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Willingness to provide support for a quit attempt: A study of partners of smokers

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Abstract

Support from close others predicts smoking abstinence, yet little research has investigated what factors promote support. This study investigates predictors of support for a quit attempt. Partners of smokers ($N = 131$) reported their relationship quality, concern for partner's health, own smoking status, and intended support for a quit attempt. Smokers were less supportive than were nonsmokers. Relationship quality, concern for partners' health, and motivation to quit were positively associated, and nicotine dependence was negatively associated, with intended support. The findings suggest that support for smoking cessation depends on one's own smoking behaviors as well as characteristics of the relationship.

Keywords

dual-smoker couples; partner support; smoking cessation

Despite established best-practice treatments for smoking cessation, overall cessation rates remain relatively low (Fiore et al., 2008). One factor shown to promote cessation is support from others; smokers who receive positive support are more likely to successfully quit (Cohen and Lichtenstein, 1990; Coppotelli and Orleans, 1985; Mermelstein et al., 1983, 1986). Although consensus exists that naturally occurring support from close others facilitates quitting, little is known about what prompts close others to provide support. Past attempts at improving partner support through interventions have yielded uninspiring results (Lichtenstein et al., 1986; Orleans et al., 1991; Park et al., 2004), potentially because they did not focus on factors that would most naturally encourage individuals to provide support.

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Thus, the purpose of this study was to investigate factors associated with intended support for a quit attempt, focusing specifically on romantic relationship partners.

Romantic relationships involve substantial interdependence, meaning that beliefs and actions of each member of the relationship are strongly influenced by beliefs and actions of the other (Holmes, 2002; Kelley and Thibaut, 1978). Because of this interdependence, actions and beliefs of both partners are likely to affect the extent to which a smoker initiates and succeeds at a quit attempt. For instance, among dual-smoker couples—where both romantic partners smoke—smokers' beliefs about the effects of smoking on their health are related to their partner's beliefs about effects of smoking on their own health (Ranby et al., 2013). Furthermore, as noted, support from one's romantic partner increases the likelihood that a smoker will quit (Cohen and Lichtenstein, 1990; Coppotelli and Orleans, 1985; Mermelstein et al., 1983, 1986). Consider a woman who aims to quit smoking. She faces many challenges, including cravings for nicotine and/or smoking, the loss of smoking as a coping strategy, and financial challenges associated with paying for cessation treatment. How much her partner is willing to help her avoid cues that trigger cravings, be patient with her increased level of stress, and cheerfully support her enrollment in a treatment program may contribute to the likelihood that she will become abstinent in the early weeks of her quit attempt and maintain abstinence in the coming months and years. Yet, little is known about what factors encourage partners to provide support.

Smoking status as a factor that predicts willingness to provide support

One key factor involved in willingness to support a partner's quit attempt is whether the support provider is a smoker or nonsmoker. Compared to smokers who are not partnered with another smoker, individuals in dual-smoker couples are less likely to both try to quit and to successfully quit when they do make a quit attempt (Ferguson et al., 2005; Garvey et al., 1992; Homish and Leonard, 2005; Kendrick et al., 1995; Klesges et al., 1988; Osler and Prescott, 1998; Palmer et al., 2000; Roski et al., 1996; Ruge et al., 2008; Senore et al., 1998). These low quit rates among dual-smoker couples may be due to having a partner who offers less support during the quit attempt. Smokers may be less willing to provide support for a partner's quit attempt because they are concerned that if their partner quits smoking, it may affect the way they manage relationship stress (Shoham et al., 2007) or because they fear that if their partner makes a quit attempt, they will have to change their own smoking behaviors.

Factors that prevent smokers' willingness to provide support may be exacerbated by level of nicotine dependence (Heatherton et al., 1991), as individuals who are more dependent may have to change their behaviors more dramatically in order to support their partner's quit attempt. At the same time, some smokers may be quite supportive of their partner's quit attempt. Individuals in dual-smoker couples report greater motivation for their partner to quit smoking than for themselves to quit smoking (Ranby et al., 2013), perhaps because they hope that if their partner quits smoking first, it will be easier for them to quit smoking. This research suggests that personal motivation to quit smoking—that is, how much a smoker wants to quit smoking himself or herself—may increase willingness of that person to support a partner's quit attempt.

