Assessing the impact of supportive health messages on cigarette package inserts: A pilot study using ecological momentary assessment

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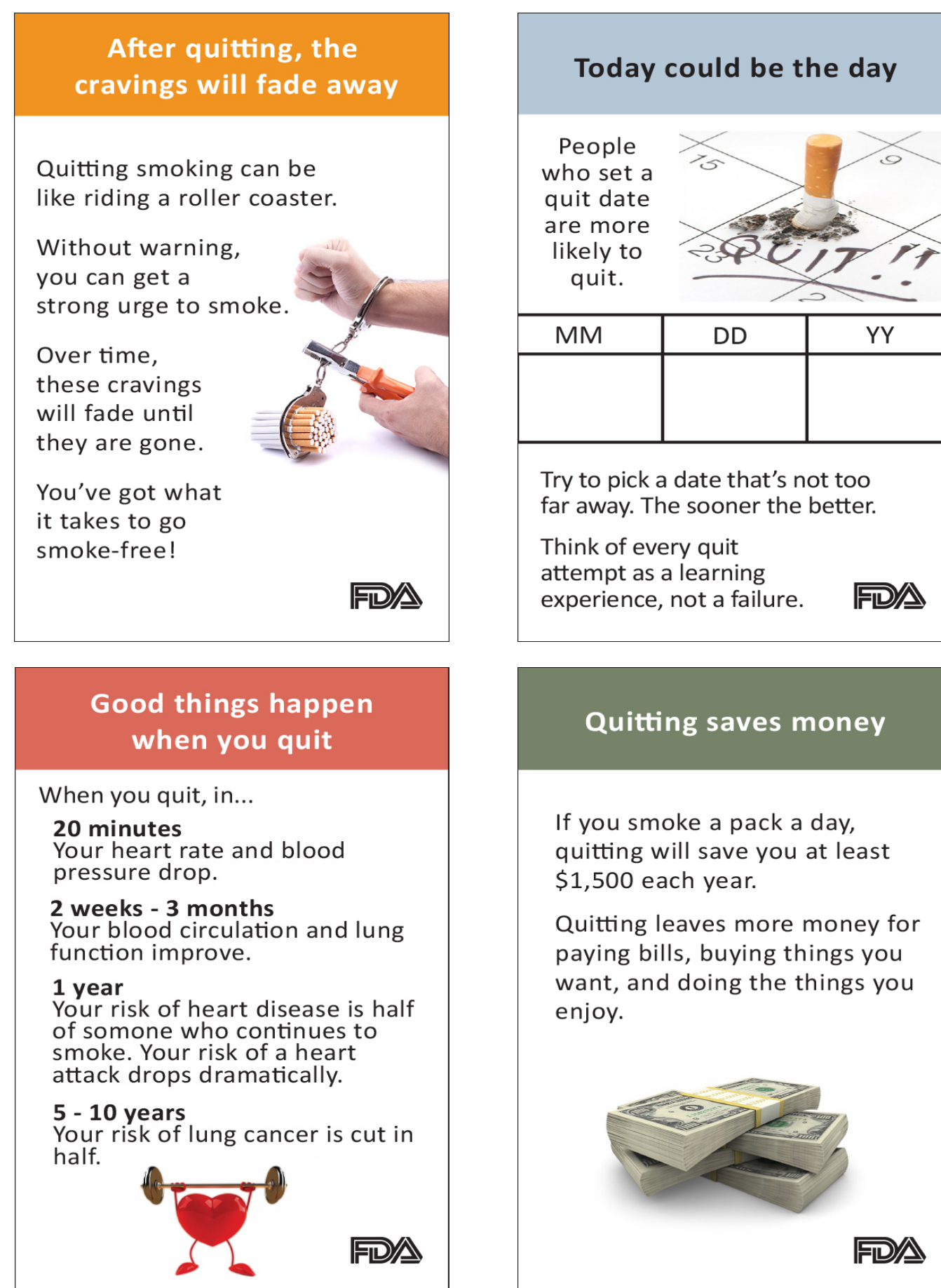
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Background

Observational studies in Canada suggest that cigarette package inserts with supportive health messages (i.e. efficacy messages) can increase smokers' self-efficacy to quit and promote cessation. This study used ecological momentary assessment to assess smokers' real-time responses to inserts with efficacy messages.

