirically support this relationship. Since both support and positive coping strategies have been found to benefit older adults in terms of physical and psychological aspects, a better understanding of the relationship between these variables could shed light on the potential of social support for increasing positive health outcomes in older adults. Future research would benefit by using more sophisticated models that take into account the complexity between these variables.

While a number of studies, including the current study, have found a negative linear relationship between increased older adult participation in support communities and lower perceived stress, there are many other variables that could be potential covariates in this relationship. These variables need to be identified, and their influence on the relationship between community involvement and perceived stress need to be accounted for using more sophisticated statistical models. In terms of participation in on-line supportive communities, future work needs to examine on-line community involvement by older adults outside of forums created specifically for older cohorts. In other words, on-line involvement by older adults in an intergenerational context would be

beneficial in understanding whether the relationship between involvement and perceived stress holds true outside of forums exclusively for older adults.

More work needs to be done in terms of better understanding the costs of on-line social support. Most research in the area of support costs indicates that the costs of support can create negative outcomes in older adult relationships. Future studies of on-line social support and older adults would benefit by conducting qualitative research in this area and by developing new scales to measure this construct. Specifically, more research needs to investigate the possible negative effects of social support within the computer-mediated environment.

Finally, the differences between social support and companionship within older adult on-line relationships needs further investigation. While there is a great deal of overlap between support and companionship, it appears that older adults enjoy engaging in companionship relationships rather than supportive relationships. Since it has been speculated that companionship may be related to the buffering model of support and support may be related to the direct effects model of support, research needs to be done to empirically verify this relationship. Detecting a relationship between companionship and support and these outcome models of social support may increase our understanding of how companionship and support may influence the physical and psychological well being of older adults. In addition, more sophisticated models should be used in attempting to detect this relationship that include mediating variables such as the types of stressors faced by older adults and the coping strategies used to overcome them.

Concluding Remarks

Social support and coping continue to be important areas for communication researchers, particularly for those interested in communication and aging. With the development of new communication technologies, and their adoption by older adults, this area should continue to be of interest. It appears that social support is an important behavior within older adult computer-mediated relationships, and these relationships may be beneficial to their lives.

A better understanding of social support within this context could benefit the lives of older adults in many ways. If computer-mediated social support can be reliably linked to satisfying supportive relationships and positive health outcomes for older adults, this information could help older adults improve the quality of their lives by using this new technology. Companionship and support networks are greatly increased through this technology, while simultaneously circumventing many of the problems of developing a large social network faced by older adults. Access to this technology by different segments of the older population will continue to be an important issue, but it appears that older adults are as capable of any other age cohort of developing satisfying relationships on-line. Moreover, the collective wisdom of older adults sharing information and their experience in forums such as SeniorNet may be one of the greatest assets of communicating social support within this context.

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Table 1. Self-reported frequency of communication on the Internet (N = 136)

Less Than Once a Month	Less Than Once a Week	At Least Once a Week	Daily
1.5%	1.5%	11%	86%

Table 2. Length of time communicating on the Internet (N = 136)

Less Than 6 Months	Less Than 1 Year	Less Than 2 Years	Less Than 5 Years	More Than 5 Years
12%	14%	16%	38%	20%

Table 3. Reliability coefficients for all instruments

Instrument	Cronbach's Alpha
Social Support Questionnaire Network Size Scale	.72
Social Support Questionnaire Network Satisfaction Scale	.81
Community Support Measure	.86
Companionship Network Size Scale	.74
Companionship Network Satisfaction Scale	.84
Efficacy of Social Support Scale	.70
Global Measure of Perceived Stress Scale	.86
Daily Coping Measure	.88

Table 4. Multiple comparison procedures and ANOVA cell means

Computer-Mediated Support Network Satisfaction Cell Mean for Low Internet Communicators 4.826ab	Non-Internet Support Network Satisfaction Cell Mean for Low Internet Communicators 5.263a
Computer-Mediated Support Network Satisfaction Cell Mean for High Internet Communicators 5.585b	Non-Internet Support Network Satisfaction Cell Mean for High Internet Communicators 5.303

