How Understanding Change Experience in Smoking Cessation Might Inform Treatment Development

Adrienne L. Johnson, PhD[1,2*], Tanya R. Schlam, PhD[1], Timothy B. Baker, PhD[1], & Megan E. Piper, PhD[1]

[1]University of Wisconsin, School of Medicine and Public Health, Center for Tobacco Research and Intervention; [2]William S. Middleton Memorial Veterans Hospital

INTRODUCTION

- Cigarette smoking is the leading preventable cause of death and disability in the U.S.[1,2]
- Less than one-third of the population use proven cessation methods, and the average quit rate is 7.4%.[3,4]
- Qualitative research can highlight limitations and identify novel approaches/adaptations to existing behavioral treatments for smoking cessation.[5]

AIMS

- Using a mixed methods approach, we will examine whether smokers have insight into changes needed to quit and how this insight affects actual changes made during a smoking cessation attempt. The presented data involved qualitative research methods only.

METHOD

Participants

- 125 current smokers (48.0% Female; 44.0% White) completed Q1
  - 99 participants also completed Q2 (50.5% Female, 49.0% White)

Measures

- Nicotine dependence: The first item of the Fagerström Test for Nicotine Dependence (FTND)[6] was used to determine dependence level codified as High (smokes in the first 30 minutes of the day) or Low (smokes after 30 minutes).[7]
- Psychiatric History: past year self-reported psychiatric history was codified as present or absent.

Data Collection & Analyses

As part of a larger comparative effectiveness smoking cessation study, participants completed two structured interview questions. One two weeks before their scheduled quit date and one two weeks after. Interviews were audio-recorded and transcribed. Stratified random sampling methods were used to capture equal rates of self-reported race (African American/White) and gender identity (Male/Female). Approximately 25% of the selected sample had not completed the second interview, resulting in a second wave of purposeful random sampling to supplement the missing data (matching for missing participants' race and gender). As this was done later in the thematic development process, all original participants were retained for analysis of the first domain. Rapid qualitative analysis[8] was used to examine two separate domains: planned changes and used changes. Individual participant responses were organized by domain (which aligned with the two interview questions), into a matrix in MS Excel.[9] The primary author (ALJ), a clinical psychology fellow who was not involved in data collection, reviewed the matrix for the first 10 participants and developed preliminary themes. The qualitative team then met in-person to develop a consolidated set of initial thematic codes (ALJ, TRS, MEP). Two independent coders used these themes to code the data, with regular consensus meetings to resolve any discrepancies in coding. Novel themes developed during coding were agreed upon by the smaller coding team (ALJ and two coders), with a secondary level of consensus from the qualitative team halfway through the coding process. After coding, prevalence of themes by demographic characteristics (race, gender, nicotine dependence, psychiatric comorbidity) was reviewed.

RESULTS

Table 1. Planned Changes – *"What do you think you need to change about your life to quit smoking?"*

Theme	Frequency	Illustrative Quote
Identify trigger with no specific plan	65 (52.0%)	"I think it's just the nicotine urge, is what I need to go away."
Change mindset/focus on benefits	29 (23.2%)	"…uhh there's really nothing to change but your attitude has to be 'okay enough is enough, it's time, just do it.'"
Reduce exposure to social smoking cues	21 (16.8%)	"Change the environments that I go to cause a lot of people I know smoke … if I don't go outside and hangout out with everyone, just stay inside it'll help me."
Make other health changes	17 (13.6%)	"Probably be more active, I would have to become more active, exercise definitely more of that."
Reducing exposure to non-social paraphernalia/cues	11 (8.8%)	"First of all I think I need to make sure there's no cigarettes in the home, no ashtrays, none of that."
Change alcohol consumption	10 (8.0%)	"Well, I mean, I smoke more when I drink. So I mean right now I am trying to cut back on the drinking and eventually I do want to quit drinking too…"
Other	10 (8.0%)	"Um, nothing really, cause I need some help, I can't do it by myself."
Get support from friends and loved ones	3 (2.4%)	"… I think I just need the support of my family is the biggest thing …"
Identify plan to deal with stress	2 (1.6%)	"Um, some of my stressors. I started making some changes like I said, like going outside …"
Use of study medication	2 (1.6%)	"… That's why I want the Chantix and the patches cause maybe they alleviate that urge, that sensation that I have …"
I don't know	2 (1.6%)	"To quit smoking, um, I'm not really sure … I really don't know…"

Table 2. Used Changes – *"What have you changed in your life to quit smoking or stay quit?"*

