

SOCIAL CONTACT DIFFERENCES BETWEEN INTERNET USERS AND NONUSERS IN THE GENERAL SOCIAL SURVEY

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ABSTRACT [\(Data Available\)](#)

The year 2000 General Social Survey (GSS) included old questions on the extent of social visiting and new questions on the extent of social networks. The results provide little support for the conclusion that Internet users and electronic mail users with greater hourly usage lead less active or more constricted social lives than nonusers. There is little evidence of reduced social contact in relation to levels of social visiting in comparison to 1998 or to earlier GSS surveys. There is virtually no difference in the overall visiting of lesser-versus-greater-versus non-Internet users.

Interestingly, users reported spending more evenings with friends than non-users and fewer evenings with relatives and neighbors. There was no decline in the numbers of people contacted by traditional communication channels among respondents who contacted more people by email, or who used the Internet more. There was more evidence to support the Newtonian model of increased social life among Internet users than evidence of any displacement effect.

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The Internet and other new information technologies (IT) have often been described as “revolutionary,” as in Castells’ (1996, 30) suggestion that the IT revolution is “at least as major a historical event as was the eighteenth-century Industrial Revolution.” The technology has diffused rapidly, with more than half of American homes having a home computer and with more than half of the public now using the Internet after its initial broad availability circa 1995. At the individual level, the revolution might be related to the social impact of IT, in terms of new ways of relating to other people and maintaining social contacts.

One way of understanding the social and behavioral impacts of IT is to examine daily activity differences between IT users and nonusers. With the diffusion of IT, are people who use new communication technologies less likely to use previous means of communication? Is the Internet leading to less communication between certain social partners and more with other types of people? Has the growth of IT use among the general population changed patterns of the channels (telephone, postal mail, etc.) that people use to interact with each other?

The behavioral impacts of two-way communication formats, like the Internet and the telephone, have been extremely difficult to isolate because they are used in subtly different ways to establish and maintain social relationships, forming new infrastructures that facilitate or enable different patterns of interaction (de Sola Pool [1977] 1981; Fischer 1992; Robinson and Kestnbaum 1999). As Castells (2000, 693) suggests, “We must take seriously the material transformation of the social fabric, as new information technologies allow the formation of new forms of social organization and social interaction along electronically based information networks.”

PREVIOUS STUDIES OF THE IMPACT OF THE INTERNET

Research about the impact of the Internet has typically focused on social life and interpersonal communication. Two widely publicized studies of early Internet impact reported results consistent with the hypothesis of declines in certain aspects of social life. In their panel study of Internet households in Pittsburgh, Kraut *et al.* (1998), for example, found:

Greater use of the Internet was associated with small, but statistically significant declines in social involvement as measured by communication within the family and the size of people’s local social networks, and with increases in loneliness, a psychological state associated with social involvement. Greater use of the Internet was also associated with increases in depression. Other effects on the size of the distant social circle, social support, and stress did not reach standard significance levels but were consistently negative. (P. 1017)

Parallel results were reported by Nie and Erbring (2000) in their national study of more than 4,000 households.

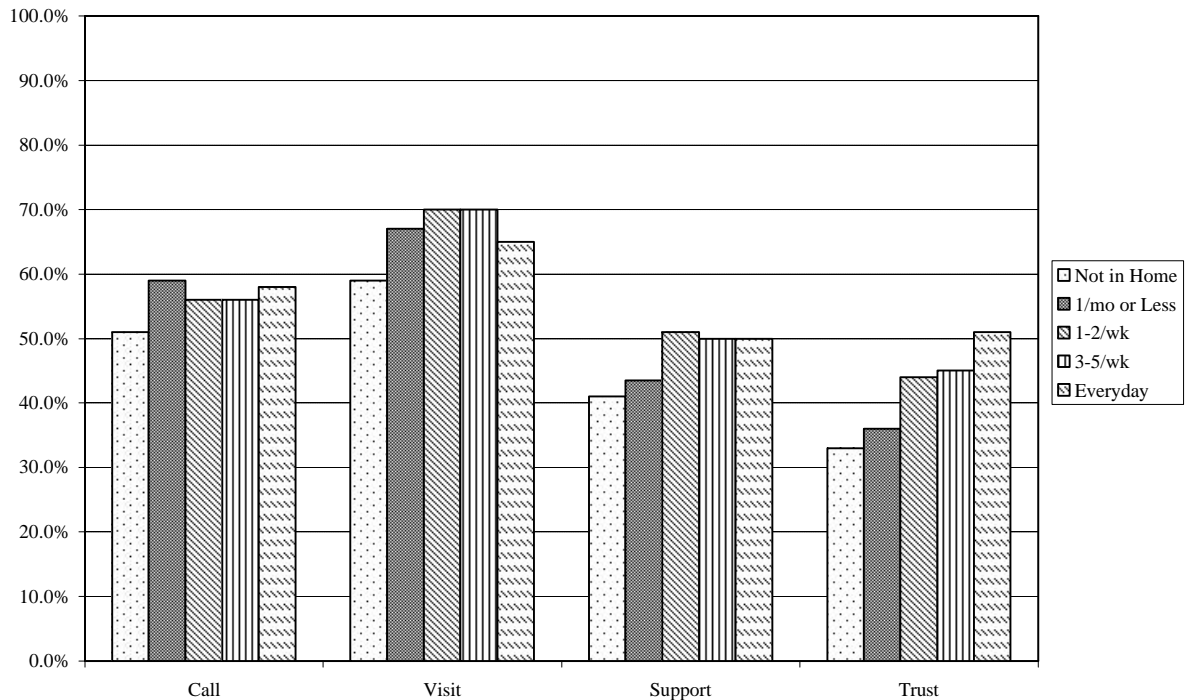
However, studies that have used a less ambitious set of questions and research designs have produced somewhat different results. For example, the Pew Center for Public Opinion Research has been conducting national surveys related to the public's use of IT since 1995—with recent periodic updates on certain questions on almost a monthly basis. The most complete early surveys were conducted in 1995 and 1998, with samples of more than 3,600 respondents. A strength of the Pew data is that they asked questions about social activity “yesterday” (as well as more generally), which allows respondents to report on a time period which is most recent in memory, as well as clearly defined in temporal terms.

In examining the more recent 1998 Pew data, Robinson *et al.* (2000) showed that the proportion of Internet users had grown in the interim since 1995 and with rather similar results. As shown graphically in Figure 1, four separate indicator questions (the first two behavioral and the second two attitudinal) asked in the Pew survey generally showed slightly higher social contact among heavier users of the Internet.

Nonetheless, the results from the original Kraut *et al.* and Nie/Erbring studies continue to raise questions about the constrained nature of social life brought about by the Internet and suggest that it may lead to a reduced or more constrained social life. Somewhat opposite to that are the demographic characteristics of early Internet users, in particular, their greater years of education and their younger ages, which are generally associated with broader and deeper networks of communication. Indeed, well-publicized studies of the “digital divide” in government reports (U.S. Department of Commerce 1998 and 2000) have made it clear that these are important characteristics on which Internet users differ from nonusers.

Early studies of the digital divide have identified other social correlates of usage that were not socio-economic in character, such as the greater use of men and younger adult age groups. More recent studies, however, have shown these gaps have disappeared or closed significantly.

These features are clearly to be expected from the literature on the diffusion of innovations, as summarized in Roger's (1995) classic work on the topic. Early adopters of innovations are notably distinguished by their higher levels of education (this is associated with greater awareness of social changes, mainly by greater attention to media) and higher levels of income (being able to afford purchasing the innovation). In addition to education and income (and often younger age), Rogers noted the greater social connections, more empathy, more opinion leadership and greater exposure to both mass and interpersonal communication channels. In this view, then, one should expect that earlier Internet users would be more “open” to new channels of communication with others.

