

ASHES, Vol. 1(8) - Weight matters: To quit or not to quit?

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Smokers who want to quit face many obstacles that make it difficult for them to stay stopped despite the aid of treatment or nicotine patches. One of these obstacles is concern about weight gain after stopping smoking. Survey the kitchens of people who are trying to quit smoking and you're likely to find stashes of lollipops, chocolates, or candy bars. This week's ASHES reports on a study by Jeffery, Hennrikus, Lando, Murray, & Liu (2000) that examined the relationships among weight concerns, smoking, and attempts to quit.

Some research (e.g., Glasgow, Strycker, Eakin, Boles, & Whitlock, 1999) found no significant relationship between smoking cessation and weight gain concerns in young women. Other studies found that weight concerns adversely impacted aspects of quitting, such as motivation (Clark et al., 2004). Borrelli and his colleagues found that that cessation was hampered by weight gain concerns but that the relationship might be limited to men (Borrelli, Spring, Niaura, Hitsman, & Papandonatos, 2001). Confounding factors, like dieting, can complicate the relationship, as well (Pinto et al., 1999). Jeffery et al.'s (2000) longitudinal study of the topic included several potentially confounding factors of the relationship between weight concerns and smoking cessation.

Jeffery and his colleagues obtained base-line, pre-intervention, interviews from 1,166 female and 940 male smokers (78% of the potential participants) recruited from 24 work-sites participating in smoking interventions and reassessed 86% of the participants after 12 months. Most (92%) participants were White and the mean sample age was 39 years. In addition to questions about their demographics and smoking behaviors, participants answered two questions about smoking-related weight concerns. The first question measured concern over weight gain after quitting smoking. The second question assessed confidence about losing the weight gained due to smoking cessation. Jeffery et al. also included questions about weight concerns not related to quitting smoking, one of which asked about current dieting. The Fagerstrom Test for Nicotine Dependence was included to measure nicotine addiction. Participants reported on their attempts to quit smoking during the one-year follow-up period.

At baseline, women were more concerned with their weight than men; 86% of women and 62% of men expressed concern about gaining weight if they quit smoking, and for 26% of women and 7% of men, that concern was extreme. More women (32%) than men (12%) were dieting. For both men and women, smoking related weight gain concerns were negatively related to quitting confidence and positively related to general weight concerns.

Those participants who reported not smoking at re-assessment were assigned to the smoking cessation group for analyses. At follow-up, 15% of both men and women had successfully quit smoking. Table 1 shows the relationship between quitting success at follow-up and baseline smoking related weight concerns for men and women separately for both the analyses using just the single target variables and the analyses correcting for other potential effects.

Target Variable	Women				Men			
	model w/ target variable only		model w/ other variables		model w/ target variable only		model w/ other variables	
	Odds Ratio	n ¹	Odds Ratio	n	Odds Ratio	n	Odds Ratio	n
Weight Concern								
Not at all (referent)	--	138	--	113	--	281	--	295
Slightly	0.63†	163	1.11	161	0.86	185	1.19	200
Moderately	0.41**	178	0.64	174	1.17	141	1.37	150
Very	0.61*	237	1.06	253	1.40	84	0.80	85
Extremely	0.55*	253	1.24	265	0.53	50	0.57	51
Weight Control Confidence								
Not at all (referent)	--	223	--	249	--	89	--	95
Somewhat	1.03	464	0.78	504	1.95*	264	2.76*	317
Very	1.00	201	0.83	213	1.76*	381	1.19	369
Dieting at Baseline								
No (referent)	--	not reported	--	not reported	--	not reported	--	not reported
Yes	1.30		1.68†		1.62†		1.39†	

Figure. Relative Probability of Quitting Smoking as a Function of Weight Concern, Weight Control Confidence, and Dieting One Year Earlier. Click image to enlarge.

*p < .05. **p < .01.

Note: See the BASIS glossary for a definition of odds ratio. In this table, the odds ratios compare each weight variable category to the referent category on the likelihood of quitting smoking. For example, when only weight concern was in the model, women who were extremely concerned about their weight were .55 times (i.e., approximately half) as likely to have quit smoking as those who were not at all concerned about their weight.

Regression analyses revealed that in women, confidence in ability to control weight after quitting did not predict successful quitting, but weight concern did. Women who expressed any weight concern were less likely to quit smoking than women without weight concerns. However, when the analyses included the

effects of demographics, nicotine addiction, treatment, and social influence, the relationship between weight concern and cessation was no longer significant and nicotine dependence emerged as the strongest predictor. For men, the reverse was true; concern about weight gain did not predict successful quitting but confidence to control weight did. Both women and men who reported dieting at baseline did not significantly differ in the rate of successful quitting from non-dieting women and men.

The study had some limitations. The surveys were part of a work site treatment program, making it difficult to generalize the results to smokers without treatment opportunities. In addition, the participants were predominately White, limiting the study's ability to test the role of racial and ethnic differences in the weight concern - smoking cessation relationship.

Strengths of Jeffery et al.'s study are their inclusion of possible confounding factors in the analyses and the separate analyses by gender. These considerations add clarity to our understanding of the moderators and mediators of the weight concern-smoking cessation relationship. For women, participants who were concerned about weight were also more dependent on nicotine, and it was the dependence, not the weight concern that drove the relationship with quitting success.

Thus, in this study, after controlling for other factors, weight concerns did not influence one's success in quitting smoking. This study illustrates the complicated relationship between weight gain and smoking cessation. More comprehensive studies need to be conducted to see if the findings are still replicable today.

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References

Borrelli, B., Spring, B., Niaura, R., Hitsman, B., & Papandonatos, G. (2001). Influences of gender and weight gain on short-term relapse to smoking in a cessation trial. *J Consult Clin Psychol*, 69(3), 511-515.

Clark, M. M., Decker, P. A., Offord, K. P., Patten, C. A., Vickers, K. S., Croghan, I. T., et al. (2004). Weight concerns among male smokers. *Addict Behav*, 29(8), 1637-1641.

Glasgow, R. E., Strycker, L. A., Eakin, E. G., Boles, S. M., & Whitlock, E. P. (1999).

Concern about weight gain associated with quitting smoking: prevalence and association with outcome in a sample of young female smokers. *J Consult Clin Psychol*, 67(6), 1009-1011.

Heatherton, T. F., Kozlowski, L. T., Frecker, R. C. & Fagerstrom, K. (1991). The Fagerstrom test for nicotine dependence: A revision of the Fagerstrom Tolerance Questionnaire. *British Journal of Addiction*, 86, 1119-1127.

Jeffery, R. W., Hennrikus, D. J., Lando, H. A., Murray, D. M., & Liu, J. W. (2000). Reconciling conflicting findings regarding postcessation weight concerns and success in smoking cessation. *Health Psychology*, 19(3), 242-246.

Pinto, B. M., Borrelli, B., King, T. K., Bock, B. C., Clark, M. M., Roberts, M., et al. (1999). Weight control smoking among sedentary women. *Addict Behav*, 24(1), 75-86.

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