



## Postcessation weight gain concern as a barrier to smoking cessation: Assessment considerations and future directions



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### HIGHLIGHTS

- Findings on the postcessation weight gain concern-cessation association are mixed.
- Varied and non-validated assessments may contribute to these conflicting findings.
- Between-study variation in variable adjustment may also produce mixed findings.
- We recommend postcessation weight gain concern assessment validation.
- Future research should test moderators of postcessation weight gain concern.

### ARTICLE INFO

#### Keywords:

Postcessation weight gain concern  
Smoking cessation  
Abstinence

### ABSTRACT

**Purpose:** Concern about postcessation weight gain may be one potential barrier to quitting smoking. In this 'mini-review' of recent literature, we summarize findings on the relationship between postcessation weight gain concern and smoking cessation, and evaluate varied use of postcessation weight gain concern assessments and potential moderators of the postcessation weight gain concern-cessation association.

**Methods:** We conducted a search using the terms "smoking" OR "smoking cessation" AND "weight concern" for articles published between January 1, 2011 and December 31, 2016. We identified 17 studies assessing postcessation weight gain concern, seven of which evaluated the postcessation weight gain concern-cessation association.

**Results:** The relationship between postcessation weight gain concern and smoking cessation was mixed. Recent studies varied in their assessments of postcessation weight gain concern, many of which were not validated and assessed correlates of this construct. Studies varied in their adjustment of demographic (e.g., sex), smoking-specific (e.g., smoking level), and weight-specific (e.g., body mass index) variables.

**Conclusions:** The use of non-validated assessments and variability in testing covariates/moderators may contribute to conflicting results regarding the postcessation weight gain concern-cessation relationship. We recommend validating an assessment of postcessation weight gain concern, maintaining vigilance in testing and reporting covariates/moderators, and investigating trajectories of this construct over time and by smoking status to inform future assessment and intervention efforts.

### 1. Introduction

The negative health consequences of cigarette smoking are well-established (U.S. Department of Health and Human Services, 2014). Despite the harmful health effects, 16.8% of the U.S. adult population smoke (Jamal et al., 2015). Moreover, only 3% of smokers quit successfully each year (Benowitz, 2010). Given the negative effects of smoking and low rates of cessation, increasing attention has been paid to identifying barriers to smoking cessation. Concern about weight gain after quitting smoking is one potential obstacle to cessation.

Postcessation weight gain concern has received attention in the smoking cessation field due to the purportedly high prevalence of concerns (as many as 50% of smokers endorse this concern; Clark et al., 2004, 2006; Guirguis et al., 2010; Pankova et al., 2016) and the weight gain often associated with quitting smoking (Tian, Venn, Otahal, & Gall, 2015). However, extant research indicates mixed findings on the relationship between postcessation weight gain concern and smoking cessation (Jeffery, Hennrikus, Lando, Murray, & Liu, 2000). The aim of the present study was to (a) provide a brief review of recent studies assessing the postcessation weight gain concern-cessation association,

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**Table 1**  
Summary of articles assessing the postcessation weight gain concern-smoking cessation association.

Article	Covariates and moderators included in models						Outcome variables		Results
	Measure reference (item content is in Table 2)	Sex	Age	Smoking level	Nicotine dependence	NRT; cessation medication	Weight; BMI	Smoking outcomes	
Baha and Le Faou (2013)	Baha and Le Faou (2013)	X				X		7-day PP at 1 month	Higher concern associated with higher percentages of 1-month abstinence <sup>b</sup>
Faseru et al. (2013)	Borrelli and Mermelstein (1998)	X	X	X		X <sup>b</sup>		7-day PP at 2 and 6 months	Null association
Landrau-Cribbs et al. (2015) <sup>c</sup>	Meyers et al. (1997) <sup>d</sup>						X	30-day PP at 3 months	Null association
Martin et al. (2016)	Asher et al. (2003)			X				7-day PP at 1 and 3 months; smoking frequency <sup>d</sup>	Mixed depending on smoking outcome <sup>e</sup>
Pankova et al. (2016)	Meyers et al. (1997) <sup>d</sup>	X	X	X				Continued abstinence at 12 months; time to quit date	Mixed depending on smoking outcome <sup>f</sup>
Schauer et al. (2013)	Not specified (assessed "level of concern about gaining weight")	X	X			X		7- and 30-day PP at 7 months	Higher concern associated with lower likelihood of abstinence
Strong et al. (2014)	Rash and Copeland (2008)	X	X	X	X			Past-year quit attempt	Higher concern associated with lower odds of making a past-year quit attempt

Note. NRT = nicotine replacement therapy; BMI = body mass index; PP = point prevalence. Bolded Xs indicate variables assessed as moderators in the postcessation weight gain concern-smoking cessation association. Non-bolded Xs indicate variables entered into models as covariates. Baha and Le Faou (2013) indicated that they "adjusted on baseline covariates" (p. 373), but did not specify which baseline covariates beyond sex and NRT use. Smoking level was assessed using cigarettes per month and daily vs. non-daily smoking status in Landrau-Cribbs et al. (2015) and as cigarettes per day in Martin et al. (2016). Emery, Levine, Cheng, and Marcus (2015) emerged in the initial literature search in the present study, but was not included in this table or in the 17 total articles identified in our search as their sample consisted of women endorsing postcessation weight gain concern, but no data on postcessation weight gain concern were reported (Emery et al., 2015). There was a significant weight concern \* NRT interaction for women, such that higher weight concerns predicted greater probability of abstinence among those who were prescribed a combination of nicotine patch and oral nicotine replacement, but not among women taking only oral forms.

<sup>a</sup> Participants were African American, light smokers randomized to receive either bupropion or health education (HE) counseling for smoking cessation or to a placebo and HE comparison condition.

<sup>b</sup> Landrau-Cribbs et al. (2015) also adjusted for general weight concerns and stage of change (i.e., motivation) in their model examining the postcessation weight gain concern-cessation relationship.

<sup>c</sup> Smoking frequency was assessed using percent of smoking days and number of cigarettes smoked per day.

<sup>d</sup> Higher weight concern importance scores significantly predicted a higher percentage of smoking days at 1-month follow-up, but did not predict 3-month percent smoking days, 1- or 3-month cigarettes smoked per day, or 1- or 3-month 7-day PP.

<sup>e</sup> Higher weight concerns significantly predicted longer delay to quit date, but did not significantly predict continuous abstinence at 12 months.

<sup>f</sup> Landrau-Cribbs et al. (2015) and Pankova et al. (2016) used Meyers et al.'s (1997) assessment of 2-lb. weight gain increments, but used an increasing trend starting at 0–2 lb. vs. using Meyers et al.'s decreasing trend starting at 18–20 lb.

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