

Brief Report

Women helping chewers: Effects of partner support on 12-month tobacco abstinence in a smokeless tobacco cessation trial

Brian G. Danaher, Edward Lichtenstein, Judy A. Andrews, Herbert H. Severson, Laura Akers, & Maureen Barckley

Abstract

Introduction: Social support has been relatively unstudied in smokeless tobacco cessation research; partner support could encourage quitting, buffer the stress of quitting and withdrawal, and counteract tobacco cues.

Methods: Using 12-month follow-up data, we examined the impact of social support provided by female partners ($n=328$) of male participants in a smokeless tobacco cessation program.

Results: The ratio of positive support to negative support that participants reported receiving from their partners was significantly related to point prevalence 12-month tobacco abstinence (odds ratio [OR] = 1.43, 95% CI = 1.11–1.84, $p < .01$)—a finding consistent with the 6-month follow-up—and it was related to repeated point prevalence tobacco abstinence at both 6 and 12 months (OR = 1.43, 95% CI = 1.09–1.88, $p < .05$).

Discussion: These 12-month follow-up results provide additional evidence that partner support can help encourage long-term tobacco abstinence among participants in smokeless tobacco cessation programs.

Introduction

Social support has long been thought to encourage tobacco cessation (Cohen & Lichtenstein, 1990; Fiore et al., 2000; Lichtenstein, Glasgow, & Abrams, 1986; Park, Schultz, Tudiver, Campbell, & Becker, 2004), but it has been relatively unstudied in cessation research on smokeless tobacco (moist snuff and chewing tobacco). Support from a partner might encourage quitting, help to buffer the stress of quitting and withdrawal, and counteract the cues to use tobacco in the environment (Cohen & Lichtenstein, 1990).

As part of a randomized controlled trial of cessation among 1,069 smokeless tobacco users (Severson, Andrews, Lichtenstein, Danaher, & Akers, 2007; Severson et al., 2000), we collected data on the role of social support provided by female partners of study participants. Specifically, at the 6-week follow-up, we asked about behaviors we thought would encourage tobacco abstinence (positive support) and those behaviors we thought would discourage success in the cessation intervention (negative support). Each participant described the extent to which he received positive and negative support from his partner, and each partner reported on the extent of positive and negative support she delivered. To control for differences between couples in terms of amount of support, we examined the ratio of positive to negative support, both delivered and received.

In our previous publication (Lichtenstein, Andrews, Barckley, Akers, & Severson, 2002), we reported that partner support played a major role through all stages of cessation and was related to tobacco abstinence at the 6-month follow-up. This paper extends our earlier analyses to determine whether partner support measured at the 6-week follow-up is still related to tobacco abstinence at the 12-month follow-up.

Methods

A multifaceted media campaign recruited 1,069 eligible smokeless tobacco users from five northwestern states who were randomized to either a manual-only condition ($n=534$) or an assisted self-help condition ($n=535$; manual plus targeted video and two telephone calls from a trained smokeless tobacco cessation counselor). At baseline, each participant who indicated that his wife or girlfriend (partner) wanted him to quit was asked whether researchers could contact his partner to invite her to participate in a companion study. A total of 664 partners returned a baseline survey, and 455 subsequently completed a 6-week assessment after the chewers received intervention materials. All

Brian G. Danaher, Ph.D., Oregon Research Institute, Eugene, OR
Edward Lichtenstein, Ph.D., Oregon Research Institute, Eugene, OR
Judy A. Andrews, Ph.D., Oregon Research Institute, Eugene, OR
Herbert H. Severson, Ph.D., Oregon Research Institute, Eugene, OR
Laura Akers, M.S., Oregon Research Institute, Eugene, OR

Maureen Barckley, M.S., Oregon Research Institute, Eugene, OR

Corresponding Author:

Brian G. Danaher, Ph.D., Oregon Research Institute, 1715 Franklin Boulevard, Eugene, OR 97403, USA. Telephone: 541-484-2123. Fax: 541-484-1108. Email: briand@ori.org

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participants were sent a 60-page self-help manual (Severson, 1999) that contained a section that advised female partners to be supportive by being positive and noncritical. The sample of participant-partner pairs dropped to 363 due to attrition at 6 months and was reduced further to 328 at 12 months. Participants and their female partners were never seen in person by research staff; they received and returned questionnaire assessments in the mail or by phone. Detailed descriptions of our methodology are presented elsewhere (Akers, Severson, Andrews, & Lichtenstein, 2007; Lichtenstein et al., 2002; Severson et al., 2000, 2007).