*Cell means sharing the same letter are significantly different

Significance Level = .05

Tukey's Studentized Range Multiple Comparison Procedure Using Cicchetti's (1972) Number of Means Parameter Approximation (J = 4)

t-Critical Value = 2.602

Mean Squares Pooled = 1.425 (For Internet Usage Time at level of Network Satisfaction Score Comparisons)

Mean Squares = .84245 (For Network Satisfaction at level of Internet Usage Time)

Table 5. Discussion forums on SeniorNet included in stratified random sample

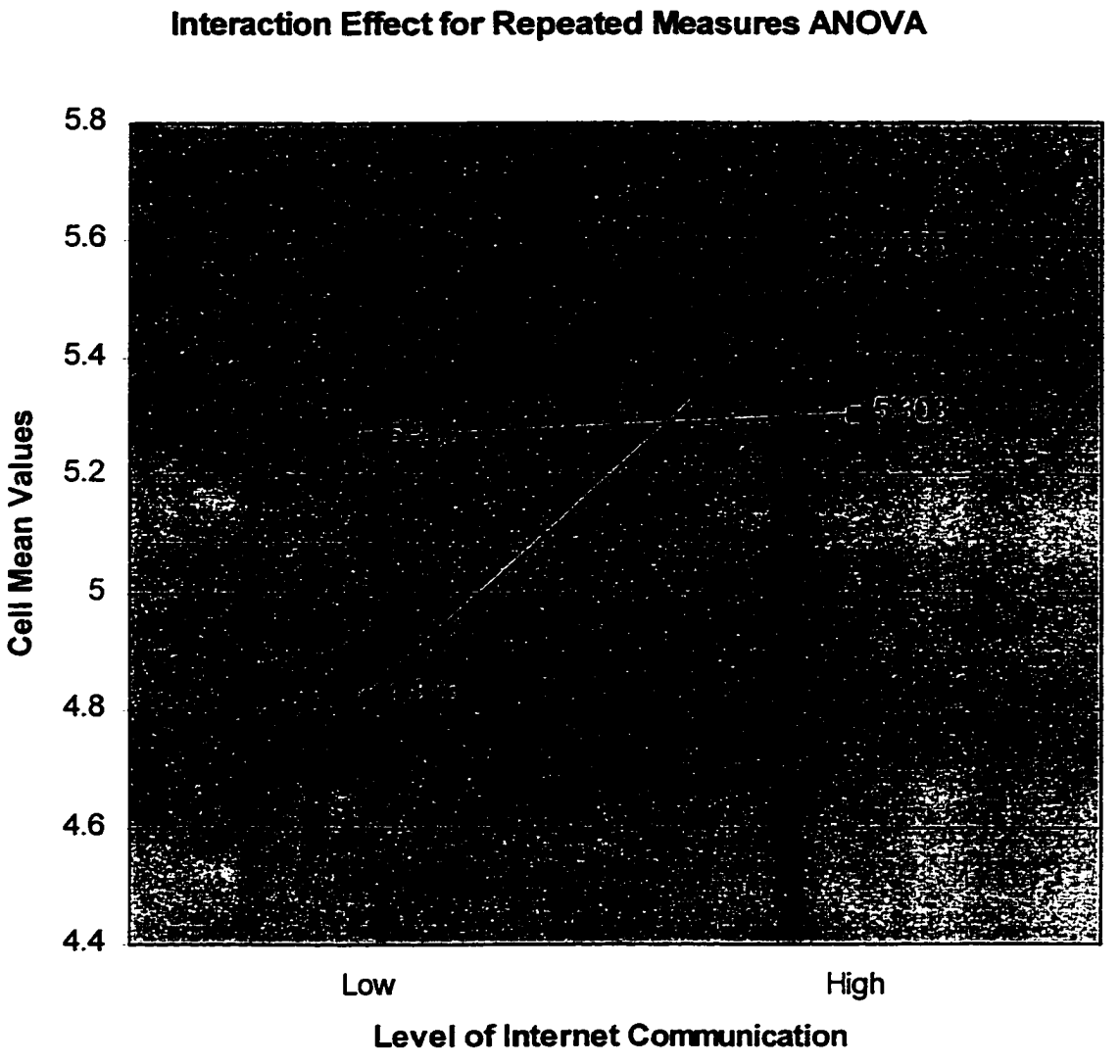
1. Boot's Tids and Bits
2. Cancer: Breast (Under Health Matters)
3. Cancer: Prostrate (Under Health Matters)
4. Caregiving (Under Health Matters)
5. Depression (Under Health Matters)
6. Do You Know Anyone Who is Lonely?
7. Email Pen Pals
8. General Health Questions and Answers (Under Health Matters)
9. Grief (Under Health Matters)
10. Healthy Habits
11. Home and Auto
12. Introductions and Newcomers Help
13. Person-to-Person
14. Retirement Topics
15. SeniorNet Café
16. Spread a Little Sunshine
17. Sympathy and Bereavement
18. Technology Issues and Trends
19. Thank You
20. Wit and Wisdom