Figure 1. Relative Frequency of Social Contact by Frequency of Internet Use

Source: Pew 1998 data, as reported in Robinson et al. (2000)

In the present analysis, data from the year 2000 General Social Survey (GSS) are examined that included new questions about IT use and channels of communication with close contacts—as well as questions about social contacts with friends, neighbors and relatives that had been asked in previous GSS surveys dating back to the early 1970s. The analyses in this examination thus involve relating these measures of social contact with measures of using the Internet and email, after adjusting for the many demographic and background factors included in the GSS. The research question is whether one will find reduced incidence of other forms of communication, particularly among those who use the Internet for social communication purposes.

FIELD PROCEDURES

The year 2000 GSS was a personal in-home interview that usually took about 90 minutes to complete with a national probability sample of 2,817 adult respondents aged 18 and older. In each selected household, one adult person was interviewed at random using sampling procedures described below. Interviewing took place between February and mid-June 2000. The GSS survey has been conducted at one-to-two year intervals since 1972 by the National

Opinion Research Center (NORC) at the University of Chicago, and it is generally considered the premier social science instrument for monitoring social life and trends in the United States.

Sampling: Like its predecessors, the year 2000 national probability sample was selected in two major stages, with Primary Sampling Units (PSUs) consisting of one or more counties selected at the first stage and segments comprising one or more blocks selected at the second stage. In a few cases, segments were sub-sampled, a procedure that constituted a third stage of sample selection.

Prior to the PSU selection, the United States was divided into 2,489 PSUs; the PSUs were then sorted into strata. The major strata again grouped metropolitan and non-metropolitan PSUs within each of the four census regions. The metropolitan PSUs include Consolidated Metropolitan Statistical Areas (or CMSAs, which join the metropolitan area of a very large city with the adjacent metropolitan area of one of its suburbs), and New England County Metropolitan Areas (or NECMAs, which are the whole county counterparts of the New England MSAs). The non-metropolitan PSUs were further sorted by state, then, within state, by the percent of minorities and, finally, within population by those who were minority group members; this encompassed everyone but non-Hispanic whites. Percent minority groupings were formed by classifying each PSU according to percent minority quartiles within its major stratum. The metropolitan PSUs were sorted by census division, minority quartile, and per capita income. The sample PSUs were selected using systematic selection, with the selection probability for a PSU proportional to the number of housing units. This selection procedure ensured proportionate representation along each of the sort variables. Nineteen PSUs (such as Chicago or Boston) were large enough that they had to be included in the sample with certainty. The sample included 100 first stage selections.

The second-stage sampling unit in the year 2000 GSS national sample was again the segment consisting of one or more adjoining blocks. The number of segments selected within a PSU again depended on whether the PSU was a certainty selection. From three to 26 segments were selected in the 19 certainty PSUs; in each of the remaining 81 sample PSUs, three segments were selected. All told, the national sample includes 384 second stage selections.

Prior to selection, the segments within each sample PSU were sorted successively by: (a) whether they were within the central city of a metropolitan area or outside of it (in metropolitan PSUs), (b) state (in those PSUs that crossed state lines), or (c) county, (d) place, (e) percent minority quartile within the PSU, and (f) census tract (CT) or block numbering area (BNA). The sample segments were selected using systematic sampling with probability proportional to size (in housing units). Undersized blocks were linked to adjacent ones to assure that each segment included at least 50 housing units. Similarly, census tracts with fewer than 50 housing units were linked with adjoining CTs.

In the smallest PSUs, it was possible for a segment to be selected more than once. In such cases, and when segments included unexpectedly large numbers of dwellings, a third stage of sampling was carried out. The segment was subdivided into pieces by a field count; based on the field count, one piece of the segment was selected with probability proportional to its estimated size.

Adults: The full-probability GSS samples used since 1975 are designed to give each household an equal probability of inclusion in the sample—call this probability p . Thus for household-level variables, the GSS sample is self-weighting. In households that are selected, selection procedures within the household give each eligible individual equal probability of being interviewed. In a household with n eligible respondents, each has probability p of being in a selected household, and $\frac{1}{n}p$ of actually being interviewed. Persons living in large households are less likely to be interviewed, because one and only one interview is completed at each pre-selected household. The simplest way to compensate would be to weight each interview proportionally to n , the number of eligible respondents in the household where the interview was conducted (n is the number of persons over 18 in the household). The GSS measure is called “ADULTS.” A discussion of the weight as well and a post-stratification variant of weighing by ADULTS appears in GSS Methodological Report No. 3.2.

Post-stratification: In general the GSS samples closely resemble distributions reported in the Census and other authoritative sources. Because of survey nonresponse, sampling variation and various other factors, the GSS sample deviates from known population figures for some variables. The GSS does not calculate any post-stratification weights to adjust for such differences. For relevant discussion of distribution variation caused by nonresponse and other factors, see the GSS Methodological Reports (www.icpsr.umich.edu/GSS/rnd1998/reports/m-reports/index.htm).

Interviewer Training: Professional interviewers hired and trained by NORC conducted the interviews. In addition to a 2–3 day general training session before hiring, interviewers went through a mailed training session focusing on the various goals and modules of the year 2000 GSS. Interviewers made repeat visits to households at which no one was home or the designated household respondent was not available. Enough repeat call backs were made to such households that the main form of nonresponse was respondent refusal. Interviewers were able to complete interviews with 70 percent of designated respondents, compared to most GSS response rates that exceeded 75 percent. The total of 2,817 GSS respondents completed one of the six versions described below and shown in its entirety on the website www.webuse.umd.edu.

DIFFERENT QUESTIONNAIRES

Five of the six different versions or ballots in the year 2000 GSS contained some Internet questions. Ballot 3 ($n = 454$) did not include any questions about IT. That left 2,353 respondents eligible for the Internet module questions on five ballots, with each ballot representing a separate (and minimally clustered) random sample of the country. Appendix A Table 5 shows how the different Internet questions were assigned across the five ballots, using the identification question numbers on ballots 4 and 5. All questions about basic or core electronic mail and World Wide Web usage were asked of all 2,353 respondents across each of the five ballots.

Two of the ballots (4 and 5) contained all of the Internet module questions—including the questions about computer location and the “benchmark” questions that contain the five communication channel questions (including via email) analyzed below. Ballot 6 contained all Internet questions except for the benchmark and computer location questions.

GSS Internet Use Questions: The main Internet questions used in the present analysis are the usage questions asked of all respondents at the outset of ballots 1, 2 and 6, with the exact questions shown in Appendix B, Section 1. Respondents were first asked if they used a computer at all at home, work or other location. If not, they were asked if they had access to the Internet via Web TV. If they said “no” to both questions, they were coded as having zero hours and minutes of both electronic mail and World Wide Web use per week, that is they were categorized as nonusers in the analyses that follow. Just over half of the 2,353 GSS respondents fell into this category.

Those who said “yes” to either the general use or WebTV question were asked to estimate how many hours/minutes a week they used their computer/WebTV to send or receive electronic mail. They were then asked whether they also used the World Wide Web—outside of the electronic mail use they had just described. If they said “yes,” they were then asked to estimate how many hours/minutes per week they used the web.

To calculate the total time spent per week for electronic mail and web use, respondent hour estimates were added to their minute estimates (divided by 60) to arrive at a total hourly amount of use of both features. To arrive at a total amount of Internet usage, the electronic mail use estimates were added to the Web usage estimates. Thus if a respondent estimated two hours of electronic mail use and 2½ hours of Web usage, their hourly Internet time is calculated as 4½ hours. If they used email for 6 hours but reported no World Wide Web usage, their calculated estimate for total Internet time would be 6 hours.

A subset of variables was selected based on bivariate correlations of hourly figures for World Wide Web usage, electronic mail and total Internet time described above with GSS social interaction questions. The following categories of weekly usage were created with the approximate number of GSS respondents in each category shown below:

Nonusers	<i>N</i> = 1,189
0.1 to 1.9 hours	255
2 to 4.9 hours	260
5 to 9.9 hours	250
10 to 60 hours	324

The total of 2,278 respondents in these categories is smaller than the sample of 2,353 respondents because of missing responses on either the electronic mail or World Wide Web use question. Moreover, the sample sizes in the following analyses are usually smaller than those above because the GSS social behavior questions were usually asked of only subsets of respondents depending on which version of the GSS questionnaire was employed.

