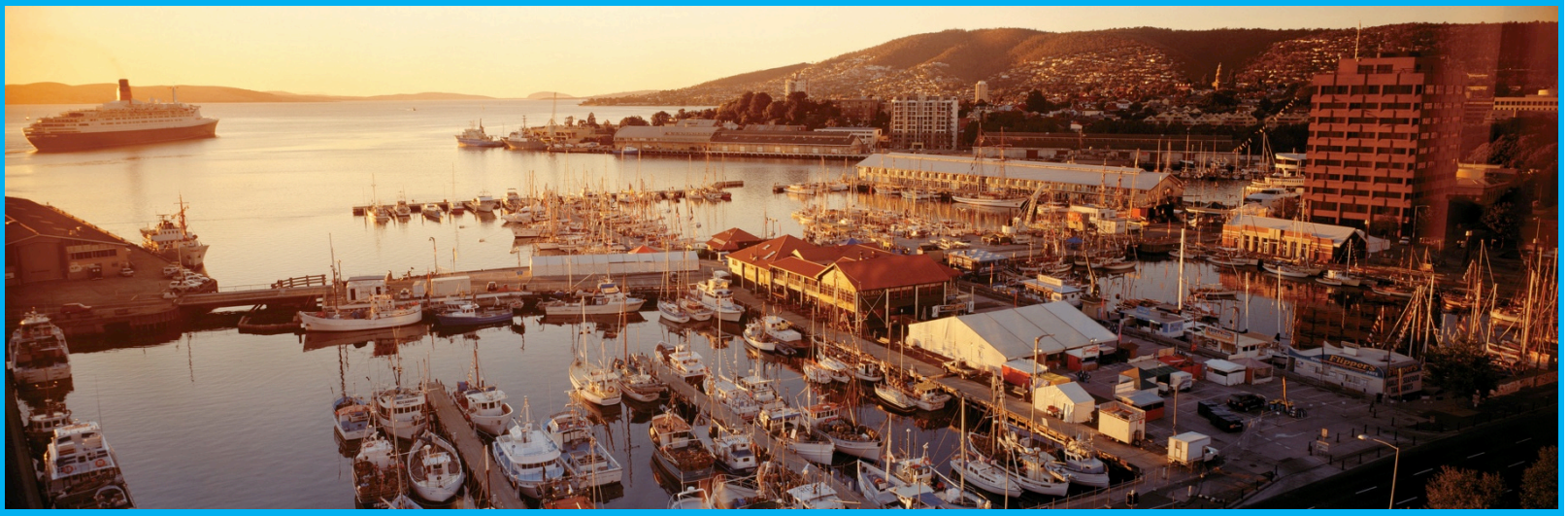
Satisfaction with smoking, and smoking reduction, during pre-quit treatment with nicotine patch or varenicline



Stuart Ferguson
University of Tasmania

BREATHE WELL

Declarations

- SGF:
  - Has worked as a consultant for GSK & Chrono Therapeutic
  - Served on an advisory board for Johnson & Johnson
  - Has received travel funding from Pfizer
  - Study funding from Rusan Pharma
- Chappell has nothing to declare.

Funding

- This work was supported by researcher-initiated project grant funding from Pfizer (through the GRAND initiative; awarded to Ferguson)
- Additional funding was provided the Royal Hobart Hospital Research Foundation (awarded to Ferguson)

Improving the odds of success

- Outcomes of existing mono-therapies is disappointing
  - >60% of supported quit attempts fail
- Advances can come from improving current methods
- Understanding how methods works may suggest improvements to use