To date, only two studies have explicitly examined differences in supportiveness of smokers and nonsmokers. Among pregnant women, individuals partnered with another smoker retrospectively reported receiving less support during a quit attempt than women partnered with nonsmokers (McBride et al., 1998). Another study examined a small group of couples that each contained at least one health-compromised smoker and found relatively few, if any, effects of individual smoking status on provided support (Rohrbaugh et al., 2009). These studies suggest conflicting findings, with one suggesting that partners offer less support but not explicitly collecting data from partners and the other showing little evidence that smokers provide less support but using a small sample size. Furthermore, the study of health-compromised smokers included individuals who signed up for an intervention, suggesting the possibility that only individuals who felt supported by their partners (whether they were smokers or not) would enroll in the program. Thus, there is more need for research investigating partner willingness to provide support and the effect of smoking status on that willingness to provide support.

Relationship quality as a factor that predicts willingness to provide support

Another factor likely to promote willingness to provide support is relationship quality. Individuals in positive relationships are more likely to effectively support their partner's health behavior change (Knoll et al., 2012). Likewise, relationship satisfaction promotes seeing and treating one's partner as able to meet his or her goals (Drigotas et al., 1999). Relationship quality may also be related to motivation for one's partner to quit, as individuals who are happier in their relationship may be more concerned about their partner's health. One study conducted on partner supportiveness during a quit attempt reported limited evidence that relationship quality was related to provided support during a quit attempt (Rohrbaugh et al., 2009). The authors reported that some correlations approached moderate effect sizes (r of .27), suggesting that the study may have been underpowered to detect statistical significance of the effects due to a small sample size ($N=34$ couples). This study builds on this prior research by investigating further the association between relationship quality and willingness to provide support.

Forms of support for smoking cessation

The most popular measure of support for smoking cessation is the 20-item Partner Interaction Questionnaire (PIQ; Cohen and Lichtenstein, 1990) that asks individuals to report the frequency with which they engage in various behaviors. A total of 10 items are positive and are associated with increased success during a quit attempt (Cohen and Lichtenstein, 1990); 10 items assess negative support and are associated with decreased success during a quit attempt. Although the PIQ has been operationalized as support—particularly the positive influence subscale—its items tend to measure *influence* not merely support. For example, items such as “help partner think of substitutes for smoking” and “comment that smoking is a dirty habit,” imply that the support provider would like the smoker to quit smoking but may not necessarily require that the support receiver wants to make a behavioral change. Although the items on the negative subscale of the PIQ tend to represent pressure and influence more than do the items on the positive subscale of the PIQ, it can be difficult to interpret the results of the PIQ because it conflates attempts to influence

one's partner with intentions to support one's partner in healthy decisions. Other research on support (e.g. Rohrbaugh et al., 2009) has supplemented use of the PIQ with additional items such as "refuse to let partner smoke in the house." In the present research, we used a measure of general willingness to provide support for a quit attempt as well as responses to the positive and negative PIQ subscales in order to connect the current results with the extant literature. Combined, we refer to intended influence and willingness to provide support as *intended support*.

This study

The purpose of this study was to examine factors that promote willingness to provide support for a partner's quit attempt. Based on past research, we investigated the following hypotheses.

H1. Smoking partners will be less willing to provide support for a quit attempt than will nonsmoking partners.

H2. Among smoking partners, cessation relevant variables will predict willingness to provide support. Specifically, motivation to quit smoking will be positively related to willingness to provide support and nicotine dependence will be negatively related to willingness to provide support.

H3. Relationship quality will be positively associated with willingness to provide support.