The following analyses examine how the various GSS questions dealing with the extent of social contacts vary by the extent of hourly electronic mail or Internet usage. Do Internet users report more extensive social contacts, or do they report fewer contacts than nonusers? If there are differences, do they increase monotonically, indicating that it is hourly amount of usage that is important, or do the most important differences show up for all users vs. nonusers consistent with a threshold effect? If the former, this suggests the possibility that Internet effects vary by degree. Regardless, one would need panel data to test for causal linkages and one has only one-time data here.

GSS SOCIAL CONTACT QUESTIONS

Of particular interest is the set of social contact questions that the GSS has replicated on the frequency of four types of social interactions, those with relatives, neighbors, friends, and at bars. The GSS questions shown in the second section of Appendix B ask respondents how often they have contact with each interaction type using the following frequency scale, with the weight associated with each category to calculate the annual averages in the analyses that follow:

Category	Weight
1. Almost every day	350
2. Once or twice a week	75
3. Several times a month	40
4. About once a month	12
5. Several times a year	5
6. About once a year	1
7. Never	0

In the GSS 2000 sample, these weights produced estimated annual averages of 84 evenings with relatives, 50 evenings with neighbors, 53 with

friends and 20 at bars, as can be seen in the first row in Appendix C, which also shows variations in these figures by ten background predictors as discussed in the next section. It should be noted that results generated with alternative weights (e.g., 1 = 300; 3 = 50) produced no difference in the overall conclusions below.

RESULTS: DIFFERENCES IN OLD AND NEW GSS SOCIAL CONTACT VARIABLES BY BACKGROUND/ DEMOGRAPHIC VARIABLES

Before describing the relationships of these two sets of social contact variables with Internet and electronic mail, it is useful to understand how these sociability responses vary across the background factors themselves. These differences are shown in Table 6 of Appendix C for *birth* factors (gender, age and race), for *status* factors (education and income) and for *role* factors (marital status and work hours).

Traditional GSS Questions: The top row and first four columns of Appendix Table C show the overall averages for the four traditional social interaction measures of evenings of annual social contact. Columns five through nine show the averages for the new measures of the number of social contacts via five different channels described below and in the third section of Appendix B. Thus, as noted in the text above, entries in that top row show that GSS 2000 respondents estimated that they spent the equivalent of an average of 84 social evenings per year with relatives, 50 evenings with neighbors, 53 evenings with friends and 20 evenings at bars. Values that are statistically significantly higher or lower than the overall averages for particular groups are noted with a plus sign (+) or minus sign (-).

The second set of row entries then shows *gender* differences, with women reporting the equivalent of an average of 91 evenings with relatives compared to 74 for men. On the other hand, men spent slightly more evenings with neighbors and with friends—and twice as many evenings at bars. Taken together when the entries across the four categories are summed, men (210 evenings) and women (204 evenings) estimated spending about the same number of total evenings of social contact.

Age is a far more important predictor of social evenings than gender, with younger people being most active—especially those aged 18–24, who in some forms of contact report more than twice as much contact as those 35 and older. Respondents aged 25–34 are less active than those aged 18–24, but they are still notably more active than those older than age 34. The relationship between age and sociability is not monotonic, in that those 55 years and older report more contact with relatives and neighbors than those aged 35–54—presumably because they have just reached the “empty nest” stage of life when their children are no longer at home.

There are notable *racial* differences as well, with black respondents reporting more contact with relatives, neighbors and friends. The reverse is true for visits to bars, with whites and other minorities being most active. Other minorities also tend to report more get togethers than whites.

Turning to the *status* factor of education, Table 6 in Appendix C shows that respondents with less formal education reported more contact with relatives and neighbors, but that college-educated respondents reported spending more evening occasions with friends and at bars. It is those with just some college education, however, who report most evenings with friends.

Much the same pattern is found for the related status factor of *income*. Less affluent respondents report spending more evenings with relatives and friends, but also report slightly fewer evenings with friends or at bars. Interestingly, those who refused or could not answer the GSS income question report the same number of evenings with relatives, but slightly fewer contacts with neighbors and friends and at bars.

Turning to the *role* factor of marital status, it is first clear that never married people report far more social evenings of all four forms of contact—presumably because of their younger age. The previously married (divorced/separated/widowed) group reports about the same numbers of evenings of contact as married people, and slightly more contacts with neighbors and friends and at bars. Divorced and separated respondents report spending more time with friends and at bars than the widowed or married respondents.

Respondents with *children under 18* in their household estimate six to eighteen more evenings of contacts with relatives, but fewer evenings with neighbors, and significantly fewer evenings with friends or at bars than respondents without children. If the children are under age 6, more evenings are also spent with relatives and less in bars.

The final role factor of *work hours* shows surprisingly few declines in numbers of evenings of contact as the workers' work hours increase. Indeed, those working more than the standard 40 hours report more contact with relatives and at bars.

In terms of *location* differences, respondents in the Northeast spent most evenings with relatives, those in the South with relatives, and those in the Midwest with friends. Regional differences in evenings at bars are not significant. Respondents in rural areas reported spending most evenings with relatives and neighbors, those in large (but not the largest) cities with friends and at bars. Suburban residents tended to spend fewest evenings across these four contact situations.

Many of these background variables are of course related to one another, so that one of the values of Multiple Classification Analysis (MCA) analyses is that one can observe which of these measures are predictive once the others are taken into account (Andrews, Morgan and Sonquist 1973). In the case of contact with relatives, education and income remain major predictors of less contact after MCA adjustment, while women, younger people, blacks and parents of

children report higher than average contact. Neighbor contact is highest among blacks, younger adults and never married people. Contact with friends is higher among the more educated and more affluent, and younger and nonmarried, people. Evenings at bars are lower among those married, with children, of older age, women and black. Many of these factors are also related to hourly Internet usage, so it is important to note that the MCA results presented below adjust for the common correlations of these factors with Internet use.

New "Channel" Questions: For the new GSS questions on numbers of friends/relatives contacted across the five channels of communication, the first row on the right side of Appendix C Table 6 shows the overall GSS estimated averages of 12 persons contacted in person, 12 by telephone, 9 by written letters and correspondence and 8 in meetings. The newest channel of communication, electronic mail, had the fewest contacts (5).

The exact GSS questions used to derive these averages are shown in Section 3 of Appendix B. After determining an estimate of the respondents' social networks—the total number of friends and relatives contacted at least once a year—respondents were asked how many of these contacts they kept in touch with via the channels of: (1) personal contact, (2) telephone, (3) postal mail, (4) meetings and (5) electronic mail. The following weights were used to develop annual estimates from the response categories provided:

Category	Weight
0 People	0
1–2	1.5
3–5	4
6–10	8
11–15	13
16–25	20
26–50	40
>50 People	60

As with the evenings of social contact estimates, averages for various demographic groups in the new GSS questions on the numbers of contacts per channel are shown in Appendix C Table 6, on the right side.

Outside of women keeping in touch a little more by postal mail, *gender* averages are almost identical. Unlike the questions on social evenings in columns one through four, *age* generally makes little difference in numbers of people contacted by the five channels, with the possible exception of the higher contact by electronic mail among 18–24 year olds; indeed, it is those 65 and older who report more contacts by postal mail and at meetings. Also unlike the *racial* pattern for social evenings, it is whites who report more friend and relative contacts than blacks or other minorities; this suggests that whites may have a wider network of social contacts, but that they see these contacts less often than black respondents do.

Turning to *status* factors, numbers of friends and relatives contacted across the five channels generally increase regularly with years of formal education—even if they see them less often. This is much the same pattern as found among white respondents. Much the same is true for the more *affluent*, with those refusing to provide income information to GSS interviewers here being generally above average in numbers of estimated contacts.

