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SOCIAL SUPPORT FOR SMOKING CESSATION AND ABSTINENCE: THE LUNG HEALTH STUDY

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Abstract — This article evaluates the relationship of social support to smoking cessation and continued abstinence of 3923 men and women with mild to moderate airway obstruction in the Lung Health Study. At both the end of a 12-week group program and after 1 year, men but not women who were supported in quitting were more likely to be successful. Married status facilitated quitting but was less strongly related to long-term abstinence. Participants supported by an ex-smoker who had attended the group program with them were very likely not smoking after 1 year (men, 74.7%; women, 72.4%). Participants supported by a smoker were less than half as likely to have achieved abstinence after 1 year but still had cessation rates greater than 30%. The nature of these relationships has implications for the distinction between women and men in studies of social support and for intervention strategies. Support people should be included in cessation intervention programs. Spouse involvement, however, is more evidently useful for men than for women.

Social support has been demonstrated to affect a variety of health-related behaviors. Both the initiation and maintenance of behavior change may be influenced by an individual's ability to adapt and cope, two factors facilitated through support. Information that passes between parties, the satisfaction of psychological or emotional needs, and the relationship between participants in a social network are all descriptive of support (Colletti & Brownell, 1982).

There are different types of social support ranging from artificially created systems which are time limited and not normally a part of the smoker's environment to natural systems, such as family, friends, and coworkers, which are part of the smoker's typical environment (Havassy, Hall, & Tschann, 1987; Mermelstein et al., 1986).

Support from artificially created systems, such as therapist contact or interventions designed to enhance social support, has not generally been effective in promoting abstinence (Glasgow, Klesges, & O'Neill, 1986; Lichtenstein & Brown, 1982; Lichtenstein, Glasgow, & Abrams, 1986; Malott et al., 1984; Rodrigues & Lichtenstein, 1977; Mermelstein et al., 1986; Nyborg & Nevid, 1986; Orleans et al., 1991; Powell & McCann, 1981). This lack of effectiveness may be attributed either to the irrelevance of social support to the maintenance of abstinence or to the inadequacy of social support training procedures designed to enhance the effectiveness of spouses or coworkers (Carmody, 1990).

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Natural support systems have proved more useful as a cessation tool. For example, effects of social support at a worksite smoking cessation program have been reported, in which support was unrelated to initial cessation but predicted maintenance at 6 and 12 months in an analysis in which men and women were pooled together (Curry et al., 1989). A similar effect of support was found at different points in the cessation and maintenance process by Mermelstein et al. (1986). They found that partner support and a perception of general support were positively associated with cessation and short-term maintenance, whereas the presence of smokers in social networks was negatively related to abstinence after 12 months in two samples in which men's and women's results were combined. Venters et al. (1990) found perceived social support to be positively related to readiness to quit but not related to the success of the attempt. Morgan, Ashenberg, and Fisher (1988) found that the relative impact of family and friends on short-term abstinence of men and women (combined) was that subjects not smoking after 13 weeks reported a higher frequency of friends, but not spouses and other family members, helping than did recidivists.

Married couples tend to have higher quit rates than never married, divorced and separated, or widowed adults (Waldron & Lye, 1989). The majority of evidence seems to support the expectation that spouse smoking status has important implications for abstinence. Spouse support emerged as the primary predictor of 6- to 8-week abstinence in samples of married women: Successful abstainers more often had partners who were ex-smokers or partners who successfully quit with them (Coppotelli & Orleans, 1985) or a spouse who was an ex-smoker (Graham & Gibson, 1971). The probability of continued abstinence among men greatly increases if there are fewer smokers among friends and significant others, especially wives (Schwartz & Dubitsky, 1968).

Smoking habits of spouses and other family members may influence quitting attempts and abstinence in two ways. First, smokers who try quitting have a more difficult experience when they are in the presence of other smokers. Second, current smokers in the household do not provide support for quitting that ex-smoking spouses and family members provide.

The purpose of this article is to describe the ways in which social support is related to success at quitting smoking and continued abstinence, differentiating among types of support, gender of smokers, and intervals of follow-up. Although the Lung Health Study was not primarily a study of social support, it offers an extensive set of data that includes social support variables for both men and women and biochemically verified measurements of smoking status over an extended period of time.