Table 6. Percentages of coping strategies used (N = 136)

Coping Strategy	Percentage of Reported Use
Diversion of Attention From Problem	5%
Attempting to See Problem in a Different Light	5%
Thought About Problem, Gathered Information, and Direct Action	55%
Expressed Emotions in Response to Problem	3%
Accepted Problem	4%
Sought Emotional Support from Others	16%
Sought Spiritual Comfort or Support	9%

$\chi^2 = 244.44$, $p < .00001$

Figure 1. Plotted cell means for repeated measures ANOVA



*Cell Means are Network Satisfaction Scores

Appendix A

On-Line Survey Instrument

1. What is your age _____?

2. Are you male _____ or female _____ ?

3. How would you describe yourself?

White _____

African American _____

Asian _____

Native American _____

Pacific Islander _____

Other _____

4. How long have you been communicating (e.g. e-mail, chat room, news group, etc.) with others via the Internet?

Less than 6 months _____

Less than 1 year _____

Less than 2 years _____

Less than 5 years _____

More than 5 years _____

5. How often do you use the Internet to communicate (chat, e-mail, etc.) with others?

Less than once a month _____

Less than once a week _____

At least once a week _____

Daily _____

6. Please indicate the approximate number of hours a week _____

The following questions ask about people exclusively on the Internet who provide you with help or support. Each question has two parts. For the first part, enter the number of people, excluding yourself, whom you can count on for help or support on the Internet. If you know no one, enter zero.

For the second part, indicate how satisfied you are with the overall support you have.

Example: How many people do you know on the Internet whom you can trust with information that could get you in trouble?

Number of people _____

How satisfied?

Very satisfied = 1

Fairly satisfied = 2

A little satisfied = 3

A little dissatisfied = 4

Fairly dissatisfied = 5

Very dissatisfied = 6

7. How many people on the Internet can you really count on to be dependable when you need help _____?

8. How satisfied?

Very satisfied = 6

Fairly satisfied = 5

A little satsfied = 4

A little dissatisfied = 3

Fairly dissatisfied = 2

Very dissatisfied = 1

9. How many people on the Internet can you really count on to help you feel more relaxed when you are under pressure or feeling tense _____?

10. How satisfied?

Very satisfied = 6

Fairly satisfied = 5

A little satisfied = 4

A little dissatisfied = 3

Fairly dissatisfied = 2

Very dissatisfied = 1

11. How many people on the Internet accept you totally, including your worst and best points _____?

12. How satisfied?

Very satisfied = 6

Fairly satisfied = 5

A little satisfied = 4

A little dissatisfied = 3

Fairly dissatisfied = 2

Very dissatisfied = 1

13. How many people on the Internet can you count on to care about you, regardless of what is happening to you _____?

14. How satisfied?

Very satisfied = 6

Fairly satisfied = 5

A little satisfied = 4

A little dissatisfied = 3

Fairly dissatsfied = 2

Very dissatisfied = 1

15. How many people on the Internet can you really count on to help you feel better when you are feeling generally down-in-the dumps _____?

