**Effect of real-time monitoring and notification of smoking episodes on smoking reduction: a pilot study of a novel smoking cessation app**

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### What is SmokeBeat?
- A smoking monitoring and cessation app that works with wearables (smartwatches, wristbands)
- Uses accelerometer and gyroscope sensors to identify smoking gestures in real time
- Supported by a backend platform that enables storage and analysis of big data generated by the wearable and smartphone

### Pilot Study *(Nicotine and Tobacco Research, in press)*
- 40 Smokers wishing to reduce or quit smoking
- Wait-list control design
  - Experimental group given smartwatches and received notifications for 30 days
  - Control group completed questionnaires on days 1 and 30
- Goals
  - to gauge and optimize smoking detection in “real life”
  - to assess effect of monitoring and feedback on smoking rate

### Detection Algorithm
- Detection algorithm personalized for first 15 days, performance based on last 15 days
- 64.2% of cigarettes were smoked while sitting, 18.1% while standing
- Correct detection rate was 87.3% for sitting, 89.7% for standing, 82.3% overall
- False alarm rate was 2.8%

### Reported Cigarettes per Day by Group
- \(F(1, 38) = 7.99, p = .007\)
- Vertical bars denote +/- standard errors

### Actual Cigarettes per Day in Experimental Group
- \(F(29, 551) = 2.54, p = .00002\)
- Vertical bars denote +/- standard errors

### Conclusion
Automatic monitoring and notifying of smoking episodes may be beneficial for smokers wishing to quit or reduce smoking.