METHOD

The Lung Health Study is a randomized multicenter clinical trial. The primary objective of the trial is to determine whether a program encompassing intensive smoking cessation intervention and use of an inhaled bronchodilator can, over a 5-year period, reduce the rate of decline in pulmonary function and reduce respiratory morbidity in middle-aged smokers with early stage chronic obstructive pulmonary disease (COPD). The study design is described in detail by Connett et al. (1993).

Sample

Participants in the study were male and female cigarette smokers, aged 35 to 60, with evidence of early stage COPD. A total of 5887 participants at 10 clinical centers

met the eligibility criteria. This study of social support is based on the two thirds of the total sample (N = 3923) who were randomized into a biobehavioral smoking cessation intervention. The 12-month follow-up was completed in person with 92% of these participants (N = 3610), such that carbon monoxide (CO) in expired air could be measured. An additional 3% (N = 124) were interviewed by phone and are excluded from follow-up analysis.

Some baseline characteristics of this participant sample are shown in Table 1. A more detailed description is available in Buist et al., (1993).

Intervention

Participants randomized into the intervention were seen by a study physician, who gave explicit information to the participant on the primary role of smoking in the participant's lung impairment and a clear message to stop smoking. Each participant was next seen by an intervention specialist and scheduled for a 12-week group program. Participants were encouraged to bring a support person of their choice to the program. There were no uniform guidelines in the study regarding who they should bring.

Participants entered into an intensive biobehavioral self-management group program, with 12 sessions taking place over a 12-week period. The multicomponent approach combined general behavioral and social learning principles with nicotine replacement therapy (Nicorette™ 2 mg), provided without charge. Nicotine replacement was also provided to support persons attempting to quit. Following the group program, individual intervention clinic visits, not usually attended by support persons, took place every 4 months for the remainder of the trial. In addition, the study provided extended smoking intervention and maintenance programs, including restart groups, individual counseling, and the option of reentering the initial intensive group program, both to participants and support persons. A more complete description of the intervention is available (O'Hara et al., 1993).

Measures

Intervention participants were seen at the clinics for the 12-week group smoking cessation program, typically followed by phone contacts scheduled at least monthly in the first year. Smoking status and CO were measured at each 4-month follow-up

Table 1. Baseline characteristics of the Lung Health Study intervention sample

Mean age	48.5 years
Mean cigarettes/day	31.4
Mean expired carbon monoxide	26.3 ppm
Percent	
Male	62.4%
Caucasian	95.8%
Completed high school	87.6%
Single	4.7%
Married	72.0%
Divorced, separated, widowed	23.4%
With other smokers at home	39.8%
Spouse smokes	28.2%
Significant other would like them to quit	90.1%
n	3923

visit in the clinic. Smoking history of the spouse or significant other was reported only at annual visits.

Participant smoking status at 4-month intervals was assessed in two ways: self-report and CO in expired air (< 10 ppm vs. ≥ 10 ppm). Salivary cotinine was sampled, but only at baseline and at annual visits, so it was not used in this analysis. In an earlier paper, we found that self-report and CO indicators of smoking status provided substantially the same results in this sample (Murray et al., 1993). CO was chosen as the indicator for this article because it was a more objective measure than self-report.

Two types of supporting individuals are distinguished in these analyses. First, many participants brought a support person to the initial 12-week group program. This may have been their spouse but may alternatively have been another relative or friend who was ready to try quitting smoking or who was an ex-smoker and wanted to benefit from the program as well as to help the participant. Second, analyses were made of spouses and other significant individuals living in the home, without the condition that they had participated in the study program in any way. In the initial quitting data in this study (4 months after enrollment), the focus is on the support person selected by participants. At the anniversary visit, the focus is on their current spouse or significant other. This change in focus reflects a change in the way participants were asked about their social support at the two points in time.

RESULTS

Support while quitting

The clinical visit scheduled at 4 months after enrollment occurred soon after the initial 12-week cessation program ended. Table 2 shows a significant relationship between presence of a support person at the outset of the cessation program (the orientation meeting) and smoking status for male participants at 4 months (67.4% not smoking with support, 58.8% without support), but not for female participants. At 12 months, initial presence of a support person is still related to smoking status for men (53.4% vs. 42.8%), but not for women.

