Designing technologies to scaffold user-driven approach to facilitate quitting smoking

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NO SMOKING

PLEASE QUIT

NO SMOKING
EVER AGAIN

SMOKING CAN MAKE YOU DIE

SMOKING IS REALLY BAD

Maya Kientz-Patel
Julie Kientz
Ed decides to quit smoking.

He throws his cigarette packs away.

But every time he hangs out at the bar, he starts smoking again.
37.8 million adults in the US smoke cigarettes (2016)


Need for better individualized support

• Health care providers can offer individualized support
  • Lack of support outside clinic
  • Barriers of cost, time, access, stigma

Need for better individualized support

• **Health care providers** can offer individualized support
  • Lack of support outside clinic
  • Barriers of cost, time, access, stigma

• **Technologies** can tailor support
  • Over 500 apps on the app store

Paay et al. 2015. Understanding individual differences for tailored smoking cessation apps. CHI’15.
Hartzler et al. 2016. Prioritizing the mHealth Design Space: A Mixed-Methods Analysis of Smokers’ Perspectives. JMIR mHealth and uHealth 4
How can **technologies** facilitate individualized support for quitting smoking?
Human Centered Design Approach

- Understanding current practices
- Understanding unmet needs
- Iterative design and development
Methods

Design low fidelity mock-ups

| Study 1 | Interviews with health care providers | Design feedback from health care providers |
## Methods

Design low fidelity mock-ups

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Study 1 with health care providers
Study 1: Methods

Interviews with 28 health care providers across 12 states in US

Participants:
4 primary care physicians (P#),
5 mental health practitioners (M#),
19 tobacco cessation & addiction counselors (C#)

10 Males, 18 Females
Interview procedure:
1. Understanding strategies, tools, and challenges
2. Feedback on design of a self-management app
Qualitative Data Analysis

Providers involve clients in **brainstorming context-appropriate strategies.**

Providers emphasize **dynamic support for nicotine withdrawal**

Providers **mediate social support** for clients

Providers need to **navigate dependencies** with other providers and conflicting priorities
Providers involve clients in **brainstorming context-appropriate strategies.**

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Bhattacharya et al. Lessons from practice... CHI 2017
Providers involve clients in brainstorming context-appropriate strategies

“[Ask clients] ‘Make a comprehensive list of all the different contexts and all the different situations you’re smoking’” (M1)

“’What can you do if you have an urge to smoke?’ –things that they do already, things they can afford, things they like to do.” (C11)
Providers involve clients in brainstorming context-appropriate strategies

“I'll have them [clients] come up with **examples**. I'll ask them, ‘If stress is a big trigger for you what are some other things that you can do to manage your stress?’...Sometimes people will say to me, ‘well, I'm going to exercise.’ And I'll say to them, ‘**you can't exercise 24/7, so if you get up in the middle of the night because you're worried about your cancer, what are you going to do?**’” (C24)
Technology can help contextualize interventions

Who?  Where?

Activity?  When?
Study 2 with people who want to quit smoking
Phase 2 Design: Context Cards

Reflect on Triggers

Elaborate on triggering context

Examples of triggers

Recommended strategies to help quit smoking

Individuals plan their strategies for the context
Trigger cards

Many people smoke when they have intense emotions.

- Stressed
- Lonely
- Anxious
- Bored
- Satisfied
- Excited
- Happy
- Cooling off after fight.
- Others?

EMOTIONAL TRIGGER

A pattern trigger is an activity you connect with smoking.

- Talking on phone
- Drinking alcohol
- Watching TV
- Driving
- Drinking coffee
- Taking break at work
- Waking up / going to bed.

PATTERN TRIGGER

Occasions that include other people who smoke.

- Going to a bar
- Party / social event
- Going to concert
- Seeing someone smoke
- Being with people who smoke.

SOCIAL TRIGGER

Withdrawing symptoms are due to bod craving nicotine.

- Craving cigarettes
- Trouble sleeping
- Feeling irritable, grumpy
- Feeling restless, jumpy
- Feeling more hungry
- Feeling sad
- Trouble concentrating
Context Card

Time: 3:00 PM
Location: work

Coffee Break Stress

Activity: coffee break
People: other coworkers

Notes:
Strategy Cards
Strategy Card

Now add 2 strategies you want to try out

Coffee break stress

(1) Strategy 1 Relax and listen to music

(2) Strategy 2 engage with non smokers more

Strategy 1:
Engage in conversation with non smokers

Strategy 2:
Not drinking coffee
Study 2: Methods

• Interviews with 13 people who want to quit smoking
• 5 males, 8 females
Study 2: Methods

Procedures

• Survey questionnaire – motivation, smoking habits
• Interview on smoking history, challenges in quitting
• Walkthrough of low fidelity context-card prototype on Google Slides
• Feedback on storyboards and wireframes
Types of strategies planned by smokers

• **Avoiding** elements of the triggering context (such as not going to a bar)

• **Replacing** smoking behavior with another activity (such as cooking, physical activity, brushing teeth, drinking water)

• Changes in **routine** (such as delay studying until shortly before bed)

• **Reaching out** for social support (Facebook groups, meet-ups)
Challenge - perception of control

I met one of my friend again, and was boating, and my friend took a puff. I thought, okay, I can just have only one puff, and I tried a little control, but it didn't go like that... It's a fight that you're fighting with yourself and exhibiting yourself – I would say that I am the only barrier. My mind is barrier. (SC02)

I don't know, it's just a psychological thing. You know, once in a while I just feel like I need a cigarette. (SC07)
Future work: Development & Feasibility Study

Design to scaffold users to:

• Increase perception of control and empower users to act during craving
• Practice acting on planned strategies in-the-moment
Thank you!

“We can give them great tips and ideas and handouts and you name it. If they don't use it and they don't find what works for them, well, they probably won't quit.” (C27)

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