Unlike the pattern for social evenings, it is *married* people who tend to report above average numbers of people contacted across channels; the never married are here about average in terms of number of contacts. Finally, few consistent differences are found by having children or by work hours (with the highest numbers of contacts reported not by those working no hours, but minimal hours (one to nineteen hours)). Again, there is little support for longer working hours reducing the extent of social life; and in some cases, those with longer hours report above average numbers of contacts (supporting the “Newtonian model” of behavior described in Robinson and Godbey 1999). Regional differences tend to be minimal and irregular, while residents of the largest cities tend to be below average in number contacts across all channels except by electronic mail.

The analysis now turns to an examination of the differences in each of these two sets of sociability measures by the degree of Internet and electronic mail use—after statistical adjustment for the differences in background factors just described.

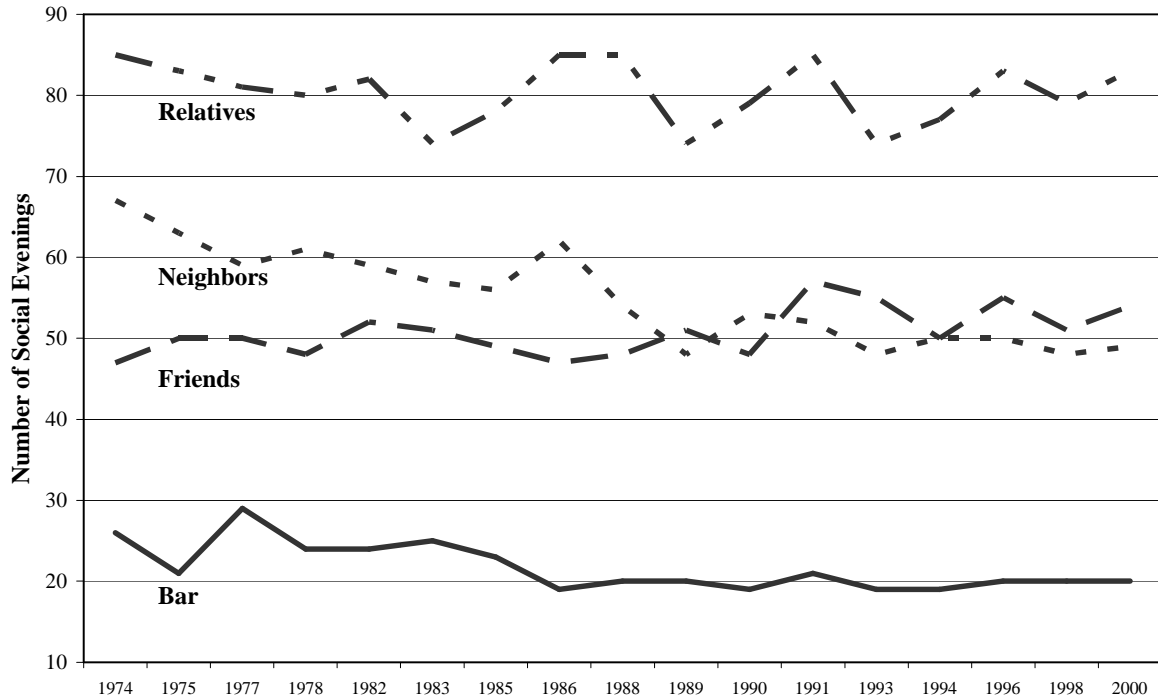
RESULTS

The analyses in this section begin with an examination of the year 2000 versus earlier GSS results in the four traditional questions in the GSS. This is followed by an examination of Internet user versus nonuser differences in these social contact questions in the year 2000 data (Table 1). The next analysis examines user-versus-nonuser differences in the new GSS channel contact questions in year 2000 (Tables 2 and 3).

Recent Trends in Frequency of Social Contacts: One way of testing the declining social contact hypothesis with the GSS data is to determine if overall declines have been observed since the introduction of the Internet circa the mid-1990s. Using the 1993–1996 GSS data as a reference point, it can be seen that the 1998–2000 results are neither consistently nor significantly lower than the 1993–1996 results for any of the four measures.

In order to put the social contact data in Table 1 into historical perspective, trends in frequency of social contacts from 1974 to 2000 are shown in Figure 2. Consistent with the Putnam (2000) declining social capital model,

Figure 2. Trends in Forms of Social Contact: 1974-2000 (GSS Data)



Source: Cumulative General Social Survey, 1974-2000

there are significant declines in frequency of contacts with neighbors and at bars since the 1970s. However, the extent of contact with relatives has not changed over this time period and the frequency of contact with friends has shown an increase since 1974.

If one observed overall declines in contact with neighbors or at bars since the introduction of the Internet in the mid-1990s, that would be part of larger term trends; declines in contact with relatives or friends would go opposite to long-term trends, however. In fact, little such change is found pre-post 1997:

	1993-1996 (n = 5,000)	1998-2000 (n = 3,728)	Difference
Relatives	78.8	81.1	+2.3
Neighbors	49.4	48.3	-1.1
Friends	53.0	52.7	-0.3
Bars	19.5	19.7	+0.2

Contact with neighbors is down about one average contact a year, but contact with friends is up about two contacts; both differences while not statistically significant are consistent with long-run trends in declining neighbor contact and increased friend contact since 1974 as shown in Figure 2.

Much the same conclusion emerges from a comparison of the year 2000 with year 1998 results:

	1998 (n = 1,864)	2000 (n = 1,864)	Difference
Relatives	79.1	83.5	+4.3
Neighbors	47.8	49.8	+1.3
Friends	51.5	54.3	+2.8
Bars	19.7	20.0	+0.3

Indeed, all of the contact measures show increases since 1998, so that no overall decrease can be found during the time period in which the Internet was taking up more time. Since the channel questions were not asked in earlier GSS surveys, there are no such comparisons possible for these questions. In conclusion, then, no noticeable declines in frequency of social contact can be found during this period of significant Internet diffusion.

Year 2000 Internet User Versus Nonuser Comparisons (Table 1): Table 1 shows the differences in the four traditional GSS sociability measures by the extent of Internet use at the top (Table 1A)—and by number of email contacts at the bottom (Table 1B). The raw unadjusted figures are shown first, followed by the results after their adjustment by MCA using gender, age, race, education, income, marital status, children and work hours as the independent variables. In general, it can be seen that the pattern of raw results tends to hold up after MCA adjustment, but the differences are often reduced significantly (or “explained by”) the effects of these other predictors. One reason for this reduction, of course, might be that Internet users are younger or better educated or have higher income, and that is what is responsible for Internet users reporting different sociability patterns. The MCA results produce the net effect of a single predictor variable after removing the effects of other factors besides hourly Internet usage.

To illustrate with the first example in Table 1A, it can be seen that non-users of the Internet report more evening visits (92) with *relatives* than the overall GSS sample average of 84 visits per year. Those who use the Internet for the fewest hours (less than two hours per week) have an average of 75 visits. Users with slightly greater hours of Internet use (2 to 5 weekly hours) have an average of 79 visits. Users who report five or more hours of Internet use have an average of 85 visits. Finally, users who reported the greatest hourly Internet usage (10+ hours per week) had an average of just 65 visits. Thus, people who report the greatest hourly use of the Internet also report fewer visits than non-users (a difference of 27 visits shown in the next to bottom row in Table 1A). However, the overall correlation is only 0.09, which is not significant with this sample size.

**TABLE 1A: DIFFERENCES IN ANNUAL FREQUENCY OF SOCIAL CONTACTS BEFORE AND AFTER
MCA ADJUSTMENT: OVERALL INTERNET USE***

Number of Social Evenings	Internet Use Per Week (hours)	Relatives MCA Adjusted		Neighbors MCA Adjusted		Friends MCA Adjusted		Bars MCA Adjusted		Sum MCA Adjusted	
		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Total	(n=1,815)	84	84	50	50	53	53	20	20	206	206
1. Nonuser	(956)	92	91	57	54	46	48	16	19	204	203
2. 0.1–1.9	(197)	75	76	47	53	69	67	26	22	188	190
3. 2.0–4.9	(205)	79	78	40	40	60	55	20	17	188	188
4. 5.0–9.9	(191)	85	85	49	48	56	54	14	22	218	220
5. 10+	(266)	65	69	39	43	62	58	26	18	218	220
Difference (5–1)		-27	-22	-16	-11	+16	+10	+10	-1	+14	+17
Correlation (eta)		0.09	0.08	0.08	0.07	0.11	0.08	0.08	0.03	0.03	0.06

*Control measures include income, age, race, marital status, children, and gender.