There was, however, a relationship between the smoking status of the support person and of the participant which was not apparent after the initial cessation program but became so at the 12-month follow-up. In Table 3, among participants with a support person, men's smoking status was unrelated to support smoking status at the 4-month initial quitting point, and women's smoking status was moder-

Table 2. CO smoking status at 4 months and 1 year by attendance of support person at orientation and gender of the participant

Orientation Meeting Presence of Support Person	4 Months		12 Months	
	% Not Smoking	*N*	% Not Smoking	*N*
Men with support at orientation	67.4[a]	766	53.4[b]	804
Men with no support at orientation	58.8[a]	1219	42.8[b]	1309
Women with support at orientation	61.3	538	44.1	581
Women with no support at orientation	60.0	680	46.0	737
Total		3203		3431

[a,b]Groups significantly different, $p < .001$, $\chi^2(1)$ test.

Table 3. CO smoking status at 4 months and 1 year by smoking status of support person at baseline or 12 months and gender of the participant

Status of Support Person at Baseline or 12 Months, Respectively	4 Months		12 Months	
	% Not Smoking	*N*	% Not Smoking	*N*
Men with smoking support at baseline or 12 mos.	60.6	698	34.3[b]	560
Men with nonsmoking support at baseline or 12 mos.	63.6	952	52.9[b]	1343
Women with smoking support at baseline or 12 mos.	56.6[a]	523	32.3[c]	372
Women with nonsmoking support at baseline or 12 mos.	62.8[a]	516	53.7[c]	650
Total		2689		2925

[a]Groups significantly different, $p < .05$, $\chi^2(1)$ test.
[b,c]Groups significantly different, $p < .001$, $\chi^2(1)$ test.

ately related to support smoking status. At the 12-month follow-up, however, there was a striking relationship between smoking status of participants and of their supports. Fifty-three percent of men with nonsmoking supports were not smoking, versus 34.3% with smoking supports. The corresponding rates for women were 53.7% and 32.3%.

Support after 12 months

In Table 4, support persons who are ex-smokers at 12 months are categorized by whether they attended none of the initial group sessions, one or two sessions, or three or more sessions. The latter group is assumed to consist substantially of those supports who had quit at the same time as their partner. Within these three categories of ex-smoking supports, there are significant differences in the percent of study participants who are not smoking at 4 months and at 1 year after enrollment. These differences are significant for men at 4 months, for men at 12 months, for women at 4 months, and for women at 12 months. Of all the ways of categorizing Lung Health Study participants with respect to their type of social support, those who reported support from an ex-smoker who had attended three or more sessions had the highest rates of successful quitting and abstinence. In Table 4 there are 75.6% of men in this category who quit at 4 months and 74.7% at 1 year. There were 82.5% of women in this category who quit at 4 months and 72.4% at 1 year. Also in Table 4, participants associated with a support person who had never smoked were about as successful at 12 months as those with an ex-smoker who did not attend the group sessions. The subset doing least well at 12 months was associated with a support who was smoking at 12 months.

Marital and domestic status of participants

To test the relationship between baseline marital status and smoking status, married participants were compared to all other categories pooled together. Both male and female married participants were more successful at quitting smoking at both points of follow-up. For men the difference was 63.5% married nonsmokers versus 53.9% other nonsmokers at 4 months ($\chi^2[1, N = 2045] = 13.21, p < .001$) and 47.5% versus 40.9% at 1 year ($\chi^2[1, N = 2204] = 6.39, p < .025$). Women show a similar pattern. Of those married, 63.8% were not smoking at 4 months, compared to 53.3% of others ($\chi^2[1, N = 1251] = 13.43, p < .001$). At 1 year, 46.9% of married and 40.5%

Table 4. CO smoking status at 4 months and 1 year by attendance of support person at LHS group meetings and their 12-Month smoking status

12-Month Status of Support Person	4 Months		12 Months	
	% Not Smoking	*N*	% Not Smoking	*N*
		Men		
Smoking	[a]		34.3	560
Ex-smoker and did not attend group sessions	61.8[b]	288	48.3[c]	319
Ex-smoker and attended 1 or 2 group sessions	74.5[b]	47	54.2[c]	48
Ex-smoker and attended 3 or more sessions	75.6[b]	176	74.7[c]	182
Never smoked	[a]		49.7	794
Total		511		1903
		Women		
Smoking	[a]		32.3	372
Ex-smoker and did not attend group sessions	65.7[c]	286	50.7[d]	306
Ex-smoker and attended 1 or 2 group sessions	78.6[c]	28	54.8[d]	31
Ex-smoker and attended 3 or more sessions	82.5[c]	103	72.4[d]	105
Never smoked	[a]		49.0	206
Total		417		1020