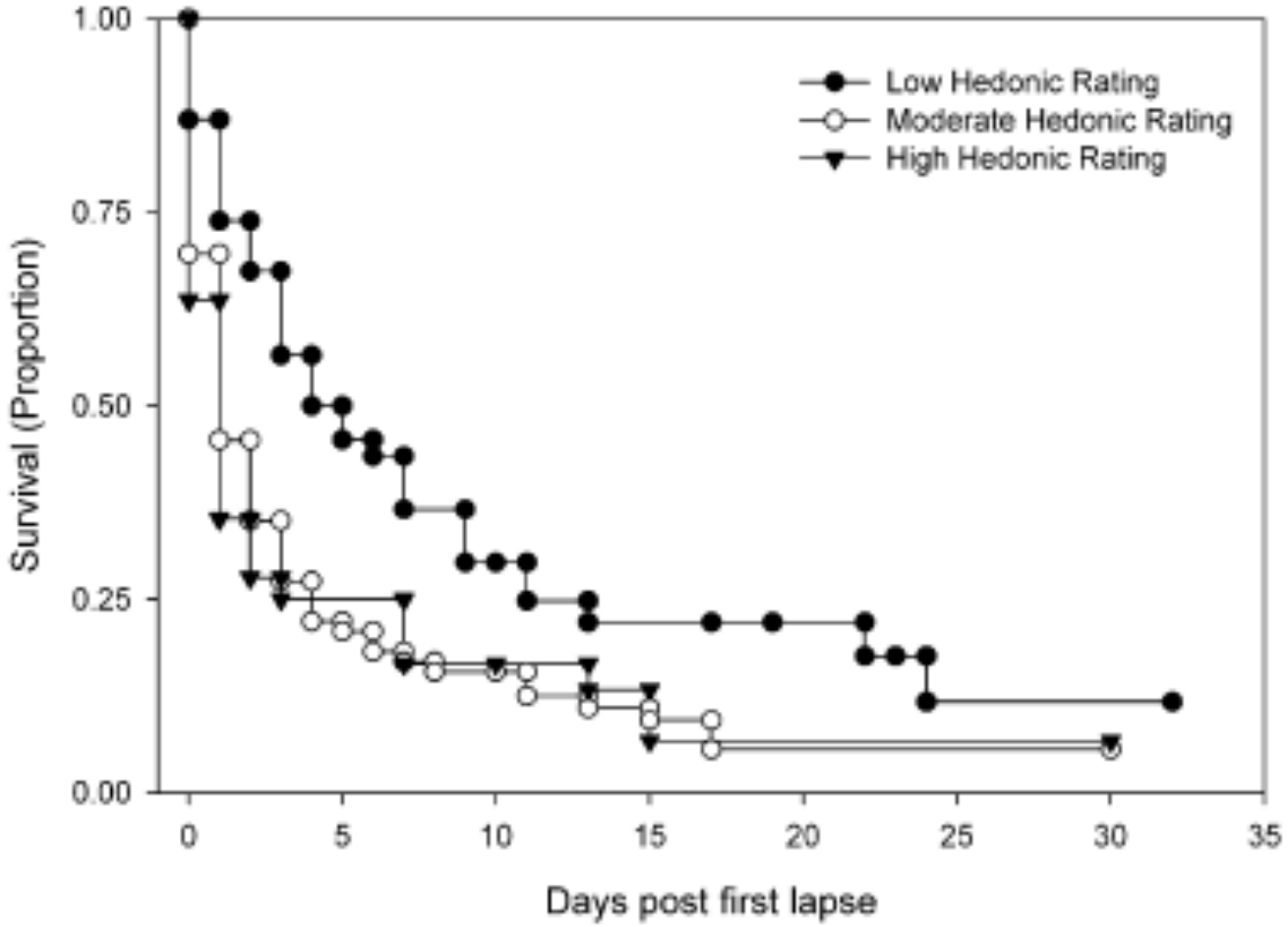
Rational for patch preloading

- Dissociate nicotine levels from smoking
  - Reduce reinforcement
  - Satisfaction ➔Reduced Smoking ➔Cessation

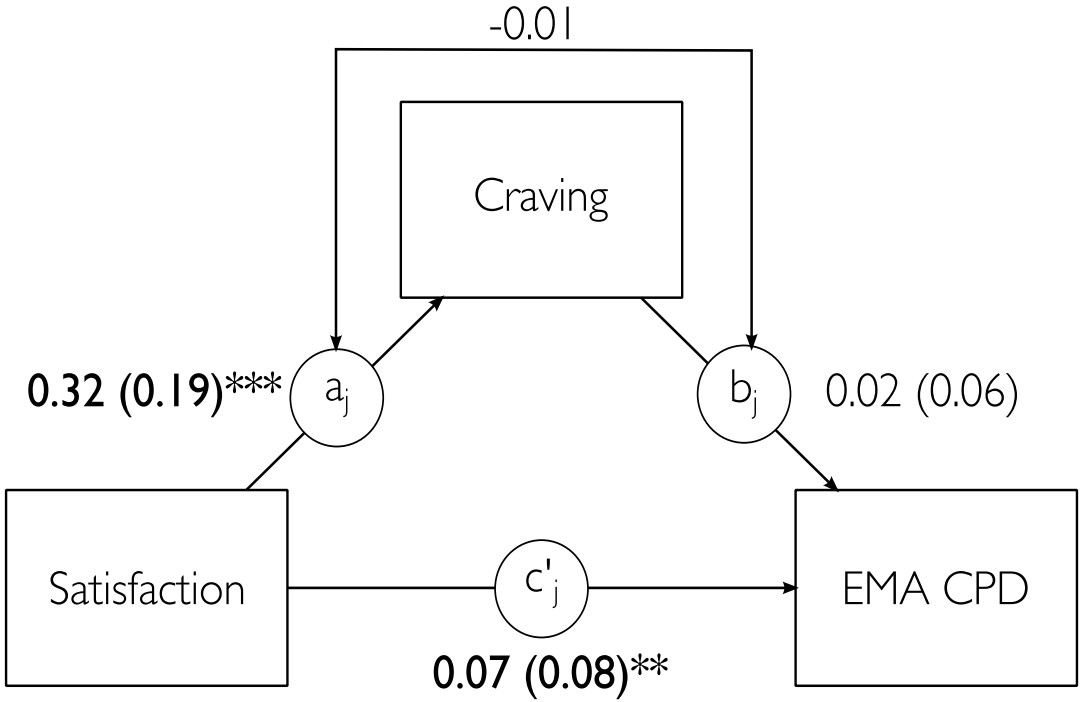
Rational for patch preloading

- Dissociate nicotine levels from smoking
  - Reduce reinforcement
  - **Satisfaction → Reduced Smoking** → Cessation