Method

Participants and procedure

We recruited participants who were romantic partners of a person who smokes using the crowdsourcing web site Mechanical Turk. Respondents on Mechanical Turk provide data that are as high in psychometric quality as both community volunteer and undergraduate participant pool samples (see Buhrmester et al., 2011). So as not to reveal the purpose of the study, participants first completed a brief prescreening survey that assessed their relationship status and whether their partner was a nonsmoker, a smoker of less than 10 cigarettes per week, or a smoker of 10 or more cigarettes per week. No participant knew ahead of time that the inclusion criteria included having a smoking partner, and only participants who indicated that their partner smoked 10 or more cigarettes per week were included. We used Internet protocol (IP) addresses to ensure that no participant attempted to access the survey after an initial prescreening attempt. Of 417 people screened, 131 met eligibility of being in a romantic relationship with a partner who smokes 10 cigarettes per week. Participants were 59 percent female, 90 percent White, and their mean age was 34.38 years (standard deviation (SD) = 10.30). Mean household income was US\$45,754 ($SD=29,949$). Overall, 60.71 percent of participants reported smoking more than 10 cigarettes per week. The mean survey completion time was 10 minutes and 51 seconds.¹ Participants provided consent electronically before progressing to the full survey.

¹ Note

Measures

Relationship quality.—Participants reported their relationship commitment and satisfaction using the 12-item Investment Model Scale (1 = *strongly disagree* to 5 = *strongly agree*; Rusbult et al., 1998). Example items include “Our relationship makes me happy” and “I want our relationship to last a very long time.” Item responses were averaged to create a composite of relationship quality ($M = 4.58$, $SD = 0.61$, $\alpha = .96$).

Concern for partner’s health.—Based on past research assessing concern for partner’s health (Ranby et al., 2013), we used two items to assess the extent to which participants reported worry that their partner’s smoking was negatively affecting the partner’s health. Participants rated their partner’s chance of getting a serious smoking-related disease (1 = *no chance* to 7 = *certain to happen*) and extent to which their partner’s own smoking had affected their partner’s health (1 = *not at all* to 5 = *very much*). The two items were strongly correlated, $r = .58$, $p < .0001$. Because the items used different response scales, scores on each variable were standardized using a z score transformation and then averaged to reflect participant’s concern for partner’s health due to smoking.

Nicotine dependence.—If participants indicated smoking more than 10 cigarettes a week, we asked them to complete the Fagerström Test for Nicotine Dependence (Heatherton et al., 1991) with regard to their own smoking behaviors ($M = 4.41$, $SD = 1.77$).

Motivation to stop smoking.—Participants who were smokers reported their motivation to quit by completing the single-item Motivation to Stop Scale (Kotz et al., 2013). Scores ranged from 1 (*I don’t want to stop smoking*) to 7 (*I really want to stop smoking and intend to in the next month*) with a mean of 3.78 ($SD = 1.83$).

Intended support.—Participants completed two scales designed to assess the extent to which they would attempt to support their partner during a hypothetical quit attempt.

Intended influence.—Because past research has operationalized support using the PIQ (Cohen and Lichtenstein, 1990), we included this measure. Items on the PIQ assessed likelihood (1 = *very unlikely* to 6 = *very likely*) of engaging in 10 positive (e.g. compliment him or her on not smoking, express confidence in his or her ability to quit/remain quit) and 10 negative (e.g. criticize your partner’s smoking, comment that smoking is a dirty habit) behaviors if their partner tried to quit smoking. Consistent with past research, positive ($M = 4.95$, $SD = 1.22$, $\alpha = .96$) and negative ($M = 2.78$, $SD = 1.29$, $\alpha = .91$) influence scales were formed.