16. How satisfied?

Very satisfied = 6

Fairly satisfied = 5

A little satisfied = 4

A little dissatisfied = 3

Fairly dissatisfied = 2

Very dissatisfied = 1

17. How many people on the Internet can you count on to console you when you are very upset _____?

18. How satisfied?

Very satisfied = 6

Fairly satisfied = 5

A little satisfied = 4

A little dissatisfied = 3

Fairly dissatisfied = 2

Very dissatisfied = 1

The following questions ask about people NOT on the Internet who provide you with help or support. Each question has two parts. For the first part, enter the number, excluding yourself, whom you can count on for help or support. If you know no one, enter zero (see example).

For the second part, indicate how satisfied you are with the overall support you have.

Example: How many people do you know whom you can trust with information that could get you in trouble _____?

How satisfied?

Very satisfied = 6

Fairly satisfied = 5

A little satisfied = 4

A little dissatisfied = 3

Fairly dissatisfied = 2

Very dissatisfied = 1

19. How many people can you really count on to be dependable when you need help _____?

20. How satisfied?

Very satisfied = 6

Fairly satisfied = 5

A little satisfied = 4

A little dissatisfied = 3

Fairly dissatisfied = 2

Very dissatisfied = 1

21. How many people can you really count on to help you feel more relaxed when you are under pressure or feeling tense _____?

22. How satisfied?

Very satisfied = 6

Fairly satisfied = 5

A little satisfied = 4

A little dissatisfied = 3

Fairly dissatisfied = 2

Very dissatisfied = 1

23. How many people accept you totally, including your worst and best points _____?

24. How satisfied?

Very satisfied = 6

Fairly satisfied = 5

A little satisfied = 4

A little dissatisfied = 3

Fairly dissatisfied = 2

Very dissatisfied = 1

25. How many people can you count on to care about you, regardless of what is happening to you _____?

26. How satisfied?

Very satisfied = 6

Fairly satisfied = 5

A little satisfied = 4

A little dissatisfied = 3

Fairly dissatisfied = 2

Very dissatisfied = 1

27. How many people can you really count on to help you feel better when you are feeling generally down-in-the dumps _____?

28. How satisfied?

Very satisfied = 6

Fairly satisfied = 5

A little satisfied = 4

A little dissatisfied = 3

Fairly dissatisfied = 2

Very dissatisfied = 1

29. How many people can you count on to console you when you are very upset _____?

30. How satisfied?

Very satisfied = 6

Fairly satisfied = 5

A little satisfied = 4

A little dissatisfied = 3

Fairly dissatisfied = 2

Very dissatisfied = 1

Questions 31 through 33 have two parts. For the first part, please indicate how many individuals you communicate with ON THE INTERNET (indicate number in box next to question) for the reasons listed.

For the second part, indicate how satisfied you are with these relationships on the scale that is provided.

31. People on the Internet with whom you get together on-line to have a good time:

How many _____?

How satisfied?

Very satisfied = 6

Fairly satisfied = 5

A little satisfied = 4

A little dissatisfied = 3

Fairly dissatisfied = 2

Very dissatisfied = 1

32. People on the Internet with whom you get together just to socialize on-line:

How many _____?

How satisfied?

Very satisfied = 6

Fairly satisfied = 5

A little satisfied = 4

A little dissatisfied = 3

Fairly dissatisfied = 2

Very dissatisfied = 1

33. People on the Internet with whom you talk to share common interests:

How many _____?

How satisfied?

Very satisfied = 6

Fairly satisfied = 5

A little satisfied = 4

A little dissatisfied = 3

Fairly dissatisfied = 2

Very dissatisfied = 1

In the space provided below, briefly describe the types of support you typically give and receive when communicating with others on the Internet?

Examples: I give advice about financial matters on the Internet.
I usually try to comfort on-line friends when they are having problems.
My on-line friends give me information about websites I am interested in.

34. Please provide your own examples in the space provided below:

For questions 35 through 44, indicate your feelings and thoughts during the last month. In each case you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question.