Satisfaction with a lapse predicts relapse

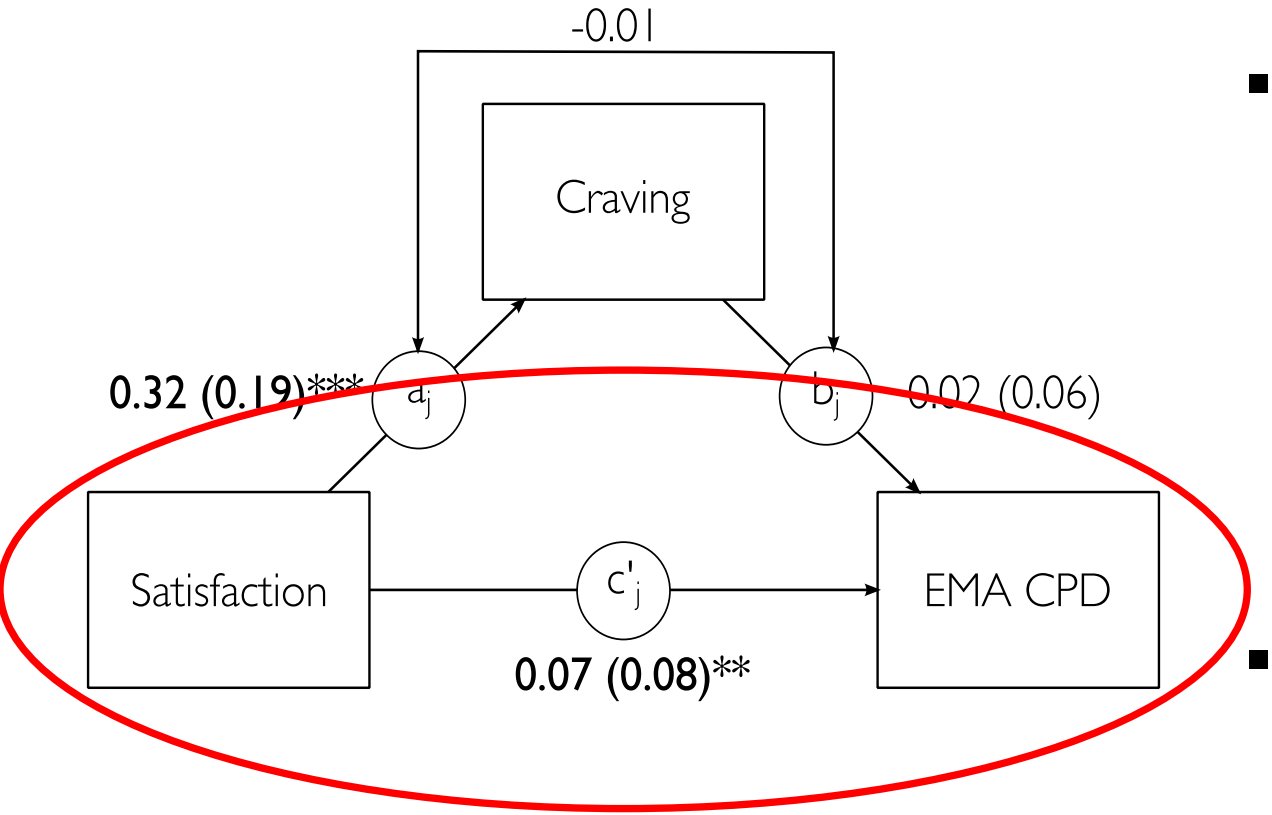


Satisfaction with smoking predicts daily smoking rate: Single-group pilot study



Schüz & Ferguson 2014

Satisfaction with smoking predicts daily smoking rate: Single-group pilot study



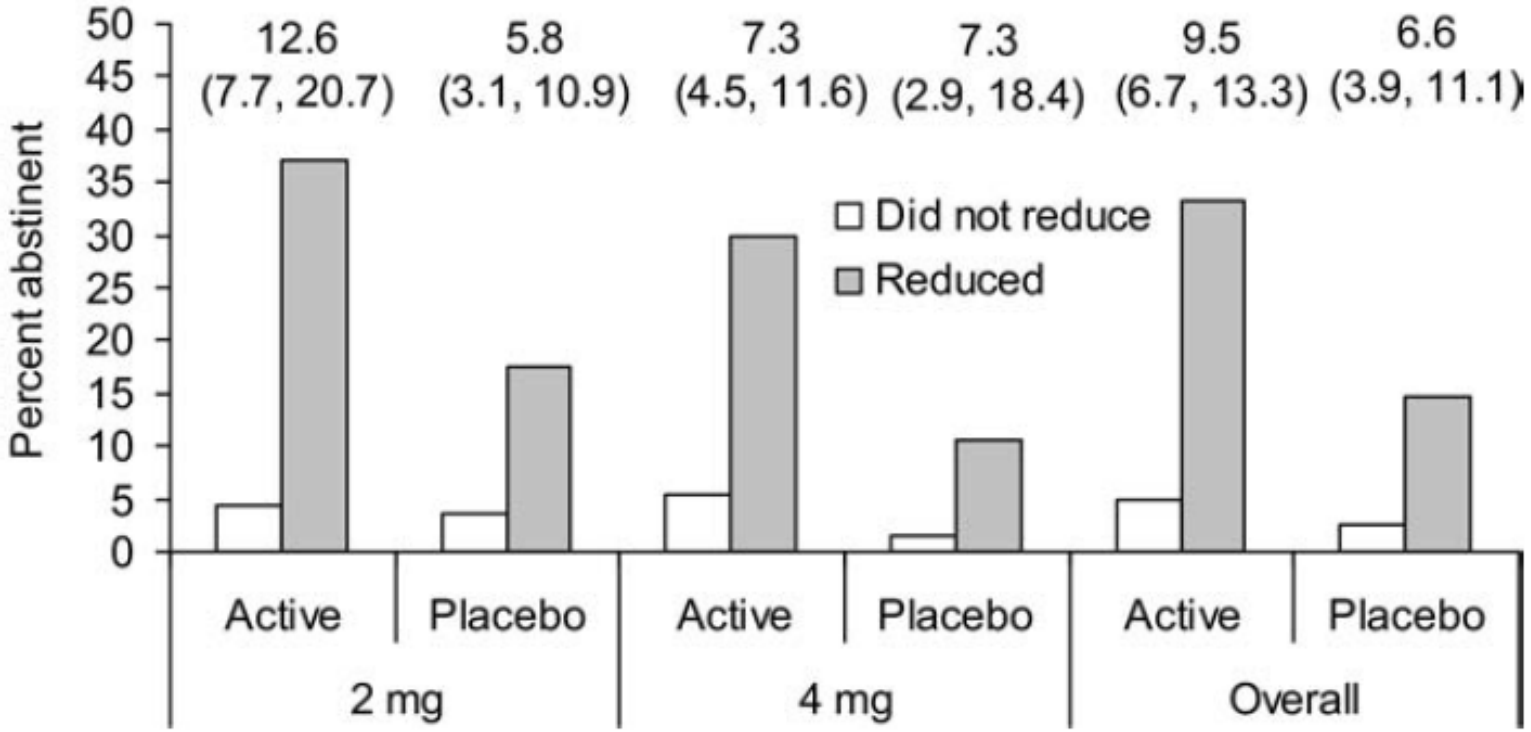
- During pre-quit patch treatment, satisfaction with smoking predicts daily smoking rate
- Due to treatment?

Schüz & Ferguson 2014

Rational for patch preloading

- Dissociate nicotine levels from smoking
  - Reduce reinforcement
  - Satisfaction → **Reduced Smoking → Cessation**

Reduction promotes abstinence



28 day abstinence; Shiffman, Ferguson & Strahs (2009)

Rational for patch preloading

- Dissociate nicotine levels from smoking
  - Reduce reinforcement
  - Satisfaction → Reduced Smoking → Cessation
- Similar mechanism proposed for varenicline
- Potentially explains lack of effect for gum preloading
- Opportunity of tailoring?
- Target of new treatments?

