

**Seniors on the Internet: Correlation Between Levels of Depression
and Time Spent in Communications Activities, Information-gathering
Activities, and Personal Transactions**

by
Marie Napoli

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NORTH CENTRAL UNIVERSITY

**SENIORS ON THE INTERNET: CORRELATION
BETWEEN LEVELS OF DEPRESSION AND TIME SPENT IN
COMMUNICATIONS ACTIVITIES, INFORMATION-GATHERING
ACTIVITIES, AND PERSONAL TRANSACTIONS**

A Dissertation submitted to
the graduate Faculty of the Department of Psychology

In candidacy for the degree of

DOCTOR OF PHILOSOPHY

By

MARIE NAPOLI

Laguna Woods, California

March, 2000

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Marie Napoli

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CHAPTER I. INTRODUCTION

Statement of the Problem

This study was designed to explore the relationship between the number of hours spent by seniors engaging in each of three categories of online activities and the seniors' levels of depression. The three categories of activities involve communications, information-gathering, and personal transactions.

The growth in Internet usage in our society has been explosive. By 1996, in the United States alone, there were 12.5 million Internet users. By December, 1998, that number had risen to 47 million. Conservative estimates expect that number to rise to 85 million by the year 2002 (eMarketer, 1998). In terms of households, a study released in March, 1999, found that approximately 25% of United States households at that time had access to the Internet. About one-third of U.S. households were expected to be online by the end of 1999 and nearly two-thirds by December, 2003, due in part to the availability of ever cheaper computers. The study also found the Internet to be the number one use for home computers (Yankee Group, 1999).

This growth in Internet usage is converging with another area of rapid growth in our society - the growth of the aging population. By 1996, 55.2 million persons in the United States were 55 years of age or older. By the end of August 1998, that number had risen to 57 million (United States Bureau of the Census, 1998). It is estimated that this number will be over 58.6 million by the year 2001 and 74.6 million by the year 2010 (United States Department of Health and Human Services, 1996). These aging adults are

not only the fastest-growing portion of the population, they are also the fastest-growing demographic group buying computers and logging onto the Internet (Older Americans and the World Wide Web, 1998). A national survey conducted in 1995 found that overall computer ownership among adults age 55 to 75 was 30% and regular online usage was 28% (Adler, 1996).

Mental health workers interact with clients who are seniors in many settings. Whether or not the client is connected to the Internet, it becomes increasingly important for the mental health worker to have some understanding of the effect that Internet usage has or will have on the quality of life of the client in order to be able to effectively relate to and treat the client. One important aspect of quality of life, particularly for the senior population, is level of depression. If Internet usage has a positive effect on level of depression, the mental health worker may reinforce continued use by a client already connected to the Internet or may encourage a client to begin use. Conversely, if Internet usage has a deleterious effect, the mental health worker may limit or discourage use.

As discussed below, the scarcity of research on the effect of Internet usage on the individual, together with its contradictory nature, makes it obvious that much additional research is required. Two of the major papers that studied the correlation between Internet users and psychological well-being and social involvement used subjects of varying ages (Katz & Aspden, 1997; Kraut, et al., 1998). These studies are to some extent generalizable to seniors. However, since depression is an ongoing problem for seniors for reasons related to aging (Blazer, Hughes, & George, 1987; Curlik, Frazier, & Katz, 1991; Mosher-Ashley, 1994; Speer, Williams, West, & Dupree, 1991), the impact of Internet

usage on the quality of lives of seniors should be studied separately.

The immediate purpose of this study is to explore the relationship between the number of hours spent by seniors engaging in each of three categories of online activities and the seniors' levels of depression. The ultimate purpose is to add to the ongoing discussion of whether Internet use by seniors enhances, reduces, or has no effect on the quality of their lives. This study is viewed by the researcher as part of the effort of those in the mental health field to provide the best treatment and care for seniors in this technological age.

Definition of Terms

The study focuses on the relationship between time spent by retired seniors engaging in each of three categories of online activities and the seniors' levels of depression. The three categories of activities are communication activities, information-gathering activities, and personal transactions.

The term "seniors" as used in this paper refers to persons 55 years of age or older. All references to terms generally considered synonymous with the term "seniors," such as, "older adults" or "aging adults" or "the elderly" for purposes of this paper mean persons age 55 or older unless stated otherwise. Although age 55 is considered relatively young in our present society, it is the cut-off age used in many studies, surveys, and reports to mark the beginning of seniority in our society.