[a]Question not asked.
[b]Groups significantly different, $p < .01$, $\chi^2(2)$ test.
[c]Groups significantly different, $p < .005$, $\chi^2(2)$ test.
[d]Groups significantly different, $p < .001$, $\chi^2(2)$ test.

of others were not smoking ($\chi^2[1, N = 1365] = 5.44$, $p < .025$). For both male and female participants, the differences corresponding to marital status appear smaller at 1 year than at 4 months. However, data on marital status were collected only at baseline, and after a year this status had likely changed for some people.

The presence of other smokers in the household was related to cessation and abstinence. At 4-month initial cessation, the presence of other smokers was not reflected in the smoking rates of male participants but was reflected in the rates for women (54.4% not smoking with other smokers present vs. 63.6% with no other smokers in the household, $\chi^2[1, N = 1251] = 10.57$, $p < .005$). At 12 months, both male and female participants without other smokers in their household had distinctly higher rates of abstinence: for men, 50.7% versus 35.9% ($\chi^2[1, N = 2201] = 41.47$, $p < .001$); for women, 50.3% versus 34.1% ($\chi^2[1, N = 1364] = 33.41$, $p < .001$).

Multivariate analysis

To demonstrate the relative contributions of the social support variables in accounting for variance in smoking cessation and abstinence rates (recognizing that most of these variables are not independent of each other) and to consider the relative importance of confounding variables such as education, two pairs (for men and women) of logistic regression analyses were conducted, one pair with outcomes at 4 months and the other at 12 months.

The analyses on 4-month outcomes used the following independent variables: marital status (married vs. other), education (grade school vs. other, high school vs. other), age began smoking, baseline mean cigarettes per day, whether another smoker in the house was a spouse or a child, and whether the support person was present at the program orientation meeting. For men, married status, lower baseline smoking rate, a child at home who was smoking (negatively related to cessation), and support presence at orientation made significant contributions to the equation (Table 5). For women, married status, education beyond grade school, education beyond high school, lower baseline smoking rate, a spouse at home who was smoking, and a child at home who was smoking (both negatively related to cessation) contributed significantly to the equation.

The analyses predicting 1-year smoking outcomes included the aforementioned independent variables and whether another smoker in the home at 1 year following enrollment was a spouse or a child, whether the significant other at 1 year was an ex-smoker or a smoker, and whether the support person had attended one or two group sessions or three or more sessions. For men the significant predictors at 1 year were lower baseline smoking rate, baseline presence of a smoking spouse at home, baseline presence of a smoking child at home (both negatively related to abstinence), support person present at orientation, significant other smoking at 1 year (negatively related to abstinence), and support person having attended three or more group meetings. For women at 1 year, the significant contributors to the equation were married status, education beyond grade school, lower baseline smoking rate, and support person having attended three or more group meetings.

DISCUSSION

Results from this large clinical trial are in some respects consistent with earlier reports. Lung Health Study participants with ex-smoking support persons who participated in the group program had the highest 12-month abstinence rates. Married participants were more successful at cessation than other participants and somewhat more likely to be abstinent after 12 months.

Large-sample, long-term studies on smoking cessation usually have not included both genders or have not reported the genders separately. In our smoking intervention, the impact of some aspects of social support differentially affected men and women. For example, we found that attendance of a support person chosen by the participant at the outset of the smoking cessation program was related to 4- and 12-month abstinence, but for male participants only. Smoking cessation and maintenance of abstinence in female participants seemed to be unrelated to the presence of a support person in the group program. Most study participants were married, and although we do not have data on the gender of the supports chosen by participants, most were probably opposite-gender spouses. Considering support of male participants as evidence for the performance of women in a supporting role and support of women as evidence for the performance of men in a supporting role, this result appears to be an indication that women in a supporting role have a more noticeable effect. However, there may be other mechanisms in action. For example, it has been reported that spouses quitting together experience transient marital strain (Nyborg & Nevid, 1986). If women are more sensitive to negative experience (Havassy, Hall, & Tschann, 1987), having a spouse as a support may not have such a positive impact on cessation for women. Further, because our study chose not to exercise control over

Table 5. Logistic regressions predicting smoking outcomes 4 months and 12 months after the smoking cessation intervention