35. In the last month, how often have you been upset because of something that happened unexpectedly?

Never = 0

Almost never = 1

Sometimes = 2

Fairly often = 3

Very often = 4

36. In the last month, how often have you felt that you were unable to control the important things in your life?

Never = 4

Almost never = 3

Sometimes = 2

Fairly often = 1

Very often = 0

37. In the last month, how often have you felt nervous and "stressed"?

Never = 0

Almost never = 1

Sometimes = 2

Fairly often = 3

Very often = 4

38. In the last month, how often have you dealt successfully with irritating life hassles?

Never = 4

Almost never = 3

Sometimes = 2

Fairly often = 1

Very often = 0

39. In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life?

Never = 4

Almost never = 3

Sometimes = 2

Fairly often = 1

Very often = 0

40. In the last month, how often have you felt confident about your ability to handle your personal problems?

Never = 4

Almost never = 3

Sometimes = 2

Fairly often = 1

Very often = 0

41. In the last month, how often have you felt that things were going your way?

Never = 4

Almost never = 3

Sometimes = 2

Fairly often = 1

Very often = 0

42. In the last month, how often have you found that you could not cope with all the things that you had to do?

Never = 0

Almost never = 1

Sometimes = 2

Fairly often = 3

Very often = 4

43. In the last month, how often have you been able to control irritations in you life?

Never = 4

Almost never = 3

Sometimes = 2

Fairly often = 1

Very often = 0

44. In the last month, how often have you felt that you were on top of things?

Never = 4

Almost never = 3

Sometimes = 2

Fairly often = 1

Very often = 0

45. Please indicate which of the following ways that you handled daily problems that you encountered within the last month. You may choose more than one way:

A. Diverted attention way from the problem(s) by thinking about other things or engaging in some activity _____.

B. Tried to see the problem(s) in a different light that made it (them) seem more bearable _____.

C. Thought about solutions to problem(s), gathered information about it (them), or actually did something to try to solve it (them) _____.

D. Expressed emotions in response to the problem(s) to reduce tension, anxiety, or frustration _____.

E. Accepted that the problem(s) occurred, but that nothing could be done about it _____ .

F. Sought or found emotional support from loved ones, friends, or professionals _____.

G. Sought spiritual comfort or support _____.

Other: (Please specify):

Which of these categories was most important in handling the problem(s) _____?

46. For this question, please indicate on the following scales your degree of involvement with friends exclusively on the Internet.