The term "retired" as used in this paper means retired from full-time employment. "Full-time" employment is defined as 30 hours or more per week spent at a business either as an employee, independent contractor, sole proprietor, partner, or in any other capacity.

The subjects for this study were obtained from a “retirement community.” For purposes of this study, an actual retirement community in Laguna Woods, California was used. The retirement community is a residential development consisting of over 20,000 residents, living in approximately 6500 condominiums, 6000 cooperatives, and two towers on 1200 acres of land. One resident in each household is required to be over age 55. The residents own their own living quarters and share ownership of the common areas and recreational facilities, such as the pools, golf courses, and clubhouses. The residents are active adults, able to live independently. The retirement community has no facilities for assisted living and no medical or hospital facilities.

The term "online" means connected to an Internet service provider (ISP) such as America Online. The term "online" is purposely used rather than the more restricted phrase "on the Internet," because, although the two terms are often used synonymously, a user can be connected to an Internet service provider and not be on the Internet. For example, America Online has a world of proprietary content that includes reference materials, current news, portfolio management, chat-rooms, message boards, all of which can be accessed and used without actually going onto the Internet.

The term “communication activities” refers to activities in which the subject is the sender or receiver of a message, either directly or indirectly, or is in a cyberspace location where messages are being sent and received and the subject has the option of sending and receiving messages. For purposes of eliciting this information from the subject, “communication activities” were described as time spent reading and writing e-mail; reading and writing instant messages or other real-time messages; reading and writing

bulletin board messages; and time spent in chatrooms or similar areas where those present communicate in real-time. “Real-time refers to instant communication as distinguished from delayed communication. The category “communications activities” has one exception to the online requirement: time spent offline writing e-mail to be sent online or reading e-mail received online is included in the number of hours spent in the activity. This is in recognition of the fact that many online users write and read e-mail offline both as a convenience and in order to save money. Even though they are acting offline; they are still in effect (and for purposes of this study) engaging in an online communications activity.

The term “information-gathering activities ” refers to activities that involve online research in any manner for any purpose. The subjects were given the following examples of what can constitute information-gathering activities: reading the news; reading magazines or newspapers; reading book and movie reviews; doing historical research; doing medical research; doing educational research, doing research for shopping or investing; doing research for vacations; and the like.

The term “personal transactions” refers to activities that comprise the actual doing of personal business on the Internet. For purposes of this paper the transactions that the subject was asked to include were limited to: shopping, banking, investing, and making airline, hotel, and car rental reservations. Time spent on personal transactions means time spent actually engaged in the transaction, not doing the research in preparation for the transaction. It was made clear to the subject that the time spent doing research in preparation for the transaction falls into the category of information-gathering activities.

The term "depression" refers to feelings of sadness, pessimism, failure, guilt,

agitation, irritability, worthlessness; loss of enjoyment; loss of interest in people and things; self-dislike; self-criticizing; suicidal thoughts or wishes; episodes of crying; indecisiveness; loss of energy; changed sleeping patterns; loss of appetite; difficulty in concentrating; tiredness or fatigue; and loss of interest in sex. These measures are consonant with the measures for depression found in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV).

Brief Review of Related Literature

Early research in this area focused on the development of computer software and hardware to aid seniors in their daily functioning. Studies researched the use of computers by seniors to enhance their sensory capabilities (Levy & Gordon, 1988), increase their cognitive abilities (Finkel & Yesavage, 1989), widen their social interaction (Adler, 1988; Furlong, 1989) and make their everyday tasks easier and more convenient (Gilly & Zeithmal, 1985; Hiatt, 1988; Monk, 1988).

Researchers then discovered that, as seniors began to use computers for these purposes, the quality of life of the seniors seemed to improve in various ways. Senior computer users were showing an increase in self-esteem and mental ability as well as a feeling of accomplishment (Ansley & Erber, 1988; Bouchard & Heaven, 1986; Eilers, 1989). They were feeling more in control of their environment (Eilers, 1989; Furlong, 1989; Bouchard & Heaven, 1986). They had an enhanced sense of personal identity and sense of personal efficacy and potency (Ansley & Erber, 1988; Bouchard & Heaven, 1986; Eilers, 1989; Myers, 1984). They manifested less dissatisfaction with growing old and a greater willingness to live (Sherer, 1996). Computer use appeared to add a

functional element back into seniors' lives which increased their self-concept and resulted in secondary outcomes in zest, congruence, and other variables such as a change in level of independence, more interest in other activities, and a shift in mood towards a more positive temperament (Groves & Slack, 1994).