Variable	4 Months			12 Months		
	β	*SE*	Pseudo-R^2	β	*SE*	Pseudo-R^2
Men						
Intercept	.619	.268		.401	.257	
Marital status (married vs. other)	−.360**	.121	−.05	−.138	.123	.00
Education (grade school vs. other)	−.279	.152	−.02	−.055	.147	.00
(high school vs. other)	−.174	.105	−.02	−.045	.102	.00
Age began smoking	.025	.013	.02	.004	.012	.00
Baseline cigarettes per day	−.015***	.003	−.08	−.020***	.003	−.11
Other smokers in home at baseline						
(spouse)	−.063	.113	.00	.367*	.181	.03
(child)	−.436**	.154	−.05	−.380*	.193	−.03
Support person present at group orientation	.383***	.101	.07	.330***	.100	.06
Other smokers in home at 1 year						
(spouse)				−.256	.271	.00
(child)				−.056	.195	.00
Significant other at 1 year is						
(ex-smoker)				.082	.137	.00
(smoker)				−.591**	.236	−.04
Significant other attended group intervention						
(1 or 2 sessions)				.083	.329	.00
(3 or more sessions)				.768***	.232	.06
Women						
Intercept	1.670	.374		.507	.368	
Marital status (married vs. other)	−.605***	.142	−.10	−.313*	.156	−.03
Education (grade school vs. other)	−.541**	.196	−.06	−.518**	.198	−.05
(high school vs. other)	−.263*	.131	−.04	−.169	.176	.00
Age began smoking	−.000	.016	.00	.016	.015	.00
Baseline cigarettes per day	−.026***	.005	−.13	−.022***	.005	−.10
Other smokers in home at baseline						
(spouse)	−.375*	.154	−.05	.082	.221	.00
(child)	−.348*	.166	−.04	.067	.193	.00
Support person present at group orientation	.090	.125	.00	−.179	.125	−.01
Other smokers in home at 1 year						
(spouse)				−.416	.312	.00
(child)				−.309	.194	−.02
Significant other at 1 year is						
(ex-smoker)				.087	.173	.00
(smoker)				−.313	.245	.00
Significant other attended group intervention						
(1 or 2 sessions)				.306	.389	.00
(3 or more sessions)				1.017***	.277	.08

*$p < .05$.
**$p < .01$.
***$p < .001$.

the selection of support persons (which would have been difficult to do because natural support was intended), this differential effectiveness by gender may have been partly a function of the selection process rather than solely due to the performance of the support.

Our findings are apparently inconsistent with reports of the perceptions of partici-

pants quitting smoking. DiLorenzo et al. (1990) surveyed successful quitters and relapsed attempters about their experiences. They found that women rather than men successful quitters reported that they received greater levels of social support from friends, relatives, and partners. Coppotelli and Orleans (1985) found partners' facilitation to be a dominant factor in explaining smoking cessation maintenance among women. Hanson et al. (1990) found the perception of emotional support to be associated with long-term abstinence among men.

This inconsistency (i.e., perceived social support has been related to success at smoking cessation and abstinence in previous studies, but our evidence of observed support appears effective only for men) may help in part to explain the general lack of success of earlier studies attempting to enhance support through training. If support provided by men to women were found to be generally ineffective in this context, averaging men's and women's results would provide an attenuated picture of the outcome. Genders differ in their tobacco use in many respects (Grunberg, Winders, & Wewers, 1991), and we should not underestimate the potential importance of these differences. Further, in a review of studies linking social relationships and general health, the link was found to be stronger for men than for women (House, Landis, & Umberson, 1988).

The initial smoking status of support persons was marginally related to initial (4 month) quitting by women and unrelated to initial quitting by men but was significantly related to long-term (1 year) abstinence of both genders. This is inconsistent with the results reported by Kanzler, Jaffe, and Zeidenberg (1976), in which the smoking habit of husbands affected the cessation success of wives, the smoking of wives did not affect husbands' cessation, but long-term abstinence was not affected by partner's smoking in either case. Their long-term follow-up rate was low, however (43%).