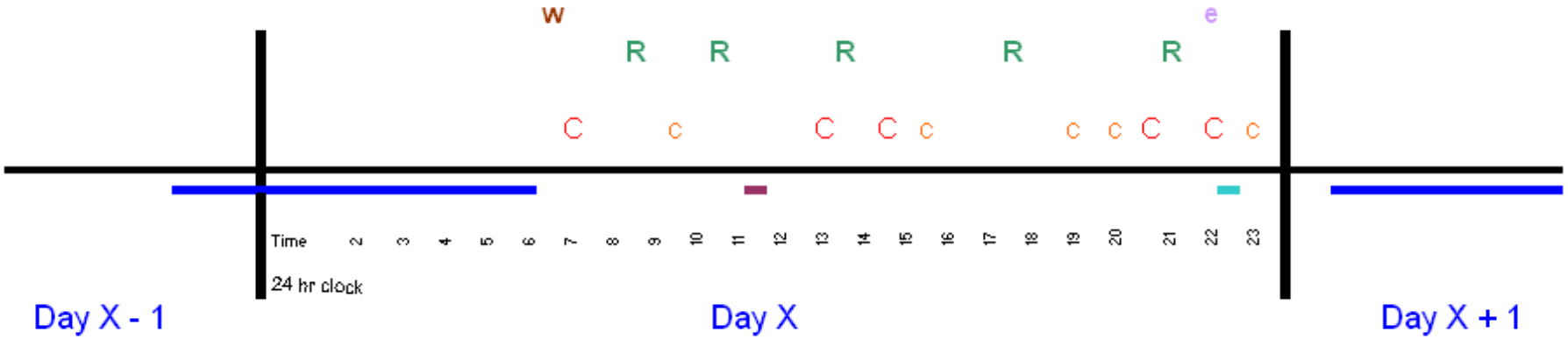
Current study

- Test effect of pre-quit treatment on satisfaction with smoking and daily smoking
  - Larger sample
  - Control condition (no pre-quit treatment)
  - Varenicline
- H: Effect of pre-quit treatment on reduction will be mediated via satisfaction with smoking
  - Opportunity for tailoring treatment

PQT Study

- Three group, open-label RTC
  - Pre-quit Patch (PQP; n=72)
  - Varenicline (VAR; n=72)
  - Standard Patch (SP; n=69)
- Intensive, real-time monitoring (EMA)
  - 2wks before & 2wks after TQD
  - CPD, satisfaction, withdrawal & craving

EMA Monitoring Protocol



Protocol continues at all hours, adapts to subjects' day

LEGEND

R Randomly scheduled assessment

C Cigarette with assessment

c Cigarette with no assessment

w Wake-up assessment

e Evening assessment

Intervals free from random 'beeps'

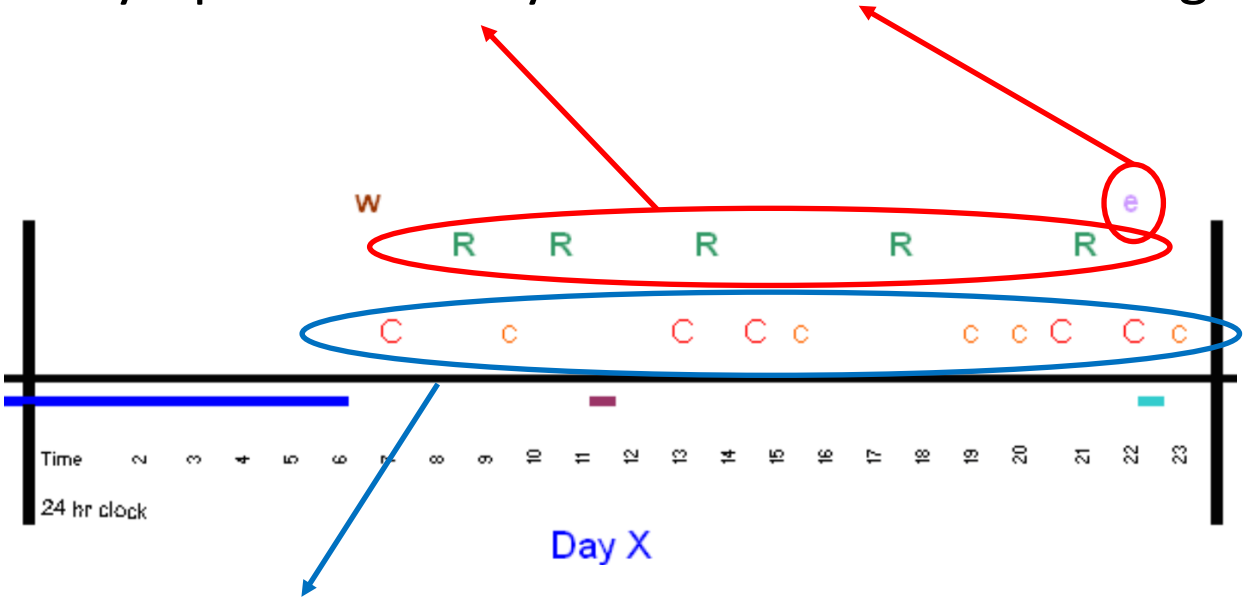
Suspended prompting

Nap

Sleep

EMA Monitoring Protocol

- Symptom severity & satisfaction w smoking



- Daily cigarette counts (w TLFB)