Research results were consistent in supporting the hypotheses that computer use by seniors was increasing, that it could be used to assist seniors in many aspects of their lives, and that it was psychologically beneficial for them. However, a gradual but dramatic change in the way seniors used their computers brought into question whether computer use was as psychologically beneficial to seniors as had been thought. The change was the fact that seniors were "going online." Individual personal computer (PC) users sitting in front of their PC's in their kitchens, and bedrooms, and dens, were beginning to connect through their telephones to the Internet - a global network of information, entertainment, shopping, banking, investment, and other people. Recognizing the scope of this change in computer use, researchers in all of the behavioral sciences, as well as other fields, became more interested and increasingly concerned with the effect that online use of computers was having on the individual.

To date, research in this area has been sparse and contradictory. In general, writers, analysts, and researchers have an intuitive sense that Internet use has psychological and social benefits for seniors. In an analysis of the possibilities that computer related technologies can have for seniors (Lawhorn, Ennis, & Lawhorn, 1996), the authors posit that the Internet provides seniors with new avenues for socialization. It enables them to feel more connected to, and less isolated from, others. In a book

examining community on the Internet, Rheingold (1993) argues that the Internet can be the locus for individuals to find new relationships and new communities. The supposition that Internet usage has a positive effect on seniors both psychologically and socially is supported by a study published in 1994 (McConatha, D., McConatha, J.T., & Dermigny). The study found a significant decrease in levels of depression among participants in the study, nursing home residents, who were trained in the use of the Internet and studied over a period of six months. The study also found that the subjects showed significant improvements in cognitive functioning and daily living activities.

An underlying controversy among theorists and researchers exploring the effect of Internet usage on users involves the degree to which it results in isolation of the user from family, friends, and the community. One side argues that time online increases social interactivity, and thus decreases isolation, because the online user is constantly interacting with others using e-mail, chat rooms, and message boards, and in fact becomes more participative in the world by exposure to local, national, and global news and events. The other side argues that time spent online displaces time that would otherwise be spent with family and friends and in community activities, and that social interaction online is too brief and superficial to have meaning. This controversy is relevant to this paper because isolation and social interactivity are two factors that relate to depression.

The two major studies that represent each side of this controversy (Katz & Aspden, 1997; Kraut et al., 1998) involved subjects of varying ages, not just seniors. The findings of one study support the theory that Internet usage not only does not interfere with social involvement but may further social involvement (Katz & Aspden, 1997). The

findings of the second study support the theory that greater use of the Internet is associated with declines in social involvement and with increases in loneliness (Kraut et al., 1998). These studies are to some extent generalizable to seniors. However, since depression is an ongoing problem for seniors for reasons related to aging (Blazer, et al., 1987; Curlik, et al., 1991; Mosher-Ashley, 1994; Speer, et al., 1991), the impact of Internet usage on the quality of lives of seniors should be studied separately.

Highlights of Methodology

This study was conducted using a non-experimental correlational research design. The subjects of the study were 90 retired seniors (persons 55 years of age or older) who met the following criteria: (1) they had been online users for at least one month; (2) they went online regularly, at least once a week; (3) they had not received a diagnosis of clinical depression within the past five years; and (4) they were not currently taking anti-depressants.

The instruments used in the study were a Preliminary Questionnaire, an Online Use Questionnaire, and the Beck Depression Inventory-II (BDI-II). The Preliminary Questionnaire was used to screen the subjects for age, initial online usage requirements, and any diagnosis of depression within the past five years or use of medication for depression. The Online Use Questionnaire was used to determine the average number of hours the subject spent each week in each of the three categories of online activities (communications activities, information-gathering activities, personal transactions). The BDI-II was used to measure the subject's level of depression. The BDI-II is a 21-item self-report instrument for measuring the severity of depression in adults and adolescents aged

13 years and older. This is the latest version of the Beck Depression Inventory which was developed to assess symptoms corresponding to the criteria for diagnosing depressive disorders listed in the DSM-IV. Although the BDI was designed for assessing the severity of depression in diagnosed patients, it has been widely used and accepted for detecting possible depression in normal populations (Archer, Maruish, Imhof, & Piotrowski, 1991; Piotrowski & Keller, 1992; Piotrowski, Sherry, & Keller, 1985)