Willingness to support.—Although support has often been operationalized using the PIQ, the items on it tend to assess frequency of behaviors aimed at changing one’s partner rather than supporting one’s partner in changing herself or himself. Thus, we aimed to create

In addition to the measures listed below, participants were assigned to a condition in which they reported the day of the week, wrote briefly about a time their partner had resisted a cigarette, or wrote briefly about a time their partner had gave in to the urge to smoke a cigarette. This experimental manipulation was included for the purposes of a separate project and did not interact with any of the measures reported here. Thus, the manipulation is not discussed further.

an additional measure of support, one targeted at encouraging one's partner's desired behavior change. We asked participants to indicate from 1 (*strongly disagree*) to 5 (*strongly agree*), the extent to which they would support instituting a smoking ban in the household, be patient with the partner's mood swings during a quit attempt, be willing to help pay for resources for a quit attempt, be generally supportive, and be willing to take on extra chores to help the partner during a quit attempt. These five averaged responses measured willingness to provide support ($M = 4.24$, $SD = 0.60$, $\alpha = .76$). Participants who were smokers also indicated their willingness to refrain from smoking in their partner's presence and to join the quit attempt. These two items correlated strongly with each other ($r = .62$, $p < .001$); however, because so little research has investigated supportiveness of smokers, these two questions were treated as individual items in analyses to observe potential differences in patterns of association with possible predictors of support. Thus, across the two measures of intended support, we analyzed five different indexes of support: positive influence tactics, negative influence tactics, willingness to provide support, willingness to refrain from smoking in partner's presence, and willingness to join in a quit attempt.

Statistical analyses

Independent samples *t*-tests—using the Satterthwaite method to account for heterogeneity of variances when appropriate—compared smokers and nonsmokers. Multiple linear regression analyses examined the predictive utility of relationship quality, concern for partner's health and, among smokers, their nicotine dependence and their own motivation to stop smoking, on willingness to provide support and intended influence. We used two-tailed tests and a Type 1 error rate of .05. Acknowledging recent trends to focus discussion on effect sizes rather than tests of statistical significance (Cumming, 2014), we discuss results of effects that did not reach conventional levels of significance.

Results

Relations among measures of intended support

Consistent with this notion that the PIQ might measure a construct related to, but distinct from general support, in this study, items assessing willingness to provide support were correlated with the PIQ subscales (see Supplementary Table 1, available online) but only moderately, suggesting that they measure different aspects of a related construct (i.e. general desire for partner to change). Because past research has operationalized support through the PIQ, we report results separately for the PIQ and the measure of willingness to provide support in order to better connect the present findings to the extant literature.

Differences between smokers and nonsmokers in intended support

As Table 1 shows, compared to nonsmokers, smokers reported being less willing to support their partner's quit attempt. They were also less likely to try to influence their partner using both positive and negative influence tactics.

Predictors of intended support.—Table 2 shows the pairwise correlations between relationship variables (i.e. relationship quality, concern for partner's health) and intended support. Table 2 additionally shows the correlations, among smokers only, of their own

motivation to quit and their own nicotine dependence with their intended support. We additionally examined three models in which we predicted each dependent variable from multiple independent variables.

First, we examined whether relationship quality and concern for partner's health independently contributed to intended support, using data from the entire sample. When both relationship quality and concern were considered as predictor variables, the same strength of associations observed in the pairwise correlations remained (see Supplementary Table 2, available online). Specifically, relationship quality predicted (1) intended positive influence, (2) willingness to provide support, (3) willingness to refrain from smoking in partner's presence, and, to a lesser degree (4) willingness to join partner in a quit attempt. In contrast, concern for partner's health predicted (1) intended negative influence and, to a lesser degree, (2) willingness to provide support, and (3) willingness to refrain from smoking in partner's presence. Smoking status did not moderate the association between relationship quality and intended support, $p > .44$, nor between concern for partner and intended support, $p > .53$.

Next, we examined characteristics of smokers that might predict their intended support. Again, we entered both variables (i.e. motivation to quit smoking, nicotine dependence) in the same step in a series of linear regression models. Among smokers, motivation to quit was positively associated with four of the measures of intended support: (1) intended negative influence, (2) willingness to provide support, (3) willingness to refrain from smoking in partner's presence, and (4) willingness to join in a quit attempt (see Supplementary Table 3, available online). Participants' nicotine dependence was weakly and negatively associated with intended positive influence, willingness to refrain from smoking in partner's presence, and willingness to join the quit attempt. Effects of motivation to stop smoking and personal nicotine dependence appear to have independent influences on intended support.