Baseline characteristics of participants and their partners

The 328 male participants in this secondary analysis had a mean age of 41.6 years ($SD=11.5$), 94.8% had at least a high school education (34.4% completed college), and they used an average of 3.7 tins or pouches of smokeless tobacco per week ($SD=2.27$). Their partners had similar age ($M=41.1$ years, $SD=10.1$) and education (40.2% completed college), and on average, they had been together for more than 15.6 years ($SD=11.5$). No partners used smokeless tobacco, although 12.5% were smokers.

Measures

Outcome measures. Tobacco abstinence was measured using 7-day point prevalence self-report measures at 6 and 12 months as well as by repeated point prevalence (considering abstinence at both 6 and 12 months).

Happiness in relationship and support for quitting. The partner baseline assessment included Item 31 from the Dyadic Adjustment Scale (DAS; Spanier, 1976) that asked, "...indicate the degree of happiness, all things considered, of your relationship," using a 7-point scale (0=extremely unhappy, 1=fairly unhappy, 2=a little unhappy, 3=happy, 4=very happy, 5=extremely happy, and 6=perfect). Goodwin (1992) reported that DAS Item 31 could be used to differentiate between adjusted and distressed couples as indicated by total DAS. Moreover, the item has been incorporated in the four-item version of the Couples Satisfaction Index, for which psychometric properties have been reported by Funk and Rogge (2007). Another baseline item asked partners, "How much do you want him to quit chewing or dipping?" (1 = not at all, 4 = somewhat, and 7 = very much).

Partner positive and negative support. At their 6-week assessment, partners reported how often they delivered support for quitting smokeless tobacco to their male companion, and study participants rated the frequency of smokeless tobacco quitting support they received from their female partner. The 6-week assessment occurred after tobacco cessation materials had been distributed to assess the effects of support during the initial stage of quitting.

Measures of support were derived from the self-report Partner Interaction Questionnaire (Cohen & Lichtenstein, 1990; Roski, Schmid, & Lando, 1996) that had been adapted for smokeless tobacco (cf. Lichtenstein et al., 2002). Two parallel versions of the scale were used, both of which used a 5-point scale (1 = never, 2 = almost never, 3 = sometimes, 4 = fairly often, and 5 = very often): (a) a version measuring delivered support that asked partners, "In the past month, how often have you done each of the following?" and (b) a version measuring received support that asked participants, "Since you began our quitting program, how often has she done each of the following?" Each of these scales was broken into two subscales: four items described a set of behaviors thought to encourage behavior change (positive support) and five items described a set of behaviors thought to be supportive when, in fact, they are unhelpful in encouraging behavior change (negative support). These subscales were found to be internally consistent (Cronbach alphas of .87 and .92, respectively). Table 1 presents the participant support received scale.

The mean of the response values was calculated for each subscale as well as the ratio of the two subscales. Higher subscale scores indicated greater levels of support (positive or negative), and more helpful support for quitting was defined as a larger ratio of positive to negative support (range of ratio = .2 [1/5] to 5.0 [5/1]).

Results

Partners reported at baseline that they were very happy in their relationship ($M=5.1$, $Mdn=5.0$, $SD=1.1$) and very much in favor of the participant quitting smokeless tobacco ($M=6.8$, $Mdn=7.0$, $SD=0.6$). We compared the 328 men in the participant-partner pairs included in the 12-month assessment to participants who dropped out during the follow-up period. The

Table 1. Participant-received support scale (support participants report the received from their partner)

Subscale	Item
Root: <i>Since you began our quitting program, how often has she...</i>	
Positive support	Complimented you on not chewing or dipping? Expressed confidence in your ability to quit or remain quit? Helped you find or buy substitutes for chew or snuff? Participated in an activity to help keep your mind off chewing or dipping?
Negative support	Commented that chewing or dipping is a dirty habit? Talked you out of taking a dip or chew? Let you know she doesn't want to get close to you when you're chewing? Mentioned being bothered by chewing or dipping? Asked you to quit chewing or dipping?

127 men who dropped out between baseline and the 6-month assessment were significantly younger (36.1 vs. 41.6 years), $t(448)=4.87, p<.001$, and less likely to have graduated from high school (95.2% vs. 98.5%), $\chi^2(1, 454)=4.03, p<.05$. The 35 men who dropped out between the 6- and 12-month assessments were significantly younger ($M=36.6$ vs. 41.6 years), $t=2.37, p<.02$.

At 12 months, 30.5% (100/328) of participants were abstinent from all tobacco, using point prevalence, and 22.3% (73/328) were abstinent at both 6 and 12 months. Results from the 12-month assessment mirrored the previously reported 6-month results (cf. Lichtenstein et al., 2002) in showing a significant relationship between the support partners reported providing and the support that participants reported receiving both in terms of positive support ($r=.5, p<.01$) and negative support ($r=.5, p<.01$).