Theme	Frequency	Illustrative Quote
4 D's (distraction, drink water, deep breathing, delay)	*32 (32.3%)*	*"…just keep busy like reading, drinking a lot of water during the day that helps a lot. Taking deep breaths really works, that's a good one …"*
Reduced exposure to non-social paraphernalia/cues	28 (28.3%)	"… I just got rid of everything, the ashtrays, cleaned out my car completely you know, detailed the whole thing inside … to get the smell out …"
Changed mindset/focused on benefits of quitting	25 (25.3%%)	"Um, I guess the mindset, um, it's like, I want to do this, um, I really wanna do it, it was like … I'm doing it."
Changed daily routine	*18 (18.2%)*	*"Well I started to quit on a, during a time frame where I wouldn't be doing any normal things, it was out of my normal routine so, that helps a lot…"*
Made other health changes	16 (16.2%)	"… Um, eating better, healthier at least, um hitting the gym, got no choice there. I ride a hog, I don't want to look like one…"
Reduced exposure to social smoking cues	14 (14.1%)	"Stopped playing cards on Sunday around the fellas."
No changes made	*11 (11.1%)*	*"Nothing … no I haven't changed anything."*
Got support from friends and loved ones	8 (8.1%)	"… ah there's family and friends who know I'm trying to quit so I mean they've been supportive and trying to stay supportive…"
Other	4 (4.0%)	"Just not smoke [laughing] … yeah, mmm."
Changed alcohol consumption	4 (4.0%)	"Stopped drinking."
Identified plan to deal with stress	2 (2.0%)	"… I've been working on coping strategies um for situations where you feel like distress and stuff … I've been working on those with my therapist …"
Used study medication	1 (1.0%)	"Nothing really, taking the medication and the patches."

DISCUSSION

- The most commonly identified planned change was actually an identification of a specific trigger for smoking, rather than a specific plan. Common triggers included stress, the routine or habit of smoking, and urges/cravings to smoke.
- This was consistent across gender, race, psychiatric presence, and nicotine dependence.
- Only 24 of those that identified a trigger also had a clear plan to deal with that trigger. A total of 77 (61.6%) participants identified any plan for changes.
- Interestingly, African American participants who smoke more commonly reported a plan to get their partner to quit or avoid other smokers than White participants.
- Some of the most common elements of smoking cessation treatment were the lowest reported planned changes (i.e., use of smoking cessation medications, change drinking patterns, remove smoking cues from the home, elicit support from loved ones). Conversely, participants commonly reported plans to avoid others who smoke and focus on positive effects of quitting, which are common components of cessation counseling.
- Within the "Other" category in the Planned Changes domain, the realization of needing help was reported. The type of change was not specified, outside of previous failed attempts alone, and the desire/willingness to seek help this time.
- Novel changes identified after quitting that were not discussed prior to quitting included using the "4 D's" of smoking cessation, changing your daily routine, and no changes made.
- The four most commonly identified used changes were the "4 D's" of smoking cessation, avoid other smokers, focus on benefits of quitting (changing your mindset), and change daily routine. Each of these changes are taught during smoking cessation counseling and part of best practice guidelines. This highlights a not only retention of learned concepts, but application of these concepts to the cessation attempt.
- These themes were the most commonly reported across gender, nicotine dependence, White participants, and participants with no psychiatric history.
- African American participants commonly reported avoiding smoking friends, along with using the 4 D's, removing smoking cues, and changing their mindset.
- Participants with a psychiatric disorder in the past year reported removing smoking cues less often than those without this history.
- Medication was very rarely cited as a planned or used change. In terms of planned changes this may highlight a need to educate on the benefits of medication. The lack of reporting medication use in used changes may note either adherence issues (as all participants were provided medication) or limited awareness of the benefit of medication in the cessation process.

Implications

Although the majority of smokers can identify a plan for change prior to quitting, almost all can at least identify some sort of trigger or barrier to quitting. Barriers/triggers should be assessed at treatment initiation and incorporated into a personalized quit plan. Participants can clearly retain and utilize taught cessation methods, suggesting counseling is in some ways beneficial. Future treatments should focus on increasing patient understanding of and motivation for cessation medication use in quit attempts and offering help to smokers. African American smokers may be open to changing social environment as part of a quit attempt, while those with a psychiatric history appear less likely to remove smoking cues from their home. Finding treatment options that are evidence-based, take into account identified triggers with a plan to deal with said triggers, and fit with participant reported used changes, may be key towards achieving cessation success. Future research is needed to examine the relation between reported changes and cessation success.

Next Steps

Exploratory quantitative analyses will descriptively examine the relation between identified planned and used changes and cessation success.

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QUITS

Adrienne L. Johnson, PhD | Postdoctoral Fellow |
University of Wisconsin Center for Tobacco Research and Intervention
& William S. Middleton Memorial Veterans Hospital |
aljohnson43@ctri.wisc.edu