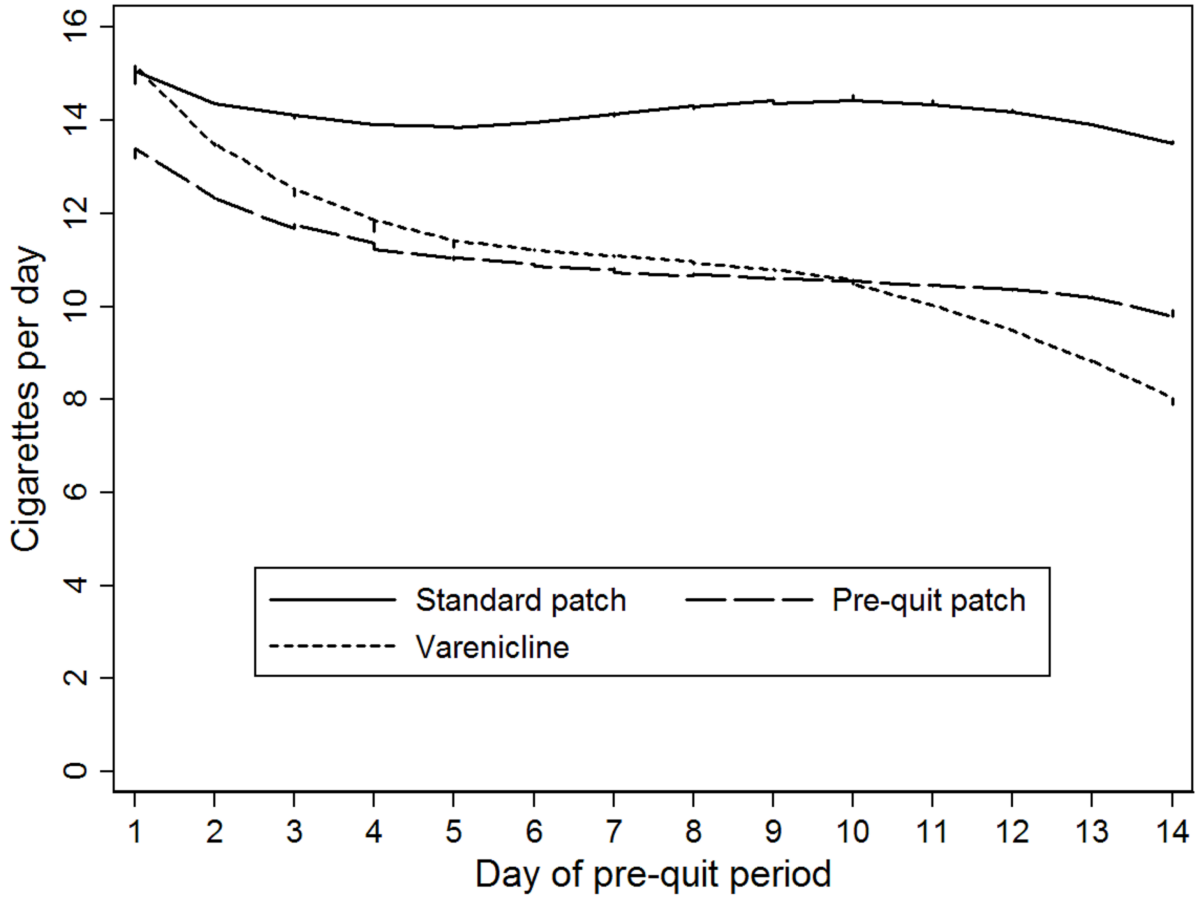
PQT Study

- 5 lab visits: TLFB, NNAL, CO, COT
- **Focus: Pre-quit treatment period**
- Full Protocol:
  - BMC Public Health, 2015. doi: 10.1186/s12889-015-2596-2
  - ACTRN12614000329662

PQT Study: Sample

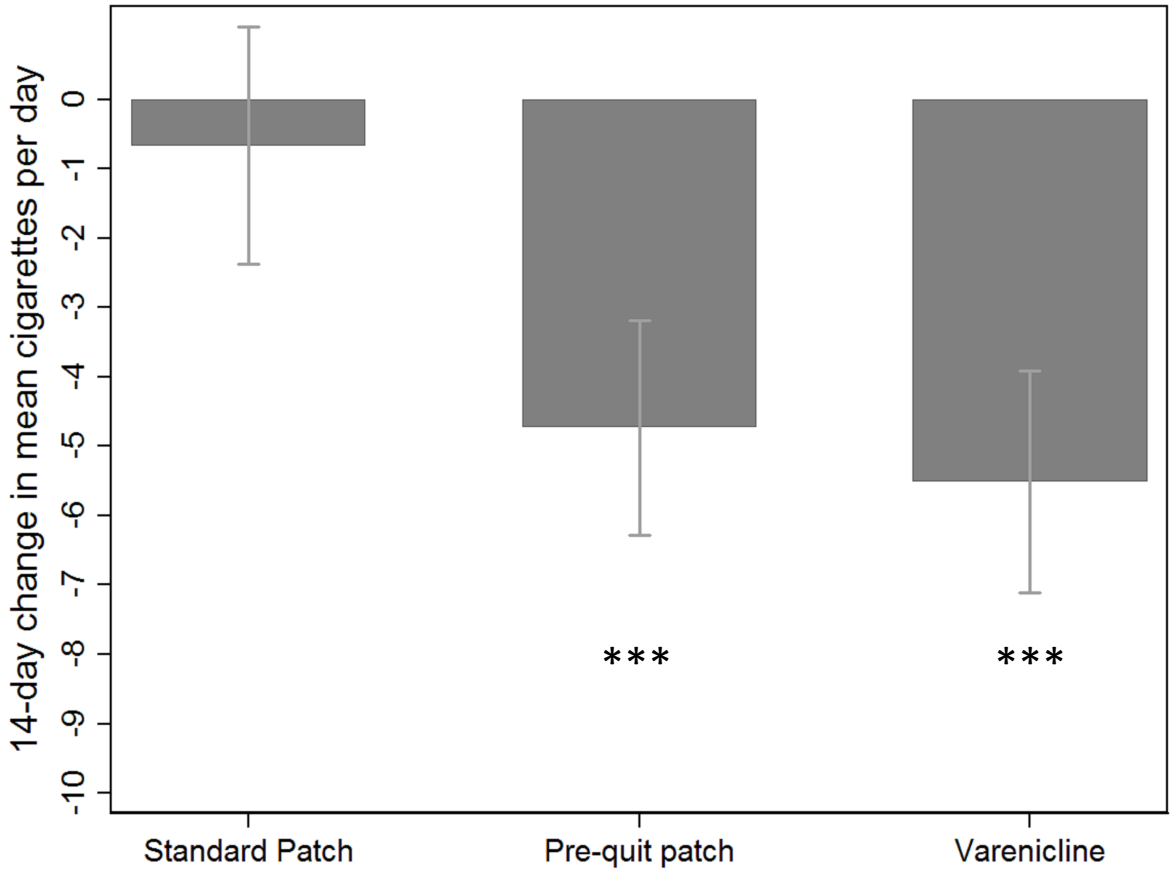
- N = 213
- Predominately Caucasian (92%) males (58%)
- ~42 years old
- Moderately heavy smokers
  - ~19 CPD
  - 74% TTFC $\leq$ 30mins
  - Baseline CO = 21ppm

