Online Supplementary Material

1.   Power Analysis

Since we employed a novel social network approach in Tweet2Quit, there was limited literature upon which to draw for the power analysis. We identified 4 somewhat related studies of tobacco cessation interventions, though none using the approach that we aimed to test.[1-4] Three studies involved automated text messages to mobile phones, and one involved unfamiliar peer buddies.[4] Based on the four studies identified, the sample sizes required to attain a .05 Type 1 error rate and a minimal power of 80% at 30 day follow-up were very similar (N=86, 107, 108 and 109 per condition). As we anticipated a stronger effect than what had been achieved prior, given the added components of our intervention (daily discussion topics, individualized daily feedback, and peer-to-peer interaction), we enrolled N=80 per condition, or N=160 across the two conditions (intervention and control).

2.   Google AdWords Ad Campaign used for Participant Recruitment

Google was used for online recruitment of participants because, globally, it is the dominant internet search engine; and Google AdWords is the dominant internet ad delivery mechanism. During study recruitment, if a person typed a relevant keyword or phrase into a Google search in the US (e.g., "nicotine patches" or "quit smoking"), and if our automated ad bid exceeded competing bids, our study ad appeared (e.g., "Discover New Ways to Quit. Free patches and support through Twitter"). The Google ad linked to our study website which provided general study information. Smokers were not offered money to participate, but were offered a 56-day supply of free nicotine patches and potentially a Twitter social support group for quitting.

3.   Survey Completion Rates

Control Group (n=80)
- Baseline: n=75 (94%)
- 7 Day Abstinence: n=70 (88%)
- 30 Day Abstinence: n=63 (79%)
- 60 Day Abstinence: n=64 (80%)
- 7 Day Supplemental*: n=53 (66%)
- 30 Day Supplemental*: n=48 (60%
- 60 Day Supplemental*: n=50 (63%)
  *patches, website

Intervention Group (n=80)
- Baseline: n=66 (83%)
- 7 Day Abstinence: n=61 (76%)
- 30 Day Abstinence: n=60 (75%)
- 60 Day Abstinence: n=66 (83%)
- 7 Day Supplemental: n=49 (61%)
- 30 Day Supplemental*: n=48 (60%)
- 60 Day Supplemental*: n=53 (66%)
  *patches, website, tweet methods (72.50% or 58/80 responded to the tweet method questions at least once)

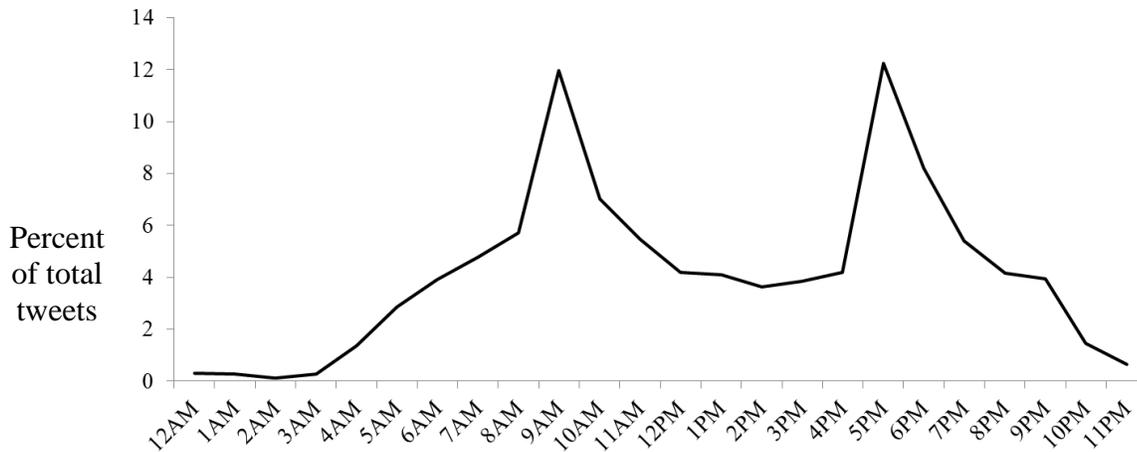4. Average Tweet Volume per Hour as a Percent

Figure Note – Discussion-topic automessages sent at 9 am PST (12 pm EST); autofeedback at 5 pm PST (8 pm EST)

5. Average Tweet Volume per Participant by Abstinence Status and Time Period
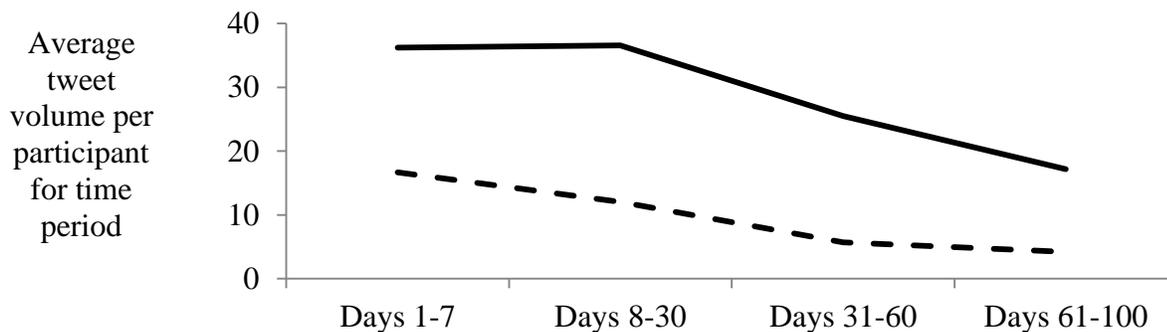

Figure Note – Solid line is for participants who reported sustained abstinence; dotted line is for participants who did not

References

[1]   Rodgers A, Corbett T, Bramley D, *et al.* Do u smoke after txt? Results of a randomised trial of smoking cessation using mobile phone text messaging. *Tobacco Control* 2005;**14**(4):255-261.
[2]   Brendryen H, Kraft P. Happy ending: A randomized controlled trial of a digital multi-media smoking cessation intervention. *Addiction* 2008;**103**(3):478-484.
[3]   Bramley D, Riddell T, Whittaker R, *et al.* Smoking cessation using mobile phone text messaging is as effective in Maori as non-Maori. *The New Zealand Medical Journal* 2005;**118**(1216):1-10.
[4]   West R, Edwards M, Hajek P. A randomized controlled trial of a "buddy" system to improve success at giving up smoking in general practice. *Addiction* 1998;**93**(7):1007-1011.