Among smokers, we also considered the simultaneous effects of all four predictor variables. Many of the effects remained despite the introduction of new variables into the model (see Supplementary Table 4, available online). Some effects did change, however. In particular, effects associated with concern for partner's health diminished in size, potentially due to overlap between concern for partner's health and own motivation to stop smoking. In this full model, relationship quality predicted (1) intended positive influence, (2) willingness to provide support, (3) willingness to refrain from smoking in partner's presence, and (4) willingness to join a quit attempt. Concern for partner's health was not a predictor of any measures of intended support. Motivation to stop smoking predicted (1) intended influence and (2) willingness to join a quit attempt. Finally, participants' own nicotine dependence continued to negatively, but only weakly, predict less intended support.

Discussion

We generally obtained support for our hypotheses. Across three forms of intended support (positive influence, negative influence, and willingness to provide support), smokers were less likely to report intentions for support than were nonsmokers (H1). Among smokers, we observed fairly consistent effects associated with motivation to stop smoking such that the

more smokers wanted to quit smoking themselves, the more they reported being willing to support their partners (H2). These variables remained important predictors of intended support even when controlling for relationship quality and concern for partner's health. Among smokers, we observed consistent but weak (and statistically nonsignificant) effects associated with nicotine dependence such that greater dependence was related to somewhat lower levels of willingness to provide support (H2). Although the statistical significance of these predictors diminished after controlling for motivation to stop smoking, relationship quality, and concern for partner's health, the size of the effects remained similar.

Relationship quality predicted four forms of intended support, including positive influence, willingness to provide support, willingness to refrain from smoking in partner's presence, and, to a lesser extent, willingness to join partner in a quit attempt (H3). Concern for partner's health was associated, although to a lesser degree than relationship quality, with increased intentions to engage in negative influence, willingness to provide support, and willingness to refrain from smoking in partner's presence (H3). The effects associated with relationship quality persisted even after including concern for partner's health in the model. Among smokers, controlling for motivation to stop smoking and own nicotine dependence did not change the predictive utility of relationship quality on intended support. However, among smokers, the effects of concern for partner's health on intended support generally disappeared after controlling for motivation to stop smoking and nicotine dependence.

Thus, across all models, support was strongest for considering relationship quality and own motivation to stop smoking as predictors of intended support. Participants who reported greater satisfaction with and commitment to their relationships were more willing to provide all four kinds of positive support; there was no association between relationship quality and intended negative support. Among smokers, individuals who were themselves motivated to quit were more likely to report intended negative influence and were more likely to join in a quit attempt if their partner made one.

In general, the measured intended support was positive—that is, likely to promote smoking cessation. One subscale, the negative influence behaviors, however, measured behaviors that while intended to promote smoking cessation may actually undermine it (Cohen and Lichtenstein, 1990), such as criticizing the individual's smoking. Concern for partner's health and smoker's own motivation were associated with these potentially undermining influence behaviors. These effects suggest that although people may have good intentions of changing their partners' smoking behavior, they may translate those intentions into ineffective, and potentially counterproductive, influence strategies. One potential area for interventions to consider is to train individuals motivated to support their partners to engage in positive behaviors and to avoid behaviors that may actually undermine their partner's quit attempt.

Although smokers (compared to nonsmokers) were particularly unlikely to engage in negative influence behaviors, it is unclear whether this tendency is because they are generally more supportive or because the items capture behaviors that would be hypocritical for smokers to endorse. For instance, a smoker might not have license to tell his smoking partner that smoking is a dirty habit. Future research should focus on negative influence

behaviors that may be more likely to occur among dual-smoker couples (e.g. blaming their own smoking on the partner).