Subjects were obtained from a retirement community in Laguna Woods, California, and screened by means of the Preliminary Questionnaire. An individual appointment was made with each qualified subject. At the time of the appointment, the procedures were explained to the subject and the subject's informed consent requested. After the subject signed the informed consent, the researcher personally administered the Online Use Questionnaire and the BDI-II. After the instruments were completed, the subject was given the opportunity to comment orally on his or her experience with online use, its affect on his or her general mood and attitude towards life, and the experience of participating in the study.

Once the actual research was completed, the researcher compiled the scores for each variable for each subject. For level of depression, the researcher used the actual score obtained from the BDI-II rather than grouping the scores and categorizing the groups. For the online use variables, the researcher used the average number of hours spent online each week by the subject in each category of activity, as obtained from the Online Use Questionnaire. Then a correlation analysis was done, using Spearman's rho as the correlation coefficient.

Limitations of Study

Due to the fact that the study was limited to persons from a specific retirement community, it is not clear how generalizable the results are to the senior population at large. Because the subjects came from this population, they are generally ambulatory, communicative, and socially active. Because they are persons who either own or have access to computers and have online experience, they have a certain level of financial means, mental acuity, and interest in life.

This study did not consider factors, other than hours of online use in specified activities, that may affect the subjects' levels of depression, such as, health problems, financial pressures, or family obligations. In addition, the subjects' levels of depression prior to being connected online were not taken into consideration, except to the extent persons who had been diagnosed as being depressed within the past five years or who were taking antidepressant medication were disqualified as subjects.

An additional limitation is that the three categories of online usage studied are not exhaustive uses of the Internet. Other categories, such as game-playing activities, may also affect levels of depression.

Use of the Beck Depression Inventory II to measure levels of depression has its own limitation in that it is a self-report inventory, subject to response bias. Some subjects may either claim more symptoms than they have and thus produce spuriously high scores or deny symptoms that they have and receive spuriously low scores. The Online Use Questionnaire asks the subject to state the average number of hours they spend online in each of the categories of activities per week; this too is subject to response bias. The

subjects may be mistaken in their calculations or may misrepresent the amount of their use.

Research Findings

After the research data was collected and compiled, a correlation analysis was done, using Spearman's rho as the correlation coefficient. None of the correlation coefficients reached significance. The lack of significant correlation between the variables, hours of Internet use in three categories and levels of depression, might have resulted from the fact that there simply is no correlation. Alternatively, the finding of a lack of correlation might be a result of the population studied which tends to be a very active, socially involved group of seniors for whom use of the Internet might represent just one more activity in their lives rather than a primary or significant activity. The finding may also have been affected by the use of the BDI-II, which may not have been an adequately sensitive instrument to differentiate levels of depression among the non-clinically depressed. In addition, the self-reporting nature of the instruments used may have affected the results. Finally, the administration of the instruments by the researcher, who, although a stranger to the subjects, was a member of the same community, may have influenced the subjects' responses.

CHAPTER II. REVIEW OF RELATED LITERATURE

Early Studies: Seniors and Computer Use

The decades of the 80's and the 90's saw an increased awareness of, and interest in, the relationship between seniors and computer use. Early research focused on the development of computer software and hardware to aid seniors in everything from increasing their attention span to assisting them in their daily functioning. A 1991 survey of the literature on computer use by the elderly (Ogazalek, 1991) reviewed articles researching the use of computers by seniors to enhance their sensory capabilities (Levy & Gordon, 1988), increase their cognitive abilities (Finkel & Yesavage, 1989), widen their social interaction (Adler, 1988; Furlong, 1989) and make their everyday tasks easier and more convenient (Gilly & Zeithmal, 1985; Hiatt, 1988; Monk, 1988).

The negative stereotype that portrayed older adults as not only unable but also unwilling to learn the use of computers was not supported by the research. A review of the research related to training older adults in the use of computers (Baldi, 1997) reported that researchers found that, overall, older adults are accepting of new technology (Brickfield, 1984); they are not fearful of computers (Breakwell & Fife-Schaw, 1988), and their attitudes towards computer use improve with increased exposure and positive experiences (Czaja, 1988; Danowski & Sacks, 1980; Morris, 1994; Zandri & Charness, 1989).