Pre-quit treatment promoted smoking reduction



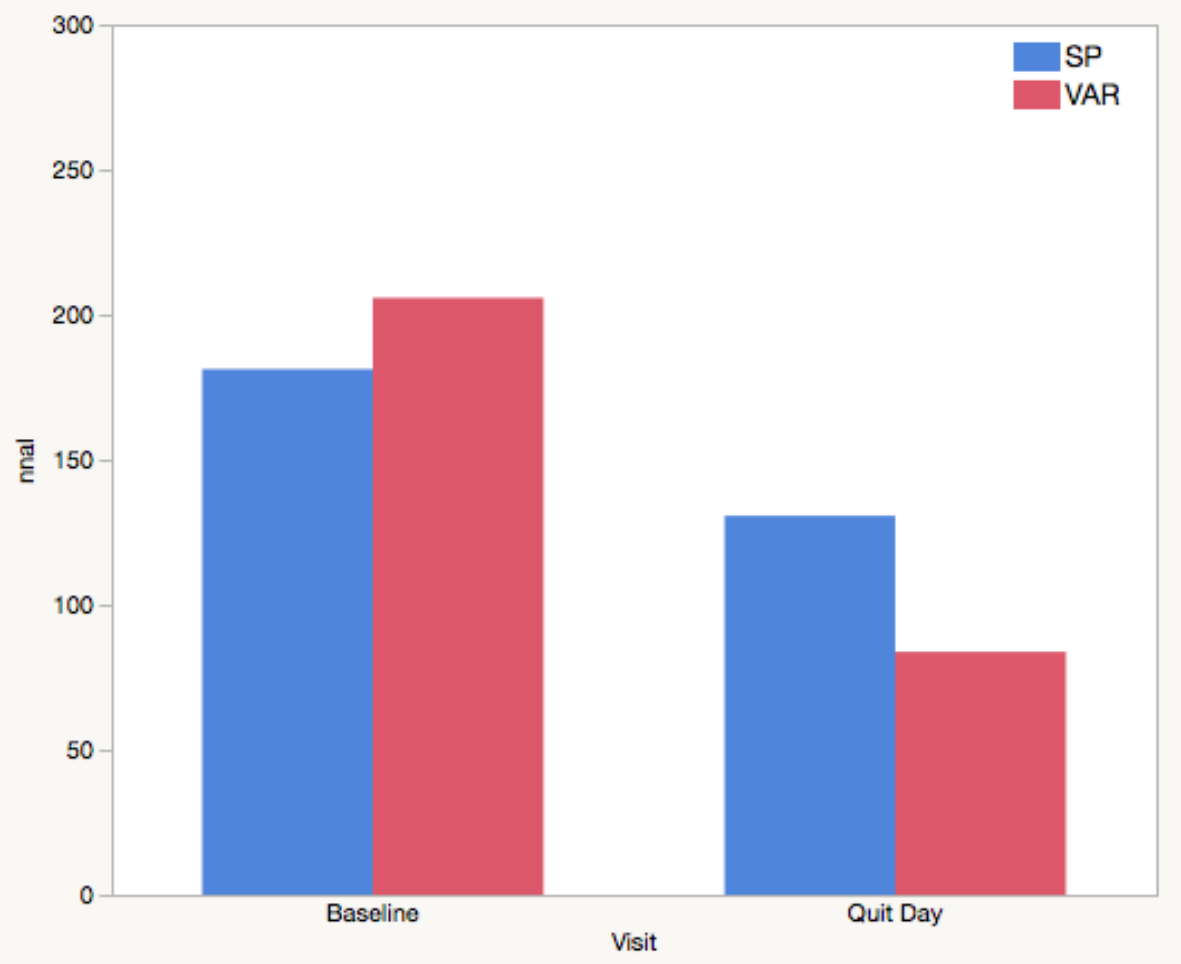
- During the pre-quit period
  - PQP & VAR groups reduced their smoking
  - SP did not