**TABLE 1B: DIFFERENCES IN ANNUAL FREQUENCY OF SOCIAL CONTACTS BEFORE AND AFTER
MCA ADJUSTMENT: NUMBER OF PEOPLE CONTACTED BY ELECTRONIC MAIL***

Number of Social Evenings	# of Email Contacts	Relatives MCA Adjusted		Neighbors MCA Adjusted		Friends MCA Adjusted		Bars MCA Adjusted		Sum MCA Adjusted	
		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Total	(n=879)	82	82	48	48	53	53	21	21	203	203
1. None	(525)	85	82	50	45	50	55	18	21	201	197
2. 1–2	(76)	78	78	43	49	52	48	23	19	197	201
3. 3–5	(81)	93	95	50	56	48	40	28	24	210	207
4. 6–10	(84)	77	85	40	48	53	54	28	23	202	211
5. 11–15	(42)	66	73	33	40	56	54	25	18	175	217
6. 16–25	(48)	62	61	35	44	57	49	19	11	174	198
7. 26–50	(21)	59	58	63	68	87	76	39	29	263	290
8. 51+	(18)	75	91	69	72	96	86	24	13	263	200
Difference (8–1)		-10	+9	+19	+27	+46	+31	+6	-8	+62	+3
Correlation (eta)		0.07	0.07	0.07	0.06	0.11	0.09	0.10	0.07	0.07	0.07

*Control measures include income, age, race, marital status, children, and gender.

One main reason for the low correlation is the above average figure (85 evenings) for the group of respondents reporting five to ten hours of Internet use. Another way to understand this is that the difference between people who report the greatest hourly Internet use and nonusers is revealing, but fails to capture that the overall differences are not monotonic—they do not show

consistent declines in visits with relatives as the extent of Internet use increases.

The figures in the next column show how this pattern of results for these unadjusted (raw) bivariate numbers is affected when the various background factors in Table C are entered into the MCA analysis. It can be seen that after adjustment the nonuser minus greatest hourly Internet user difference decreases from 27 (92–65) to 22 (91–69) visits, but that the MCA adjusted results are virtually the same as the results from the simple bivariate analysis at the left. In other words, the original raw results are not explained by common correlations with the various demographic background factors in Appendix C. At the same time, the overall correlation coefficient (*eta*) remains statistically not significant, as was true for the unadjusted results.

Much the same conclusion emerges for the next set of results for evening visits with *neighbors*. Again there is a notable difference of 18 annual visits (57–39) between nonusers and the greatest hourly Internet users, but the differences again are not consistent nor monotonic. Moreover, after MCA adjustment, that difference is reduced to 11 visits and the Internet users with less than 2 hours use per week also report a relatively high number of visits, as do respondents using the Internet for 5–10 hours per week. As was the case for visits with relatives, then, visits with neighbors are higher among nonusers, but the differences are not consistent as Internet use increases and are not statistically significant.

In the case of visits with *friends*, however, the pattern is reversed—with nonusers reporting 16 fewer such visits (62–46) than greatest users. At the same time, lightest Internet users report 23 more visits than nonusers, so the pattern is again not monotonic—even though all groups of Internet users report more visits with friends than nonusers. In large part, that seems to reflect the pattern found with education and income in Appendix C, in that the more educated report fewer visits with relatives and neighbors but more visits with friends. That might account for part of the difference, but the MCA-adjusted results in the next column indicate that it does not explain all of it. The number of visits of the greatest hourly users per week minus the visits of nonusers drops from 16 (62–46) to 10 (58–48), and the greater visits among other user groups drop as well. However, each user group continues to have more visits with friends than the nonuser group. At the same time, again neither the original nor adjusted correlations are statistically significant.

In the final two columns of figures for visits to *bars*, it can be seen that there is also higher visiting among heaviest users and nonusers of 10 (26–16) annual visits. Moreover, there is higher visiting at bars among groups of lighter Internet users as well, even though the differences are neither monotonic nor statistically significant. However, after MCA adjustment, these differences all virtually disappear.

In general, then, none of the relations between Internet usage and social visits in Table 1A are statistically significant; and, in particular, there is little evidence that as Internet use goes up, social visiting decreases.

That conclusion is reinforced using a composite index of visiting found by simply adding all four types of visiting together, shown in the final column in Table 1A. To some extent, this may be questioned because of double or triple counting (in the case when one combines visits with friends and neighbors or at a bar), but it does allow one to get an overall picture of results (somewhat justified as well by the fact that the four types of visiting in Table 1 are positively correlated with each other). These differences shown in the fifth and final column in the top part of Table 1 also show how small the differences are between nonusers and users, both before and after MCA adjustment. The biggest differences appear for the heaviest user group (10+ hours per week) and that difference increases from 14 to 17 visits per year after MCA adjustment. At the same time the overall correlation is not statistically significant because groups of intermediate users report fewer evenings of visiting (188) than nonusers (203).

Email Usage: The parallel relations between evenings of visiting and the email usage questions are shown in Table 1B. Here the sample sizes are smaller, meaning that it takes larger differences to be statistically significant. Further, it is more difficult to find monotonic relationships because there are eight electronic mail user groups to compare, rather than the five groups of Internet users at the top of Table 1.

In the case of visits with *relatives*, users who estimated that they have the greatest number of electronic mail contacts report ten fewer visits (75) than nonusers (85). However, that difference is reversed to a +9 visits after MCA adjustment, and there is no consistent pattern found among lighter Internet users. Thus, there is little evidence of any connection between the size of email networks and visiting with relatives.

For visits with *neighbors*, on the other hand, the greatest electronic mail users reported 19 more visits than nonusers, and that difference increases to 27 visits after MCA adjustment, and those with the second highest email usage reported 23 more visits after adjustment. However, those reporting 11–15 and 16–25 person contacts reported below average (40 and 44) numbers of visits. This inconsistent pattern, along with the lack of overall statistical significance, again indicates no notable association with neighbor visits.

Much the same is found for visits with *friends*. Both before and after MCA adjustment, the two groups of respondents that reported the greatest electronic mail use reported 30+ more visits with friends than both nonusers and lighter users (more than 50% more visits). However, the overall differences were again neither statistically significant nor monotonic.

Finally with regard to visits to *bars*, those with greatest electronic mail usage reported below average (16) visits after MCA adjustment, and the second

heaviest group reported well above average (29) numbers of visits. Thus, there is no clear overall pattern.

Analysis of the combined numbers of visits across the four types confirms the higher than average numbers of visits among those who were heaviest email users—both before and after MCA adjustment. However, lighter email users are no more active than nonusers and the overall differences are not statistically significant.

Overall, then, Internet and email usage in Table 1B shows neither consistent nor significant patterns of relations with the four traditional GSS sociability measures. In some analyses, heaviest users emerge as having more evenings of social contact (particularly with friends), but in other types of visits they are either below average or about average in their social visits.

This takes one to an analysis of the new social contact questions about communication channels asked as part of the new Internet module questions in the year 2000 GSS (as shown in Section 3 of Appendix B).

Numbers of Persons Contacted by Channel (Tables 2 and 3): As noted above, a new set of questions on the GSS asked about the numbers of friends contacted through different channels of communication—rather than numbers of visits as in Table 1. As shown in the top rows of Table 2, these numbers vary from about an average of 12 people kept in contact with in person and by telephone, to more than nine people reached by letters or regular postal mail and 7+ people encountered at church or other meetings. The analyses in Table 2, then, examine whether the number of persons contacted by each of these channels change as respondents report increasing time of Internet use (top) or increasing numbers of people contacted by email (bottom)—much as in Table 1. In the latter case, the question of interest is whether respondents who estimate greater electronic mail use make contact with fewer people using personal, phone and the two other traditional channels of communication.