Computer Use as Having Positive Effect on Psychological Well-Being

The use of technological devices, including the computer, to assist seniors in their daily living has become so much a part of our present-day culture that a new discipline has

emerged "gerontechnology." This has been defined as "the study of technology and aging for the improvement of the daily functioning of the elderly" (Bouma, 1993, p. 1). There is an underlying assumption that the use of these devices improves the quality of life experienced by those using them, with a resultant improvement in psychological health. The studies involving use of the computer by seniors supports this assumption.

Early researchers found that as seniors began to use computers in their daily living, their quality of life was beginning to improve in various ways. Senior computer users were showing an increase in self-esteem and mental ability as well as a feeling of accomplishment (Ansley & Erber, 1988; Bouchard & Heaven, 1986; Eilers, 1989). They were feeling more in control of their environment (Eilers, 1989; Furlong, 1989; Bouchard & Heaven, 1986). They had an enhanced sense of personal identity and sense of personal efficacy and potency (Ansley & Erber, 1988; Bouchard & Heaven, 1986; Eilers, 1989; Myers, 1984).

In 1990, a pilot study tested a proposed conceptual model developed to explore the impact of computer-assisted living for senior citizens on their perceived feeling of independence and life satisfaction. Five seniors were introduced to and instructed in the use of the computer in stages. It was found that computer use helped the subjects develop a more positive attitude towards life and increased life satisfaction (Groves, 1990). In 1994, the conceptual model was refined and applied to a nursing home study. The study focused on the range and types of short- and long-term outcomes that could be achieved with use of the computer as an instructional method. Eight senior citizens participated. It was found that in the short-term the participants moved from reluctance to enthusiasm

toward using the computer and showed a slow progression in functional skills. In the long-term, use of the computer added a functional element back into their lives which increased their self-concept and resulted in secondary outcomes in zest, congruence, and other variables such as a change in level of independence, more interest in other activities, and a shift in mood towards a more positive temperament (Groves & Slack, 1994).

Sherer (1996) studied the willingness and ability of nursing home and day-care participants to use personal computers, their preferences, and the impact of computer use on the quality of their lives. The rationale for the study was the need to help nursing home workers find a way to fill residents' time with meaningful activities to help improve their self-esteem and quality of life. It was posited that the computer could be a tool in achieving this end. The study was done in Israel and involved a research group of 25 nursing home and day-care residents who were physically frail (mean age 80.36). A second group served as a control group. The research group were trained in use of the computer and permitted to use the computers at their leisure. The subjects' use of the computers was broken down among educational software, games, and word processing, with word processing being the major use. Not only did the study find an eagerness to learn among the subjects, it found that as a result of participation in the computer project, the subjects manifested significantly less dissatisfaction with growing old and a greater willingness to live than the control group.

Online Use as Having Positive Effect on Psychological Well-Being

The fact that computer use in general has a positive effect on the psychological well-being of seniors is supported by both the research and common sense. Mastery of

new skills, involvement in new interests, the ability to make use of tools for word processing and to track one's finances, the use of software designed for educational and entertainment purposes - these are the types of experiences that enhance one's daily life and, as a general rule, have a positive effect on one's self-esteem, attitude, and enjoyment of life.

However, the effect of online use on psychological well-being is another issue. The use of the computer as a stand-alone device has evolved into the use of the computer as the hub of an interconnected global community. This transformation from isolation to connection occurred very quickly for most people. The purchase of a modem for an old computer, the purchase of a new computer that came with a built-in modem, the installation of one of the ubiquitous America Online startup disks, and instantaneous connection resulted. Whether this connection is positive or negative for the psychological well-being of seniors is as yet unclear. Research in this area is sparse and contradictory. In general, writers, analysts, and researchers have an intuitive sense that Internet use has psychological and social benefits for seniors. In an analysis of the possibilities that computer related technologies can have for seniors (Lawhorn, Ennis, & Lawhorn, 1996), the authors posit that the Internet provides seniors with new avenues for socialization. It enables them to feel more connected to, and less isolated from, others by the use of e-mail, posting messages online, participating in online conferences, and connecting to such online sites as Senior Net Online (www.seniornet.org) and AARP (www.aarp.org) online. In a book examining community on the Internet, Rheingold (1993) argues that the Internet can be the locus for individuals to find new relationships and new communities with persons