Pre-quit treatment promoted smoking reduction



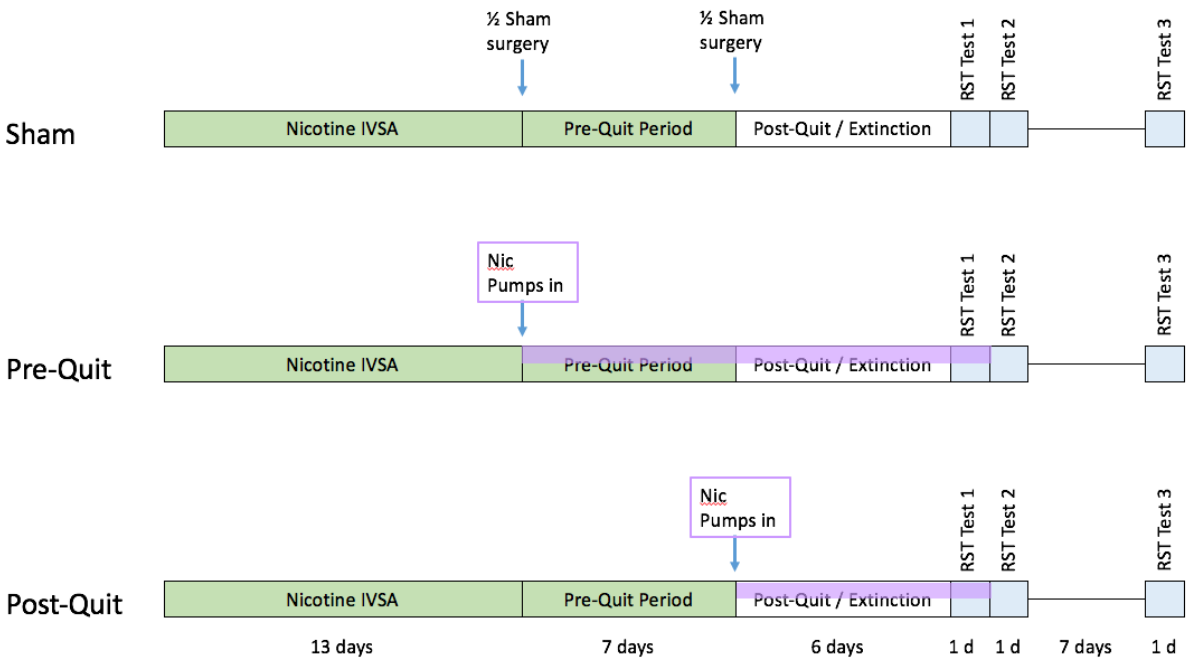
- PQP group reduced by ~6 CPD on average
- VAR group by ~7 CPD
- SP: no change

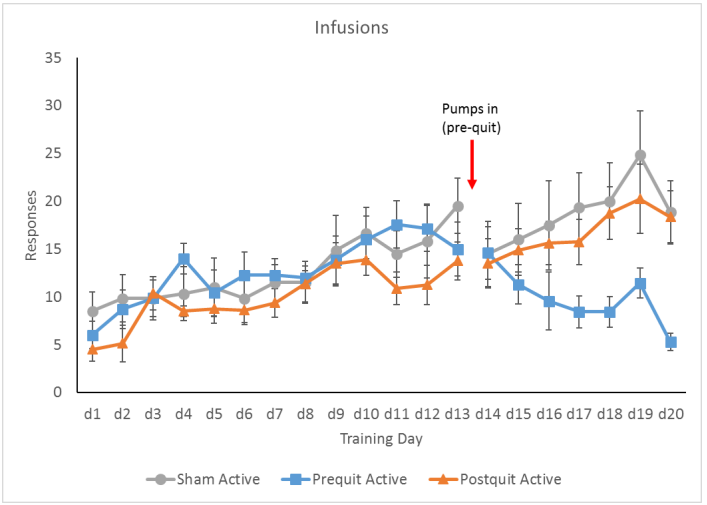
Biochemical markers confirmed self-reported smoking reduction

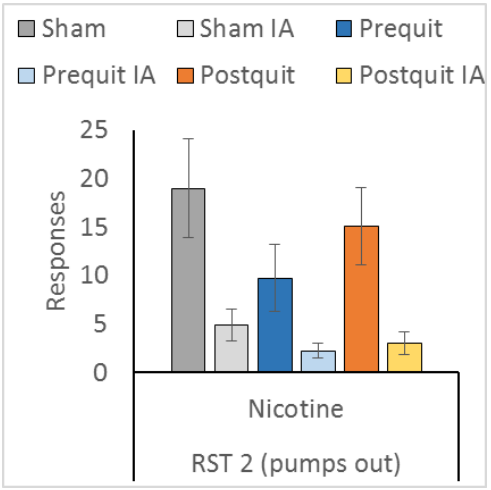


- Decline in NNAL levels steeper in VAR group (compared to SP)