The patterns in Table 2 generally conform to the “more . . . more” scenario, reflected in the Newtonian model described earlier. That is, *the more* contacts via email, *the more* contacts in person, by phone, by regular mail and through meetings—more gregarious people keep in touch with more people through all channels of communication.

Unlike Table 1, almost all of the associations on Table 2 are statistically significant and usually exhibit monotonic patterns. This is most clear in the extent of electronic mail, rather than overall Internet usage. Even after MCA adjustment, the heaviest electronic mail users report numbers of persons contacted that are two to five times larger than those for nonusers of electronic mail. Moreover, people who spend the most time on the Internet reported 30–50 percent more people contacted in person and by phone than nonusers of the Internet. The differences are smaller but statistically significant compared to contacts by regular mail and by meetings.

**TABLE 2A: DIFFERENCES IN NUMBER OF PERSONAL CONTACTS PER CHANNEL
BEFORE AND AFTER MCA ADJUSTMENT: OVERALL INTERNET USE***

Internet Use Per Week (hours)		In Person MCA Adjusted		By Telephone MCA Adjusted		Letters MCA Adjusted		Meetings MCA Adjusted		Sum MCA Adjusted	
		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Total	(n=865)	12.4	12.4	12.1	12.1	9.4	9.4	7.6	7.6	41	41
1. Nonuser	(456)	11.2	12.0	10.9	11.0	8.0	8.0	6.9	7.0	37	41
2. 0.1–1.9	(90)	11.7	12.0	13.0	13.0	10.1	11.0	5.8	6.0	41	41
3. 2.0–4.9	(105)	11.4	10.0	10.5	10.0	10.0	9.0	8.1	8.0	40	37
4. 5.0–9.9	(97)	15.7	15.0	14.1	14.0	12.1	12.0	8.1	8.0	49	50
5. 10+	(111)	16.3	16.0	13.9	15.0	11.9	12.0	10.0	11.0	54	54
Difference (5–1)		+5.1	+4.0	+5.0	+4.0	+3.8	+4.0	+3.1	+4.0	+17	+13
Correlation (eta)		0.03	0.01	0.14	0.12	0.10	0.03	0.09	0.08	0.14	0.12

*Control measures include income, age, race, marital status, children, and gender.

**TABLE 2B: DIFFERENCES IN NUMBER OF PERSONAL CONTACTS PER CHANNEL
BEFORE AND AFTER MCA ADJUSTMENT: NUMBER OF PEOPLE CONTACTED BY EMAIL***

# of Email Contacts		In Person MCA Adjusted		By Telephone MCA Adjusted		Letters MCA Adjusted		Meetings MCA Adjusted		Sum MCA Adjusted	
		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Total	(n=879)	12.5	12.5	12.2	12.2	9.5	9.5	7.6	7.6	41	41
1. None	(525)	10.4	11.0	10.2	10.0	7.7	8.0	6.2	6.0	34	34
2. 1–2	(76)	9.2	9.0	8.5	8.0	6.3	6.0	5.0	5.0	29	30
3. 3–5	(81)	10.8	10.0	11.5	11.0	7.2	7.0	3.7	4.0	34	32
4. 6–10	(84)	14.4	14.0	12.8	12.0	8.7	9.0	7.4	7.0	45	42
5. 11–15	(42)	16.7	16.0	15.2	14.0	16.1	14.0	9.7	6.0	58	50
6. 16–25	(48)	24.0	24.0	24.4	25.0	23.4	23.0	16.8	16.0	88	88
7. 26–50	(21)	26.2	25.0	24.9	24.0	18.7	18.0	22.6	22.0	91	88
8. 51+	(18)	34.0	32.0	37.3	36.0	24.6	21.0	22.0	32.0	130	120
Difference (8–1)		+23.6	+21.0	+27.1	+26.0	+16.9	+13.0	+21.5	+26.0	+96	+86
Correlation (eta)		0.39	0.30	0.39	0.37	0.31	0.28	0.37	0.36	0.43	0.40

*Control measures include income, age, race, marital status, children, and gender.

Even larger differences are found in the bottom Table 2B by numbers of electronic mail contacts. Here, those who contact 25 or more people by electronic mail report contacting three times as many people in person (30+) as those with no electronic mail contacts (10). Moreover, these differences are hardly affected after MCA adjustment. Furthermore, the same pattern is found for contacts via

telephone, letters and meetings. Clearly, *the more* persons contacted by electronic mail, *the more* are contacted by the four traditional channels.

An Important Control Factor: There is an important “third variable” that needs to be taken into account in the Table 2 analyses—the extent of the respondent’s social network—as indexed by the total number of close friends and relatives that they estimated they had. That question was asked prior to asking about the channels of communication, and was used as the basis of making the channel estimates. Respondents were asked, “Of the ____ (total) of friends you keep in contact with, how many do you stay in touch with (1) in person, (2) by telephone, (3) by letter, and (4) at meetings?” Thus respondents with fewer overall contacts would have fewer people to keep in contact with by any of these five channels.

The data in Table 3 show the differences after this measure of social network extent or “gregariousness” is taken into account in the MCA analyses. The figures in the unadjusted categories in Table 3 are calculated the same way as in Table 2, but the adjusted figures now take this network size variable into account. In general, most of the differences in Table 2 are seriously affected (or virtually eliminated) by taking social network size into account. Thus, in the case of the increased in-person counts with increased electronic mail contacts, which was one of the largest differences in Table 2, the heaviest vs. nonuser of email drops from 23+ people before adjustment to only three people after MCA adjustment. This is clearly a trivial difference when examined in the context of the lack of differences across the various groups of lighter electronic mail users in the table. Much the same occurs with numbers of people contacted by letter or postal mail, where the nearly 17 person difference prior to MCA adjustment is reduced to zero difference afterward.

In the case of telephone and meeting contacts, however, evidence of the Newtonian principle remains somewhat visible after MCA adjustment. There are clear monotonic tendencies as one moves from lesser to greater electronic mail usage—again with certain exceptions (like the 14 contacts by telephone for those with 26–50 friends and relatives versus 17 for those with 16–25 total contacts).

In terms of the overall pattern summarized by adding all contacts across channels shown in the final two columns of Table 3, that conclusion of significance and monotonicity is supported in the email extent differences, particularly evident in the bottom half of Table 2.

That is not the case for overall time spent on the Internet shown in the top A half of Table 3. Each significantly higher number of contacts among those with greater Internet usage is reduced to near zero after the measure of social network extent is introduced into the MCA analyses. Thus in the fifth summary column in the A half of Table 3, the 41 contacts among nonusers of the Internet is slightly higher than the 38 and 36 contacts among lighter Internet users, and it is only slightly lower than the 43 contacts among greater Internet users.

**TABLE 3A: DIFFERENCES IN NUMBER OF CONTACTS PER CHANNEL
BEFORE AND AFTER MCA ADJUSTMENT: OVERALL INTERNET USE***

Internet Use Per Week (hours)		In Person MCA Adjusted		By Telephone MCA Adjusted		Letters MCA Adjusted		Meetings MCA Adjusted		Sum MCA Adjusted	
		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Total	(n=865)	12.4	12.4	12.1	12.1	9.4	9.4	7.6	7.6	41	41
1. Nonuser	(456)	11.2	12.0	10.9	11.0	8.0	9.0	6.9	7.0	37	41
2. 0.1–1.9	(90)	11.7	11.0	13.0	12.0	10.1	10.0	5.8	5.0	41	38
3. 2.0–4.9	(105)	11.4	10.0	10.5	9.0	10.0	9.0	8.1	8.0	40	36
4. 5.0–9.9	(97)	15.7	13.0	14.1	14.0	12.1	12.0	8.3	8.0	49	43
5. 10+	(111)	16.3	13.0	15.9	11.0	11.9	9.0	10.0	8.0	54	43
Difference (5–1)		+5.1	+1.0	+5.0	0.0	+3.9	0.0	+3.1	+1.0	+17	+2
Correlation (eta)		0.13	0.11	0.13	0.16	0.10	0.04	0.09	0.06	0.14	0.06

*Control measures include income, age, race, marital status, children, and gender.

