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Telephone Counseling Increases Cessation Rates Among Young Adult Smokers

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During June 2000–May 2001, the American Cancer Society conducted a randomized trial of telephone counseling among more than 3,500 current smokers who called to seek assistance in quitting. All eligible callers were randomized to receive either self-help booklets through the mail or booklets and up to 5 sessions of telephone counseling. Approximately 12% (420/3,522) of study participants were 18–25 years of age. Using intent to treat analyses, 3- and 6-month quit rates among both younger and older smokers were significantly higher among those who received telephone counseling than among those who received self-help booklets only. Three-month rates were 20% versus 9% for 18–25 year olds and 15% versus 10% for older adults. Results indicate that younger smokers can benefit from telephone counseling.

Key words: smoking cessation, telephone counseling, young adults

Psychological services may help cigarette smokers avoid the health effects of tobacco use. Although most smokers seeking help in quitting do so after decades of smoking, the beneficial health effects of cessation are greatest for those who quit when they are young (Lovato, 1992; Schoenbach et al., 1992). This important fact has led to growing research interest in smoking prevalence and cessation among adolescents and young adults (e.g., U.S. Department of Health and Human Services, 2000; Pallonen, Murray, Schmnid, Pirie, & Luepker, 1990; Rose, Chassin, Presson, & Sherman, 1996). Studies in diverse populations have shown that readiness for quitting among young smokers is not much less than among adults (Velicer, Fava, Prochaska, Abrams, Emmons, & Pierce, 1995). Younger smokers' quit attempts may be more influenced by social factors (e.g., partner or peer disapproval), but the factors influencing cessation are generally similar among younger and older adults (e.g., Chen, White, & Pandina, 2001).

Previous research on cessation assistance for younger smokers has focused mainly on high school students (Sussman, Lichtman, Ritt, & Pallonen, 1999; Sussman, Dent, & Lichtman, 2001), but there have also been studies of the effectiveness of cessation assistance for young adult, low-income women (Glasgow, Whitlock, Eakin, & Lichtenstein, 2000) and for college students (Singleton & Pope, 2000). This research shows that behavioral counseling may increase success rates. However, sample sizes have been small and the lack of directly comparable age groups has limited the inferences that could be drawn about treatment effects among younger and older smokers. Other studies (e.g., Zhu et al., 1996, 2002) have shown that telephone counseling can increase cessation rates among adults, but comparisons of effects among younger and older age groups have not been reported. The present study examines the effects of telephone counseling on smoking cessation among smokers 18–25 years old and smokers over 25 years old.

Method

Beginning in June 2000, the American Cancer Society began offering assistance in cessation in Texas that was promoted through mass media advertising that offered quitting assistance to smokers in Houston and

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surrounding towns. The promotion was supported by the Texas Department of Health (details are available at http://www.tdh.state.tx.us/otpc/Pilot/reports.html).

Beginning in November 2000, assistance was also offered to smokers from anywhere in the United States who called the American Cancer Society's general information toll-free number to inquire about smoking cessation. Adult current daily smokers who were willing to make a quit attempt within 2 weeks were eligible for this study. If callers gave consent after receiving information about the study, they were briefly interviewed and then randomized to one of two experimental conditions. Between June 2000 and May 2001 there were 3,522 randomized cases, 1,577 of which were from Texas.[1]

All study participants were mailed three American Cancer Society booklets that provide standard advice (Fiore, Bailey, Cohen, et al., 2000) designed to help smokers identify their individual needs and learn appropriate self-help techniques for moving through stages of cessation (Prochaska, DiClemente, & Norcross, 1992). The booklets also contain guidelines for assessing addiction and selecting appropriate medications (e.g., nicotine replacement therapy and/or Zyban) to aid quitting.[2] Half of the participants were randomized to receive an offer of telephone counseling. This counseling followed the content of the self-help booklet, using motivational interviewing techniques (Miller & Rollnick, 1991) to lead the smoker through self-assessments and to provide tailored verbal instructions with prompts and praise for actions and guided practice of coping skills. Counselors also used active listening and emotional reflection to build empathy and to provide social support. Up to five sessions were available, and clients could "re-cycle" at least once if they failed to make a quit attempt or to maintain cessation. The first session occurred immediately after enrollment or proactively at the earliest convenient date. All subsequent sessions were proactive. The second session was held approximately 2 days before the selected quit date, and a third session was held on the day after the quit date. The fourth session was 5 to 7 days later, and a fifth and final session was held approximately 1 week after that. An online summary of the counseling protocol is available on the Web at http://dx.doi.org/10.1037/0278-6133.23.5.539.supp.

All participants completed a baseline telephone interview that asked about gender, age, ethnicity, education level, marital status, duration of smoking, current smoking rate, and previous quit attempts. Current smoking was defined as any smoking in the past 48 hours. An effort was made to interview all randomized cases approximately 15 weeks after enrollment in the study. Because enrollment required the participant to agree to make a quit attempt within 2 weeks, this provided a 3-month follow-up with respect to the expected quit date. Using the approach from Zhu et al. (1996), cases who reported that they were abstinent during the 48 hours preceding that interview were called again 3 months later. If they again reported abstinence during the previous 48 hours, they were counted as 6-month point prevalence cessation successes. In addition, following Zhu et al. (1996), those who were abstinent during the 2 days preceding the interview were asked about "slips" (temporary returns to smoking), and a prolonged cessation success rate was calculated by only counting those with five or fewer slips on nonconsecutive single days. Statistical analyses included *t* tests for comparing means, chi-square tests for comparing proportions, and logistic regression for studies of factors predicting study retention and quitting success. Medication use was assessed at follow-up and included medications used during the study to assist in quitting.