A study limitation is the self-report and projective nature of the data. Individuals may be poor predictors of their behaviors and actually offer more (or less) support during a quit attempt than they expected. Still, these data give insight into the general perspective of partners of smokers, avoiding the problems inherent with having individuals report on their partners' attitudes and behaviors. Additionally, measures of intended support likely capture the individuals' general supportiveness of a quit attempt, which likely influences whether a smoker decides to make a quit attempt in the first place. Thus, intentions to provide support may be important to study in conjunction with actual provided support. A second limitation is that the sample recruited, although likely representative of the American population (Buhrmester et al., 2011), is not representative of the subset of the American population who smokes. The mean income of our sample was higher than often reported in studies on smoking populations recruited through other methods (e.g. MacKillop et al., 2014). The study implications that individuals in dual-smoker relationships are less likely to receive support during a quit attempt than individuals partnered with nonsmokers suggests that it is important to extend this research into broader smoking samples and to study actual support provided during a quit attempt. A significant percentage of smokers both in our sample and in others (e.g. Falba and Sindelar, 2008; McBride et al., 1998) are in dual-smoker relationships, and these individuals are unlikely to attempt and succeed at smoking cessation (Ferguson et al., 2005; Garvey et al., 1992; Palmer et al., 2000). Understanding how individuals in such relationships support their partners' quit attempts has the potential to improve outcomes for a high-risk group of smokers.

Conclusion

This study finds evidence that intended support is more likely to emerge among individuals who feel satisfied with their relationship, who are concerned about their partner's health, and who are not smokers. Furthermore, although people generally want to support their partners in quit attempts, they may occasionally engage in support that can inadvertently undermine their partner's cessation-related efforts (i.e. negative influence tactics). Smokers were more willing to support their partners to the extent that their nicotine dependence was relatively low and their motivation to quit smoking was relatively high. The results suggest that interventions to increase support from partners should address effective strategies for help and highlight how the support might benefit the relationship. Among smokers, interventions to increase support for a partner's quit attempt might consider highlighting that the partner's quit attempt might make it easier for the support provider to quit (either concurrently or at a later time).

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1.

Smokers and nonsmokers differ on intended support for smoking partners.

	Smokers (<i>N</i> = 45) <i>M</i> (<i>SD</i>)	Nonsmokers (<i>N</i> = 85) <i>M</i> (<i>SD</i>)	Comparison	<i>d</i>
Positive influence (PIQ)	4.79 (1.29)	5.22 (1.02)	<i>t</i> (109.53) = -2.08 *	-0.37
Negative influence (PIQ)	2.34 (1.03)	3.59 (1.35)	<i>t</i> (72.02) = -5.41 ***	-1.04
Willingness to support	4.16 (0.60)	4.39 (0.57)	<i>t</i> (128) = -2.10 *	-0.39
Would refrain from smoking in partner's presence	4.24 (0.89)			
Would join partner in quit attempt	4.18 (0.94)			

SD: standard deviation; PIQ: Partner Interaction Questionnaire.

Only smokers completed the items assessing willingness to refrain from smoking in partner's presence and willingness to join in partner's quit attempt.

* $p < .05$

*** $p < .001$.

Table 2.

Correlations between predictor variables and intended support for smoking partners.

	Positive influence (PIQ)	Negative influence (NIQ)	Willingness to provide support	Would refrain from smoking ^a	Would join quit attempt ^a
Relationship quality	0.22 [*]	-0.03	0.40 ^{***}	0.45 ^{***}	0.21 [†]
Concern for partner's health	0.01	0.21 [*]	0.22 [*]	0.25 [*]	0.13
Motivation to stop smoking ^a	0.04	0.34 ^{***}	0.21 [†]	0.22 [*]	0.47 ^{***}
Nicotine dependence ^a	-0.18 [†]	-0.01	-0.10	-0.19 [†]	-0.20 [†]

PIQ: Partner Interaction Questionnaire; NIQ: Negative influence.

^a Only includes participants who smoke ($N = 85$).[†] $p < .10$,^{*} $p < .05$,^{**} $p < .01$,^{***} $p < .001$.