Methods

Sample & procedures

A randomized case-crossover design was used, whereby 15 US smokers were provided with one week supply of their preferred brand of cigarettes with inserts (see Figure 1) and one week supply without inserts; participants were randomized to the insert condition on either the first or second week of the study.

Figure 1. Efficacy inserts

After quitting, the cravings will fade away

Quitting smoking can be like riding a roller coaster.

Without warning, you can get a strong urge to smoke.

Over time, these cravings will fade until they are gone.

You've got what it takes to go smoke-free!

FDA

Today could be the day

People who set a quit date are more likely to quit.

| MM | DD | YY |

Try to pick a date that's not too far away. The sooner the better.

Think of every quit attempt as a learning experience, not a failure.

FDA

Good things happen when you quit

When you quit, in...

20 minutes
Your heart rate and blood pressure drop.

2 weeks - 3 months
Your blood circulation and lung function improve.

1 year
Your risk of heart disease is half of somone who continues to smoke. Your risk of a heart attack drops dramatically.

5 - 10 years
Your risk of lung cancer is cut in half.

FDA

Quitting saves money

If you smoke a pack a day, quitting will save you at least $1,500 each year.

Quitting leaves more money for paying bills, buying things you want, and doing the things you enjoy.

FDA

Measurement

For 14 consecutive days, participants used a smartphone to answer a brief survey each time they opened a new pack and at approximately three additional, randomly selected smoking occasions each day. Also, a daily survey was conducted each morning. Questions assessed diverse mediators of labeling effects on cessation (see Table 1).

Analysis

Random-effects linear regression models compared observations during the period when participants were exposed to inserts and when they were not, controlling for the time of exposure (i.e., 1st vs. 2nd week).

Table 1. EMA survey item measures

Construct	Item	Response	Overall Mean (SE)
Attitude toward smoking	Right now, you feel like smoking is	Very BAD (1) – Very GOOD (7)	3.67 (.29)
Self-efficacy to cut down	How easy would it be to cut down on the number of cigarettes you smoke?	Not at all easy (1) – Extremely easy (9)	4.71 (.47)
Self-efficacy to quit	How confident are you that you could quit smoking altogether right now?	Not at all confident (1) – Extremely confident (7)	3.23 (.51)
Response efficacy (i.e., perceived benefits of cessation)	How much would quitting smoking now reduce your chances of getting a serious disease?	No chance (1) – Certain to happen (7)	5.62 (.26)
Perceived risk of smoking	How likely do you think you are to get a serious disease from smoking if you continue to smoke?	No chance (1) – Certain to happen (7)	4.97 (.55)
Forgoing cigarettes (% Yes)	In the last 24 hours, have you stubbed out a cigarette early or not had a cigarette when you would normally?	Yes or No	59.2%