Results

The proportion of study participants in the 18–25-year age group (420/3,522) was 12%, similar to their proportion in the population as a whole. Women outnumbered men, but the younger group had a significantly higher proportion of men than did the older group (39% vs. 33%, $p < .01$). In the younger age group, men were much less likely to be married than men in the older age group (19% vs. 49%, $p < .001$). A similar but less striking difference was found among women, with 34% married in the younger group and 42% married in the older group ($p < .05$). There were no significant differences in the ethnicity of younger and older smokers, with 72%–73% of men and women describing themselves as White or Anglo in both groups. In addition to a significantly shorter duration of smoking, the younger smokers reported less frequent use (18 vs. 24 cigarettes per day, $p < .001$) and a trend toward fewer previous quit attempts (7.2 vs. 9.2, *ns*, $p < .15$). Detailed demographic information about the study groups is available on the Web at http://dx.doi.org/10.1037/0278-6133.23.5.539.supp.

Younger participants were more difficult to reach for follow-up interviews. Among smokers in the 18–25-year age group, only 52% were successfully followed for 3 months to ascertain cessation status. Among older smokers, 66% were followed accordingly ($p < .001$). Among those who were abstinent and eligible for follow-up at 6 months, the corresponding rates were 64% and 85% ($p < .001$, Ns = 59 and 384, respectively). There were no differences in follow-up rates for the groups receiving counseling or self-help materials only in either age group. Logistic regression analyses found that successfully followed participants were more likely to be female ($p < .01$) and better educated ($p < .01$) than those who were not retained in the study.

Using the intent-to-treat principle, cessation rates were calculated as the percentage of self-reported quitters in the entire original group of all randomized study participants, that is, regardless of whether they received treatment or responded to follow-up interviews. The prevalence of reported abstinence during the last 48 hours at the 3-month follow-up was higher among study participants who received telephone counseling than among those who received self-help booklets only, and this difference was significant among the younger smokers (19.6% vs. 9.3%, $p < .005$) and the older group (15.1% vs. 9.6%, $p < .001$). The proportions reporting abstinence during the preceding 48 hours at both the 3- and 6-month follow-up interviews were also significantly different in the treatment groups in both younger (9.8% vs. 3.2%, $p < .01$) and older (8.8% vs. 5.3%, $p < .005$) age groups. The same pattern of differences was evident in estimates of 6-month prolonged abstinence in the younger group (8.8% vs. 1.9%, $p < .005$) and in the older group (7.7% vs. 4.1%, $p < .005$).

Logistic regression analysis examining the relationships between demographic variables, smoking behavior and history, and treatment condition found that, among the younger age group, treatment condition was the only significant ($p < .01$) predictor of abstinence during the 48 hours preceding the 3-month follow-up interview. Among the older age group, logistic regression found that cessation rates were significantly higher in the treatment group ($p < .001$) and among those with more education ($p < .01$) and lower baseline smoking rates ($p < .001$).

The age groups differed significantly in their use of NRT (nicotine replacement therapy) during the quit attempt, with 7.4%

[1] This research was approved by the Committee for the Protection of Human Subjects at the University of Texas Houston, Health Science Center (Approval No. HSC-SPH-9907).

[2] Copies of the self-help booklets are available by mail from vrabius@cancer.org.

reporting use in the younger group and 17.4% reporting use in the older group ($p < .001$, Ns = 420 and 3,100, respectively). Younger participants were also less likely to use Zyban during their quit attempt (3.8% vs. 13.3%, $p < .001$, Ns = 420 and 3,100, respectively). The corresponding proportion using any recommended medication (NRT or Zyban) was 10.7% in the younger group and 27.1% in the older group ($p < .001$, Ns = 420 and 3,100, respectively). Counseling increased recommended medication use among 18–25-year olds (13.7% vs. 7.9%, $p < .05$, Ns = 204 and 216, respectively) and in the older group (29.3% vs. 24.9%, $p < .01$, Ns = 1,600 and 1,500, respectively). There was a significantly higher 6-month prolonged cessation rate among 18–25-year olds who used NRT (16.1%) than among those who did not (4.4%, Fisher's Exact Test $p = .03$, Ns = 31 and 389, respectively). NRT use was also associated with higher cessation rates in the older age group (11.5% vs. 4.8%, $p < .001$, Ns = 538 and 2,562, respectively).

Discussion

There are several limitations to this study that must be noted. Cessation was ascertained primarily by self-report. Biochemical verification was possible only in the Houston area. Nineteen saliva-cotinine verifications were requested from self-reported quitters, 15 were completed (9/12 in counseling, 6/7 in self-help). Cotinine levels among all those tested were below 10 ng/ml, indicating no tobacco exposure. Because many cases were lost to follow-up, exact cessation rates cannot be calculated. However, because more cases were lost in the younger age group, it is likely that the underestimation of quitting rates is greater in that group. It is possible that participants who were not assigned to receive counseling delayed their quit attempts beyond the 3-month follow-up interval and that their long-term quitting success is higher than the rate observed during that interval.

This study shows that telephone counseling can significantly improve cessation rates among young adults who seek assistance in quitting. Given the relatively greater benefits of quitting at younger ages, more attention should be given to this group. Encouraged by the results reported here, the American Cancer Society is exploring ways to increase younger smokers' participation in telephone counseling through colleges and universities, trade schools, and youth-oriented media campaigns.

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