**TABLE 3B: DIFFERENCES IN NUMBER OF CONTACTS PER CHANNEL
BEFORE AND AFTER MCA ADJUSTMENT: NUMBER OF PEOPLE CONTACTED BY EMAIL***

# of Email Contacts		In Person MCA Adjusted		By Telephone MCA Adjusted		Letters MCA Adjusted		Meetings MCA Adjusted		Sum MCA Adjusted	
		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Total	(n=879)	12.5	12.5	12.2	12.2	9.5	9.5	7.6	7.6	41	41
1. None	(578)	10.4	12.0	10.2	11.0	7.7	9.0	6.2	7.0	34	40
2. 1–2	(76)	9.2	11.0	8.5	10.0	6.3	8.0	5.0	6.0	29	36
3. 3–5	(83)	10.9	12.0	11.5	13.0	7.2	9.0	3.7	5.0	34	38
4. 6–10	(84)	14.4	13.0	12.8	12.0	9.7	8.0	7.4	6.0	45	39
5. 11–15	(42)	16.7	13.0	15.2	12.0	16.1	12.0	9.7	7.0	58	44
6. 16–25	(48)	24.0	15.0	24.4	17.0	23.4	17.0	16.8	12.0	88	62
7. 26–50	(21)	26.2	12.0	24.9	14.0	18.7	6.0	33.0	12.0	191	44
8. 51+	(18)	34.0	15.0	37.3	23.0	24.6	9.0	33.7	19.0	130	68
Difference (8–1)		+23.6	+3.0	+27.1	+12.0	+16.9	0.0	+26.7	+12.0	+96	+28
Correlation (eta)		0.31	0.07	0.35	0.17	0.29	0.13	0.33	0.18	0.40	0.15

*Control measures include income, age, race, marital status, children, and gender.

SUMMARY AND FURTHER ANALYSIS OF THE NETWORK SIZE VARIABLE

The year 2000 GSS results provide little support for the conclusion that Internet users with the greatest hourly usage and electronic mail usage lead less active or more constricted social lives than nonusers. There is no evidence of reduced social contact in relation to levels of social visiting in comparison to 1998 or to earlier GSS surveys. There is virtually no difference in the overall visiting of lesser-versus-greater-versus-non-Internet users in Table 1. Interestingly, users reported spending more evenings with *friends* than nonusers and fewer evenings with *relatives* and *neighbors*—much the same pattern as for more educated and affluent respondents in the GSS. However, these differences were neither large nor consistent, and they were not statistically significant. Third, there was no decline in Table 3 in the numbers of people contacted by traditional communication channels among respondents who contacted more and more people by email, or who used the Internet more.

As shown in the data in Table 2, there is more evidence to support the Newtonian model of increased social life among Internet users than evidence of any displacement effect—if use of one kind of communication channel increases, use of another should decrease. Even if these figures need the adjustment by network size that eliminates most of these Table 2 differences, it is still the case that heavier electronic mail users manage to add communication by this new channel without losing contact by older channels.

Indeed if one were to add the number of people contacted by electronic mail to the summary figures in the final columns of Tables 2 and 3 (bringing the total number of contacts from 41.6 to 46.7), then one would find significantly increased numbers of persons contacted by heavier Internet users, as shown below after parallel MCA adjustment for the predictors in Tables 1–3:

Total Persons Contacted by	<i>n</i>	Unadjusted	MCA Adjusted	MCA Adjusted with Network Size
Nonusers	(477)	39	41	41
0.1–1.9 hours	(85)	47	46	44
2–4.9 hours	(111)	48	43	44
5–9.9 hours	(98)	60	57	58
10+ hours	(111)	70	68	64

With the exception of the slightly lower than average figure for the 2–5 hour Internet use group, the progression is monotonic and statistically significant, showing that as Internet use increases so do the number of people contacted by all channels. This difference does not appear in Table 3—that is until one factors in the additional communication now made possible by IT. Taking these new channels into account, then, total person contact becomes enhanced by the added capability provided by electronic mail.

Of course, it is also possible that Internet users were more sociable people prior to their use of email or the Internet. That view is supported by the

simple bivariate findings in Tables 2 and 3 that Internet/email users have more overall social contacts in general than nonusers—again taking social status and other demographic factors into account. The analyses here in fact indicate that these more gregarious people are able to take on the additional task of communicating by email with friends and relatives while not reducing their contacts by phone or meetings.

Indeed, the greater number of contacts reported by the heavier users of the Internet is further demonstrated by a parallel MCA analysis of the network size variable itself. The average number of friends and relatives kept in contact with annually estimated by GSS respondents was about 20. Re-scaling those ultra-gregarious respondents estimating more than 75 such contacts so they do not skew the results, one finds another clear pattern of increased social networks among heavier Internet users:

Network Size	Unadjusted	MCA Adjusted
Nonusers	16	17
0.1–1.9 hours	22	23
2–4.9 hours	19	19
5–9.9 hours	23	23
10+ hours	27	26

In other words, heaviest Internet users report that they keep in contact annually with almost 50 percent more friends and relatives than nonusers, and about 15 percent more than those who are lighter users. As of year 2000, then, heavier Internet users counted on far more social contacts than lesser or nonusers, and it appears as though the Internet was now increasing this capacity through the use of email.

A final question that arises is whether the differences in Table 1 also should be adjusted for the network variable. Perhaps if one takes into account the broader range of friends and relations among Internet users, the frequency of their contacts will show a decline as a result.

These MCA calculations taking network size into account are shown in Table 4. Table 4 is basically the same as Table 1, but with network size added as a predictor variable. Because the network size variable was asked of less than 900 respondents in the GSS sample, the sample sizes in Table 4 are much smaller than the sample sizes in Table 1, and the base numbers of contacts are different as well.

In brief, the results presented in Table 4 are much the same as those in Table 1. Heaviest Internet users are notably below nonusers in their contacts with neighbors and relatives, but higher in contacts with friends. Those next-to-highest in Internet use, moreover, are virtually as high in contacts with neighbors and relatives, so the patterns are far from monotonic. Even with this important new control factor included in the MCA analysis, Internet usage is not consistently or significantly related to decreased “live” contact.

**TABLE 4: DIFFERENCES IN ANNUAL FREQUENCY OF SOCIAL CONTACTS
BEFORE AND AFTER MCA ADJUSTMENT***

Number of Social Evenings	Internet Use Per Week (hours)	Relatives MCA Adjusted		Neighbors MCA Adjusted		Friends MCA Adjusted		Bars MCA Adjusted		Sum MCA Adjusted	
		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
	Total (n=873)	80	80	47	47	53	53	21	21	201	201
	1. Nonuser (467)	84	84	53	53	44	47	17	21	198	205
	2. 0.1–1.9 (85)	77	75	36	41	73	74	28	25	214	215
	3. 2.0–4.9 (110)	85	83	38	35	64	50	26	21	213	189
	4. 5.0–9.9 (99)	87	84	48	50	53	50	29	25	217	209
	5. 10+ hours (112)	58	60	37	37	64	59	24	16	183	172
	Difference (5–1)	-26	-24	-16	-16	+20	+12	+7	-5	-13	-33
	Correlation (eta)	0.10	0.08	0.10	0.10	0.14	0.11	0.10	0.05	0.07	0.09

*Control measures include income, age, race, marital status, children, and gender and extent of social networks.

CONCLUSIONS

The relation of Internet use and decreased social contact has been examined from several vantage points using the rich new data from the year 2000 General Social Survey. Summarizing each analysis in turn:

1. Year 2000 rates of social contacts are slightly higher than in the 1998 GSS and previous surveys in the early 1990s.
2. Within the year 2000 GSS, the heaviest Internet users reported fewer contacts with relatives and neighbors but reported higher contacts with friends. None of these differences are statistically significant nor monotonic with respect to the degree of Internet or electronic mail use—either before or after MCA adjustment for other predictors of social contact.
3. In the year 2000 data, respondents who estimated greater use of electronic mail also reported significantly more personal contact in person, by telephone, by postal mail, and at meetings. These relations are seen net of the effects of demographic factors, but are greatly affected or eliminated when network size is taken into account.
4. Network size is significantly higher among respondents who reported the greatest Internet use, but that factor does not affect the lack of a relation discussed in point 2 above.