See similar self-administration patterns in animal studies

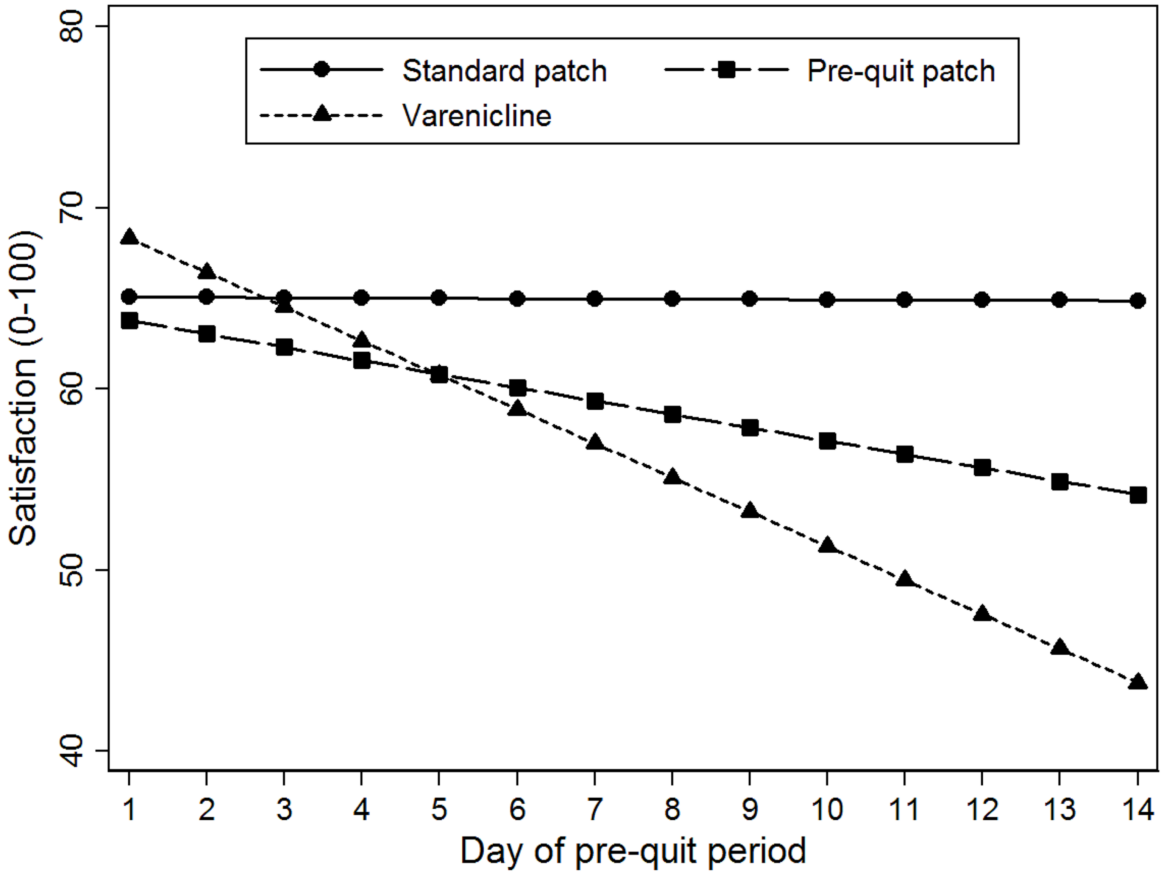






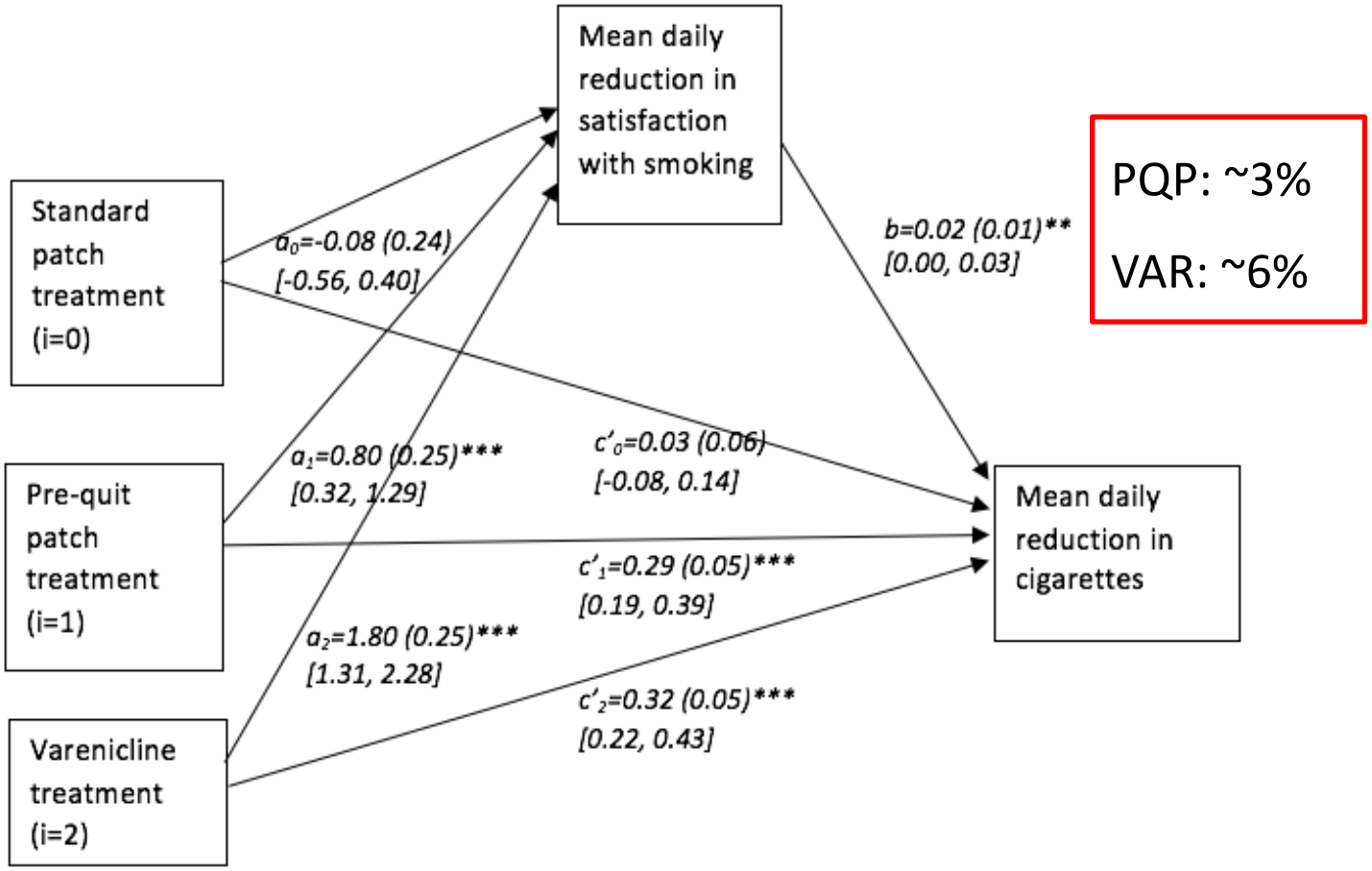
Unpublished data

Change in satisfaction with smoking during pre-quit period, by group



- During the pre-quit period satisfaction w smoking
  - Fell in PQP & VAR groups
  - Stable in SP group

Satisfaction with smoking does mediate the effect of treatment on CPD … but it's weak



PQP: ~3%

VAR: ~6%

Summary

- VAR & PQP pre-quit treatment does result in
  - Reduced satisfaction with smoking
  - Reduced CPD
- Effect of pre-quit treatment on reduction is only partially mediated via satisfaction with smoking
  - Other drivers of reduction
  - Changes in stimulus control?
- Understand of mechanism of action may improve outcomes with pre-quit medication use

Acknowledgements

- Collaborators
  - Monica Lu, Katherine Chappell, Natalie Schüz, Gudrun Wells
  - Dr Kelly Clemens (animal studies)
  - Georgie Gallagher
  - BSRG staff & students
- Funding bodies
  - Pfizer (GRAND)
  - RHHRF

Questions