

Emotion Regulation by Dual- and Single-Smoker Couples in a Laboratory Smoking Task

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Abstract

Observers rated positive and negative emotional expression by dual-smoker (n=19) and single-smoker couples (n=15) discussing a disagreement. Although affective expression varied by role (e.g., primary smoker were less positive than their partners), changes from baseline (non-smoking) to smoking did not depend on whether both partners smoked.

Background and Purpose

Family systems therapists have long observed that problems can have temporarily adaptive consequences for close relationships that, in effect, reinforce and perpetuate the problem. Such "symptom-system fit" (SSF) occurs when a problem provides a basis for regulating some vital relationship parameter, such as the expression of positive or negative emotion between family members. By our definition, a problem "fits" a relational system to the extent that it helps to preserve and support important relationship patterns (Rohrbaugh et al., 2001, 2002).

Some of the best evidence of SSF comes from studies of alcohol abuse, where spouses of some (but not all) alcoholics report *decreased* marital satisfaction following reductions in drinking (Dunn et al., 1987), and some (but not all) families show improved problem-solving behavior when the problem drinker was intoxicated (Jacob & Leonard, 1988). Similar SSF phenomena have been hypothesized to play a role in the maintenance of drug abuse and cigarette smoking (Doherty & Whitehead, 1986), but direct evidence for those addictions is less compelling.

In couples, SSF may be especially salient when both partners drink or smoke. For example, "drinking partnerships" are often a basis for cohesion (Falls-Stewart et al., 1999), and smokers are substantially less likely to quit and stay quit when their partner also smokes (Murray et al., 1995).

The present study attempted to examine immediate effects of smoking on emotional expression by couples in which at least one partner smoked. We hypothesized that dual-smoker couples would show a greater shift toward positive emotional expression and affective synchrony when smoking in the laboratory compared to couples where only one partner smoked. Given apparent gender differences in relapse potential and relational influences on health generally, we also expected more smoking-related emotion regulation when the primary smoker was female.

Method

Participants were 34 couples in which one partner had a heart or lung problem aggravated by smoking. In 19 of these couples the primary smoker's spouse or partner also smoked, and in 13 the primary smoker was female.

Couples discussed a health-related disagreement for 5 minutes without smoking, then continued while one or both partners smoked. Later, observers reliably rated videotapes of these sessions for interpersonal expression of positive and negative affect (facilitation and distress) by each partner during the 4 minutes immediately preceding and following initiation of smoking.

Levels of affective expression during the baseline to smoking phases were examined across 30-second intervals (8 per phase). Affective *synchrony* (emotional coordination) during each phase was indexed in two ways: by computing intra-class correlations between the two partners' emotion scores across 8 intervals (*pattern synchrony*) and by summing the squared differences between their interval scores (*level synchrony*).

Results

Changes in affect levels from baseline to smoking were transitory, with statistical differences appearing only in the first two minutes after light-up ($p = .015$ for positive emotion and $p = .082$ for

negative). Surprisingly, both distressed and facilitative affect decreased temporarily during smoking, suggesting that an immediate effect of lighting up was to dampen all emotional expression. Contrary to expectation, changes in observed mood levels had little to do with whether one or both partners smoked or with the primary smoker's sex. The participant's Role, on the other hand, did account for significant variance in mixed-model ANOVAs, with primary smokers showing more negative and less positive emotion than their partners.

Couple-level pattern synchrony increased significantly from baseline to smoking for distress ($p = .015$) but not facilitation, and double-smoker couples showed more overall distress synchrony (regardless of phase) than single-smoker couples. Only level synchrony was responsive to smoking phase in a manner consistent with a study hypothesis: A significant Sex x Phase interaction ($p = .034$) suggested that couple-level coordination of positive emotional expression increased during smoking when the primary smoker was female but decreased when the primary smoker was male.

Conclusions

The results from our laboratory smoking experiment failed to demonstrate patterns of emotion regulation consistent with our SSF hypothesis, insofar as observed changes in affect level coincident with smoking were unrelated to whether a smoker's partner also smoked. Several indicators of couple-level affective synchrony also varied with phase, but not with single- v. double-smoker status.

Nor do the results support smokers' common belief that nicotine helps one behave more positively or less negatively in social interactions, at least with one's partner. On the other hand, emotional expression rated by observers do not necessarily correspond with what smokers and their partners experience; in fact, preliminary analyses of participants' stimulated recall of their moment-to-moment mood during this same smoking experiment suggest a somewhat different pattern of results (Butler et al., 2004).

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