

# An Exploratory Examination of the Mechanisms Through Which Pre-Quit Patch Use Aids Smoking Cessation

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## Background

- ❑ Nicotine patch use is traditionally started on the day a quit attempt begins.
- ❑ A number of studies have established that the effectiveness of patch use is improved by starting treatment before quitting (pre-quit patch (PQP) use) (Stead et al., 2012).
- ❑ To date, the mechanism(s) behind this effect is unknown.
- ❑ In the present study, we examined the proposal that PQP reduces satisfaction with smoking, which in turn leads to reduction and, consequently, abstinence.
- ❑ Hypotheses:
  - 1) during PQP use, satisfaction, craving and cigarettes per day (CPD) would decline.
  - 2) daily smoking rate would be predicted by daily satisfaction and that this relationship would be mediated by craving intensity.
  - 3) smoking reduction during the PQP treatment phase would predict short-term abstinence.

## Method

- ❑ Sample: 57 adult smokers motivated to quit.
- ❑ Baseline smoking satisfaction, craving, and consumption were assessed using timeline follow-back questionnaires and exhaled carbon monoxide (CO) samples.
- ❑ Participants' smoking, mood, activities, smoking satisfaction and craving were monitored for approximately 17 days prior to a target quit-date (TQD).
- ❑ Monitoring was done with a smartphone running study-specific EMA software (HBART: [www.utas.edu.au/pharmacy/research/bsrg/hbart](http://www.utas.edu.au/pharmacy/research/bsrg/hbart)).

## Results

- ❑ There was a significant fixed effect of time on satisfaction ( $p < .001$ ): satisfaction with smoking decreased by an average of 1.08 points each day during PQP treatment.
- ❑ There was no main effect of time on daily average craving ( $p = 0.92$ ); but there was a significant cross-level interaction of time and nicotine dependence ( $p = .04$ ).
- ❑ There was a significant linear reduction in CPD over the course of the PQP period ( $p < .001$ ): participants reduced their smoking by approx. one cigarette every 3<sup>rd</sup> day of PQP treatment.
- ❑ Figure 1. shows the results of the multilevel structural equation model used to assess whether craving mediated the relation between satisfaction and CPD.

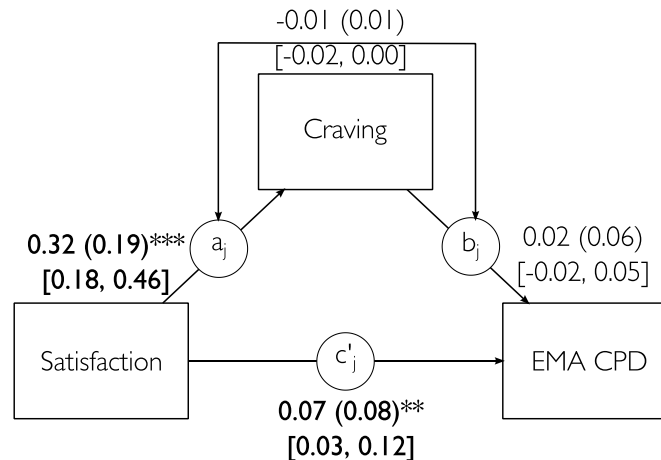


Figure 1. Satisfaction with smoking has a direct effect on smoking rate. Craving does not mediate the relationship between satisfaction and smoking rate. Standard errors of the unstandardized path coefficients are in parentheses and 95 % CIs in brackets. \*\* $p < .01$ ; \*\*\* $p < .001$

## Conclusions

- ❑ Results suggest that the reduction in daily cigarette smoking typically observed during PQP treatment is due to reductions in satisfaction with smoking.
  - This relationship was not mediated by craving.
- ❑ Smoking reduction was not significantly related to later abstinence.
  - This is inconsistent with findings from a growing body of studies (Fagerström 2005; Hughes & Carpenter 2006; Shiffman et al., 2009).
  - However, as the effect size was comparable, this result is likely due to insufficient power.

**Reduction in CPD observed during PQP treatment appears to be due to reductions in satisfaction with smoking.**

**References:**  
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 \*Hughes JR, Carpenter MJ (2006) Does smoking reduction increase future cessation and decrease disease risk? A qualitative review. *Nicotine Tob Res* 8:739–749.  
 \*Shiffman S, Ferguson SG, Strahs KR (2009) Quitting by gradual smoking reduction using nicotine gum: a randomized controlled trial. *Am J Prev Med* 36:96–104.  
 \*Stead LF, Perera R, Bullen C, Mant D, Hartmann-Boyce J, Cahill K, 656 Lancaster T (2012) Nicotine replacement therapy for smoking ces- 657 sation. *Cochrane Database Syst Rev*.

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