5. Taking electronic mail contacts into account, electronic mail and Internet users do not have more personal channel contacts than non-users. Put another way, Internet and electronic mail users maintain their contacts through previous channels at the same time as they add contacts by electronic mail.

If anything, then, Internet and electronic mail use is associated with greater social life rather than impoverished social contacts.

Of course, these remain answers from a cross-sectional survey taken early in the diffusion of Internet technology. More definitive conclusions will emerge as these GSS respondents are reinterviewed as part of a panel study. Here one may well find that respondents reduce their year 2000 contacts as they make greater (or lesser) use of the Internet. However, as of year 2000, it appeared that the Internet appears to be slightly more of a stimulant to, rather than a suppressor of, America's social life.

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APPENDIX A

TABLE 5: GSS INTERNET MODULE QUESTIONS AND APPROXIMATE SAMPLE SIZES FOR DIFFERENT BALLOTS (QUESTION NUMBERS ARE FOR BALLOTS 4 OR 5)

Ballot	1	2	3	4	5	6	Total
1. Base/core computer use (Q 5–7)	466	478		455	478	486	2,353
2. Benchmark (Q 1–4), with social network				455	467		918
3. Computer Locations (Q 8–13)				240	260		500
4. Detailed emails/chat rooms (Q 14–15)	(71)	(97)		170	158	158	654
5. Navigating Strategies (Q 16)	(72)	(98)		174	159	162	665
6. Site types visited (Q 17–19)	(73)	(99)		175	160	162	669
7. Political Uses (Q 20–25)	(40)	(53)		68	59	60	280
8. Arts uses (Q 26–33)	(73)	(99)		170	160	161	663
9. Socializing (Q 34)	(72)	(97)		170	152	161	662
10. Resources for advice (Q 35–36)	(71)	(98)		168	157	160	654
11. Web information (Q 37)	(72)	(99)		172	161	162	666
12. Earlier GSS social network questions	465	473		453	473		1,864
Total Sample Size	466	478	454	455	478	486	2,817
Core Internet Questions	466	478		455	478	486	2,353

APPENDIX B
QUESTION WORDING FOR CORE INTERNET QUESTIONS

SECTION 1: YEAR 2000 CORE INTERNET USE QUESTIONS

5. Do you personally ever use a computer at home, at work, or at some other location?

Yes(GO TO Q.5b) 1
No(GO TO Q.5a) 2

a. Do you have access to the Internet or World Wide Web in your home through Web TV?

Yes(GO TO Q.5b) 1
No (GO TO SECTION G)..... 2

b. About How many minutes or hours per week do you spend sending and answering electronic mail or email?

|__|__|__|__| Mins./wk |__|__|__| Hrs./wk

6. Other than for email, do you ever use the Internet or World Wide Web?
[INTERVIEWER: TREAT THESE AS THE SAME]

Yes(GO TO Q.7) 1
No(GO TO Q.8a) 2

7. Not counting email, about how many minutes or hours per week do you use the Web? (Include time you spend visiting regular web sites and time spent using interactive Internet services like chat rooms, Usenet groups, discussion forums, bulletin boards, and the like.)

|__|__|__|__| Mins./wk |__|__|__| Hrs./wk

SECTION 2: TRADITIONAL SOCIAL CONTACT QUESTIONS

1. Would you use this card and tell me which answer comes closest to how often you do the following things...READ EACH ITEM. CODE ONE FOR EACH.

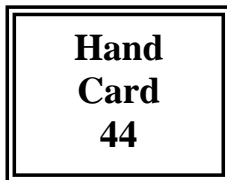


- a. Spend a social evening with relatives?
 - Almost every day 1
 - Once or twice a week 2
 - Several times a month..... 3
 - About once a month 4
 - Several times a year 5
 - About once a year..... 6
 - Never..... 7
 - DON'T KNOW 8

- b. Spend a social evening with someone who lives in your neighborhood?
- c. Spend a social evening with friends who live outside your neighborhood?
- d. Go to a bar or tavern?

SECTION 3: NEW GSS QUESTIONS ON COMMUNICATION CHANNELS

4. Not counting people at work or family at home, about how many other friends or relatives do you keep in contact with at least once a year?



a. Of these _____ friends and relatives, about how many do you stay in contact with by:

	0	1-2	3-5	6-10	11-15	16-25	26-50	>50
i. Seeing them socially, face-to-face	1	2	3	4	5	6	7	8
ii. Talking with them on the telephone	1	2	3	4	5	6	7	8
iii. Exchanging cards or letters through the U.S. postal mail	1	2	3	4	5	6	7	8
iv. Seeing them at meetings or events related to church, clubs, or other groups	1	2	3	4	5	6	7	8
v. Communicating through electronic mail	1	2	3	4	5	6	7	8

APPENDIX C

**TABLE 6: BIVARIATE DEMOGRAPHIC DIFFERENCE
IN GSS BEHAVIORAL SOCIABILITY INDICATORS**

		Relatives	Neighbors	Friends	Bar	In Person	By Telephone	Letters	Meeting	E-mail
Total	(1,864)	84	50	53	20	12	12	9	8	5
Sex										
Male	(791)	74-	51	57	28+	12	12	8	7	5
Female	(1,073)	91+	48	51	14-	12	12	11	8	5
Age										
18-24	(175)	120+	95+	123+	34+	16+	14	7	8	8+
25-34	(369)	97+	53	67+	28+	11	11	6	5	5
35-44	(448)	76	40	47	20	11	11	10	6	6
45-54	(363)	74-	34-	43-	21	13	13	10	9	3
55-64	(196)	81	42	39-	12-	13	13	10	7	3
65+	(73)	73-	54	37-	7-	13	13	14+	11+	4
Race										
White	(1,459)	79	48	51	21	14	13	11	9	6
Black	(310)	108+	64	58	16	8	8	4	5	2
Other	(95)	93	42	62	16	10	10	4	6	4
Education										
Some High	(336)	91	69+	53	17	10	10	6	5	2
High School	(530)	90	49	48	15	12	11	9	8	3
Some College	(532)	90	46	63+	22	13	12	8	8	5
College Grad	(267)	61-	41	51	26+	15+	14	15+	9	8
Grad School	(191)	54-	38	57	25	16+	17+	17+	11+	13+
Income										
\$0.0-14.9K	(330)	87	71+	47	16	11	9	6		3
\$15.0-29.9K	(368)	89	63+	67+	24	9	10	6	6	3
\$30.0-49.9K	(368)	89	43	62	21	12	13	11	7	5
\$50.0-74.9K	(288)	82	34-	46-	20	13	13	9	9	8
\$75K+	(269)	71	36-	50	23	15+	16+	14+	11+	8
Refused	(241)	84	43	46	16	15	14	14+	9	5
Marital Status										
Married	(836)	78	36-	38-	14-	14+	14+	12+	10+	6
Widowed	(191)	91	59	37-	8-	11	10	11	8	2
Divorced	(280)	74	42	53	18	12	11	6	4	5
Separated	(79)	81	44	63	21	7	7	4	4	2
Never Married	(477)	99+	76+	90+	37+	11	11	8	6	5
Work Hours										
0	(655)	88	55	48	14	12	12	7	8	3
1-19	(58)	79	63	79+	25	21+	22+	22+	12+	9
20-29	(93)	76	69+	75	20	13	9	10	7	7
30-39	(137)	90	51	18	20	11	12	7	7	5
40	(418)	78	41	56	24	11	11	9	6	6
41-49	(185)	93+	45	51	24	16	13	10	9	7
50-59	(167)	69	35	58	25	12	13	10	6	7
60+	(143)	89+	45	50	23	15	14	8	9	7

*Indicates statistically significantly greater than average.

- Indicates statistically significantly less than average.