Participant ratings of received positive support were significantly related to point prevalence measures of tobacco abstinence at the 12-month follow-up (odds ratio [OR]=1.31, 95% CI=1.03–1.65, $p<.05$) and to repeated point prevalence at 6 and 12 months (OR=1.31, 95% CI=1.01–1.71, $p<.05$; Table 2). The ratio of positive support to negative support participants reported receiving from their partners also was related to point prevalence abstinence (OR=1.57, 95% CI=1.19–2.07, $p<.01$) and to repeated point prevalence abstinence (OR=1.55, 95% CI=1.16–2.07, $p<.01$). Participants whose partners smoked reported that they received less negative support compared with participants whose partners did not smoke ($M=1.86, SD=0.83$, vs. $M=2.47, SD=1.06$; $t=4.21, df=60.30, p<.001$). Partner smoking status was related to abstinence from tobacco at the 12-month assessment such that participants whose partners reported baseline smoking were significantly more likely to be using tobacco (OR=2.33, 95% CI=1.00–5.45, $p<.05$). However, controlling for partner smoking modified the effect of support on smoking status only slightly (predicting point prevalence at 12 months from positive support, OR=1.28, $p<.05$; from the ratio of positive to negative support, OR=1.60, $p<.001$; predicting repeated point prevalence from positive support, OR=1.29, $p<.10$; from the ratio of positive to negative support, OR=1.56, $p<.01$).

We also found a relationship between partner-delivered support and participant tobacco abstinence at both 3 and 6 months (repeated point prevalence; OR=1.47, 95% CI=1.10–1.98, $p<.05$) but not to participant tobacco abstinence at either 3 or 6 months (point prevalence). The ratio of partner-delivered positive to negative support was significantly related to point prevalence abstinence from tobacco at 12 months (OR=1.43, 95% CI=1.11–1.84, $p<.01$) and repeated point prevalence abstinence at 6 and 12 months (OR=1.43, 95% CI=1.09–1.88, $p<.05$). Whether received or delivered, negative support was found to be unrelated to tobacco abstinence.

Discussion

Our analyses of 12-month data confirm our earlier finding (Lichtenstein et al., 2002) that men quitting tobacco benefited from receiving positive support from their partners. Interestingly, negative support was found to be unrelated to outcome. The replication of the beneficial effect of partner support at the 12-month follow-up attests to its robustness. A number of reports suggest that positive support and encouragement are associated with tobacco abstinence (e.g., Cohen, Lichtenstein, Mermelstein, & Kingsolver, 1988; Park et al., 2004), but it has been difficult to translate these correlation data into efficacious interventions (Lichtenstein et al., 1986; McBride et al., 2004). Issues yet to be resolved include determining the best support person (e.g., spouse, other relative, friend, or persons with no relationship; May & West, 2000; Patten et al., 2004), the extent of behavioral skills training the support person receives (Fisher, 1997; McBride et al., 2004; Thomas, Patten, Offord, & Decker, 2004), and the role of the support person in recruiting tobacco users to cessation programs (Patten et al., 2004; Smith & Meyers, 2004).

Interpretation of these findings must consider the methodological strengths and limitations of the research design noted previously (Lichtenstein et al., 2002): Partners were nominated first by their trial participants and then agreed to participate; tobacco abstinence was measured using self-report; and because received support was measured 6 weeks after intervention commenced, it might have been influenced by participants' initial quitting success. Generalization of results is tempered by the

Table 2. Relationship between positive and negative support delivered by partners and received by randomized controlled trial participants with long-term tobacco abstinence outcomes^a

	Participant: Support received from his partner			Partner: Support delivered to the participant		
	Positive	Negative	Ratio	Positive	Negative	Ratio
Mean (SD)	2.82 (1.01)	2.40 (1.06)	1.41 (.83)	3.28 (.94)	2.33 (.99)	1.67 (.90)
Outcome						
Point prevalence abstinence ^b	.12*	-.09	.18**	.11	-.08	.15**
Repeated point prevalence abstinence ^c	.11*	-.08	.17**	.14*	-.06	.14*

Note. ^aPearson product moment correlations.
^bTobacco abstinent at 12 months.
^cTobacco abstinent at both 6 and 12 months.
 * $p<.05$; ** $p<.01$.

finding that partners were well educated and extremely happy in their long-term relationships. Future research should examine the extent of change in partner support over the follow-up period. Within the constraints of these limitations, the present study replicates our earlier findings in confirming the importance of partner support for smokeless tobacco cessation. Future research should collect data on social support to further elaborate the nature of this important relationship.

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Declaration of Interests

Herbert H. Severson holds a copyright on *Enough Snuff: A Guide for Quitting Smokeless Tobacco* (Severson, 1999), the self-help manual used in the research, and he may receive royalties.

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