A. Frequency of contact with people when using the Internet.

Most of the time = 4

Occasionally = 3

Some of the time = 2

None of the time = 1

B. How easy is it to get in touch with people you want to communicate with on the Internet?

Very easy = 4

Easy = 3

Somewhat easy = 2

Not very easy = 1

C. How freely can you talk to people on the Internet about any topic?

Very freely = 4

Freely = 3

Somewhat freely = 2

Not very freely = 1

D. How important are the people you communicate with on the Internet to you?

Very important = 4

Important = 3

Somewhat important = 2

Not very important = 1

47. For the following statements, please respond to the scales with exclusively Internet relationships in mind.

A. Just talking over your worries with someone can make you feel better.

Strongly agree = 1

Agree = 2

Disagree = 3

Strongly Disagree = 4

B. Accepting help from others makes you feel like you owe them something in return.

Strongly agree = 4

Agree = 3

Disagree = 2

Strongly disagree = 1

C. Admitting hardships is a sign of weakness.

Strongly agree = 4

Agree = 3

Disagree = 2

Strongly disagree = 1

D. Talking about your problems with others is a burden for them.

Strongly agree = 4

Agree = 3

Disagree = 2

Strongly disagree = 1

E. Listening to other people's problems is something I sometimes feel I have to do, even when I don't want to.

Strongly agree = 4

Agree = 3

Disagree = 2

Strongly disagree = 1

F. The more people I can have to share my concerns with the better.

Strongly agree = 1

Agree = 2

Disagree = 3

Strongly disagree = 4

48. For the following statements, please respond to the scales with your non-Internet relationships in mind.

A. Just talking over your worries with someone can make you feel better.

Strongly agree = 1

Agree = 2

Disagree = 3

Strongly disagree = 4

B. Accepting help from others makes you feel like you owe them something in return.

Strongly agree = 4

Agree = 3

Disagree = 2

Strongly disagree = 1

C. Admitting hardships is a sign of weakness.

Strongly agree = 4

Agree = 3

Disagree = 2

Strongly Disagree = 1

D. Talking about your problems with others is a burden for them.

Strongly agree = 4

Agree = 3

Disagree = 2

Strongly Disagree = 1

E. Listening to other people's problems is something I sometimes feel I have to do, even when I don't want to.

Strongly agree = 4

Agree = 3

Disagree = 2

Strongly disagree = 1

F. The more people I can have to share my concerns with the better.

Strongly agree = 1

Agree = 2

Disagree = 3

Strongly disagree = 4

49. What is your marital status?

Married _____

Single _____

Divorced _____

Widowed _____

50. What is your level of education?

Less than high school _____

High school _____

Some college _____

College degree _____

Graduate degree _____

Appendix B

On-Line Informed Consent Form

Individual Informed Consent Form for Research

University of Oklahoma, Norman

This survey is part of research being conducted under the auspices of the University of Oklahoma-Norman Campus. This document is intended to provide information so survey respondents can acknowledge informed consent for participation in a research project.

Title: Social Support and the Internet

Principal investigator: Kevin Wright , Department of Communication

Faculty sponsor: Dr. Jon Nussbaum, Department of Communication

I hereby give my consent to participate in this study. I understand that:

1. My participation in this study is entirely voluntary. Refusal to participate will involve no penalty or loss of benefits to which I am entitled.

2. I may terminate at any time prior to the completion of this study without penalty.

3. Any information I may give during my participation will be used for research purposes only. Responses will not be shared with persons who are not directly involved with this study.

4. All information I give will be kept confidential and will be used in such a way that identification of me as a participant is impossible.

5. I understand that there are no foreseeable risks for participating in this study.

6. I know the investigator is available to answer any questions I may have regarding this research study. If I have any questions, I can reach the investigator (Kevin Wright) by phone at (405) 325-3003 ext. 21120, by e-mail (Kevin.B.Wright-1@ou.edu), or by contacting the Department of Communication, 101 Burton Hall, University of Oklahoma, Norman, OK, 73019.

I agree

I do not agree

Appendix C

Questionnaire On-Line Introduction Page

Hello. My name is Kevin Wright. I am a researcher at the University of Oklahoma conducting academic research on the use of computer-mediated social support. This study is interested in how people help one another on the Internet.

To participate in the study, you must be 55 years or older.

Yes, I can participate

No, I can't participate

Appendix D

Institutional Review Board Approval

The University of Oklahoma
OFFICE OF RESEARCH ADMINISTRATION

August 13, 1998

Mr. Kevin Wright
2900 N. Wilburn Avenue
Bethany, OK 73008

Dear Mr. Wright:

Your research proposal, "Computer-Mediated Social Support, Older Adults, and Coping," has been reviewed by Dr. E. Laurette Taylor, Chair of the Institutional Review Board, and found to be exempt from the requirements for full board review and approval under the regulations of the University of Oklahoma-Norman Campus Policies and Procedures for the Protection of Human Subjects in Research Activities.

Should you wish to deviate from the described protocol, you must notify me and obtain prior approval from the Board for the changes. If the research is to extend beyond 12 months, you must contact this office, in writing, noting any changes or revisions in the protocol and/or informed consent form, and request an extension of this ruling.

If you have any questions, please contact me.

Sincerely yours,

Karen M. Petry
Administrative Officer
Institutional Review Board

KMP:pw
FY99-10

cc: Dr. E. Laurette Taylor, Chair, 'RB Dr. Jon Nussbaum, Communication

1000 Asp Avenue, Suite 314, Norman, Oklahoma 73019-0430 PHONE: (405)325-4757 FAX: (405)325-6029

IMAGE EVALUATION TEST TARGET (QA-3)

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