In the Lung Health Study, participants may have defined their support person differently before the program began and at the 12-month follow-up. Upon enrollment in the program, a nonsmoking support person was expected to provide encouragement and may or may not have attended many group meetings. A smoking support person usually attempted to quit along with the participant. Smoking support people who were unsuccessful may sometimes have dropped away from the program and not acted as much of a deterrent. Many smoking supports were chosen in their role as friends or relatives who were offered an opportunity to avail themselves of a free cessation program but historically may not have had a supporting relationship with the participant. It has been reported that the role of social support in cessation is complex, and its success depends on the specific form of support and on the stage of behavior change (Carmody, 1990). Carmody suggests that support is key in the action phase. Our results are consistent with this view. Participants who had a natural support (spouse or significant other who attended three or more sessions) while attending the initial group sessions, which were during the action phase for most of them, were more successful than those who did not.

By the time of the annual follow-up, the support person had a year's history in the supporting role defined by the program. When earlier support people chosen for convenience may have drifted away, participants would have been more likely after a year to define their support as someone who was living with them.

Interventions in the literature aimed primarily at creating artificial support systems have not been successful. The Lung Health Study, on the other hand, did not try to create artificial support (apart from the temporary formation of cessation groups) but capitalized on natural support—family or friends who wanted to quit or to help the

participant quit. Individuals who had supports attending three or more sessions had higher cessation rates.

A related outcome is the relationship between other smokers in the household and smoking cessation and abstinence. Participants with other smokers in their household at the 12-month assessment were found, as expected, to have lower rates of abstinence. Women who had other smokers in their household at baseline were also somewhat more likely to be unsuccessful at cessation, but no corresponding difference was seen for men. In a multivariate analysis at 1 year, the presence of other smokers in the household at 1 year was not a significant predictor for men or women. Further, the 4-month result appears inconsistent with our finding that male participants performed better if their support person attended at the beginning of the program whereas it made no difference for women. The explanation may lie in the possibility that women were more likely to draw their initial support person from outside their home and that not only are women more effective at providing support but they are more dependent on it for successful behavior change. Unfortunately, without systematic data in this study on the attributes of support persons, this explanation will have to remain a speculation.

We have assumed in these data that supports (spouses and significant others) who are former smokers and who attended three or more group sessions with the participant quit at the same time as the participant. This implies that not only did supports undergo the stress of quitting, but they also provided support to their partner. Concurrently, our supported participants were both quitting smoking and providing support to their support person. Even individuals in the Lung Health Study who had supports that smoked had rates of cessation after 12 months in excess of 30%, better than in many treatment programs. This raises the possibility that giving support is also an asset in the process of quitting.

The combined contribution of these relationships in describing cessation and abstinence was assessed by conducting several logistic regression analyses. Social support variables made significant contributions to the equation and were not obscured by demographic variables such as education. On the other hand, in each analysis the baseline number of cigarettes smoked per day appeared to make a greater contribution to the equation than any single variable representing social support. Among the support variables included, the presence of a support person at the group orientation was most strongly related to success at both 4 months and at 1 year for men. For women, marital status was the strongest social support indicator at baseline, and the attendance of a significant other at three or more group sessions was the strongest indicator at 1 year. Variables such as the presence of other smokers in the home, although related to the outcomes, played a less important role when a number of variables were entered simultaneously.

From a clinical perspective, several observations are suggested. First, the provision of a free group program to a support person chosen by each participant seems a productive thing to do. This conclusion is based on correlational findings, however, and the support people were not chosen at random, so a possible interpretation of the benefit is that it reflects something about the characteristics of support persons who come to meetings rather than the actual participation in meetings. This apparent benefit of participation of support people is more evident for men in our data.

Although social support may not be the strongest determinant of success at quitting smoking and remaining abstinent, it is certainly one of the important ones. Previous studies have indicated that people draw support in quitting smoking from

various sources. However, it is unlikely that social support can be created for an individual if it is not naturally available.

The Lung Health Study is distinguished by its large sample size, its duration, and the fact that both male and female participants at risk for COPD are being studied. This analysis of study data suggests that individuals at risk for COPD who attempt to quit smoking have an improved chance of success if the appropriate sort of social support is available to them. Smokers and their support persons can be encouraged through firm health messages, smoking cessation programs, and the use of nicotine gum. We assume that other individuals with fewer resources of natural support may require more intensive program support and still may have difficulty quitting. They may also require more quitting attempts and more persistent encouragement from their primary care providers.

NOTE

The principal investigators and senior intervention staff of the clinical and coordinating centers, the NHLBI, and members of the Lung Health Study Safety and Data Monitoring Board are as follows:

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