Results

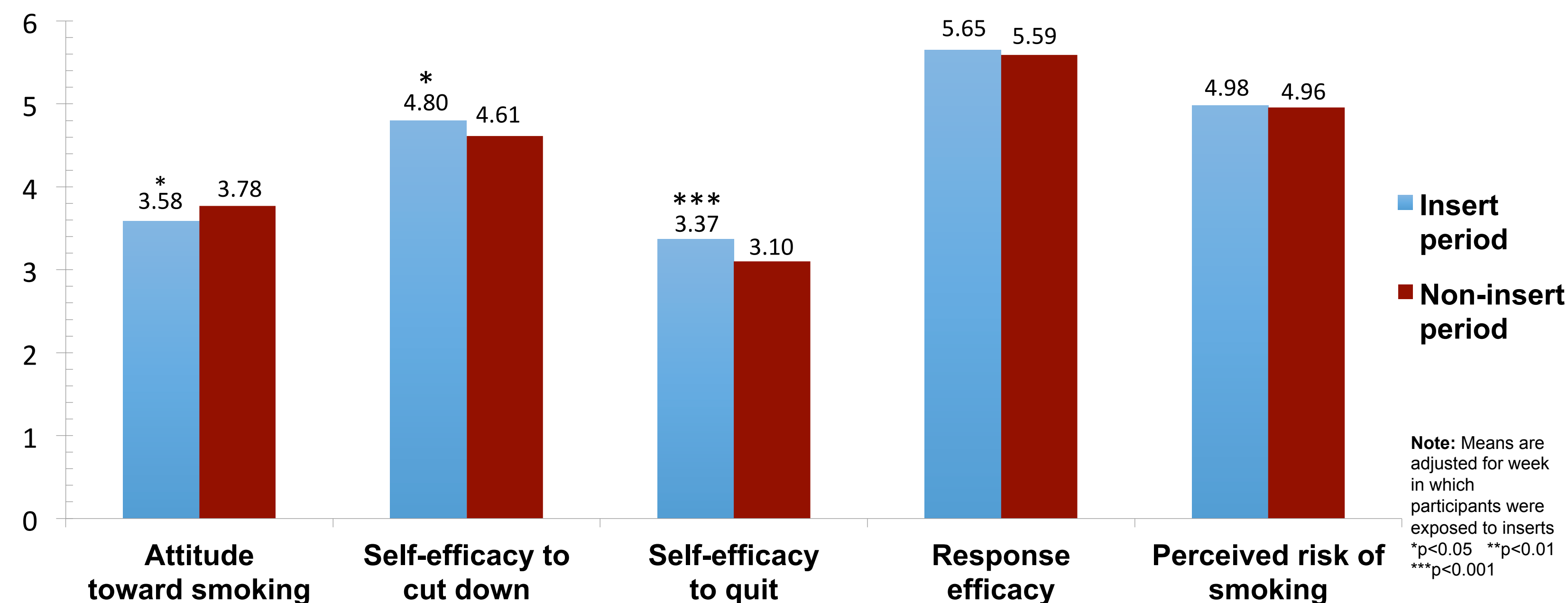### Figure 2. Mean responses to EMA survey items

Attitude toward smoking: Insert period 3.58*, Non-insert period 3.78
Self-efficacy to cut down: Insert period 4.80*, Non-insert period 4.61
Self-efficacy to quit: Insert period 3.37***, Non-insert period 3.10
Response efficacy: Insert period 5.65, Non-insert period 5.59
Perceived risk of smoking: Insert period 4.98, Non-insert period 4.96

■ Insert period
■ Non-insert period

Note: Means are adjusted for week in which participants were exposed to inserts *p<0.05 **p<0.01 ***p<0.001

Table 2. Associations of responses with insert period

Variable	Coef.	(SE)	P-value
Attitude toward smoking	-0.19	(0.06)	<0.01
Self-efficacy to cut down	0.19	(0.08)	0.03
Self-efficacy to quit	0.27	(0.06)	<0.01
Response efficacy (i.e., perceived benefits of cessation)	0.06	(0.05)	0.22
Perceived risk of smoking	0.03	(0.04)	0.52
Forgoing cigarettes (odds ratio)	1.60	(0.80)	0.36

Conclusions

The EMA protocol we developed appears acceptable and feasible.

During the period of time when respondents were exposed to inserts, they reported more negative attitudes toward smoking and greater self efficacy to cut down and quit. Other indicators of effects were in the right direction, suggesting that studies with larger sample sizes and/or longer follow-up periods may find meaningful effects on these mediators of cessation.

Future research should assess the extent to which package inserts can be used to communicate health information to smokers, including opportunities for synergy with pictorial warnings on the outside of cigarette packs.

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