Published in final edited form as:

Prev Sci. 2015 August ; 16(6): 811–821. doi:10.1007/s11121-015-0566-7.

Informing Tobacco Cessation Benefit Use Interventions for Unionized Blue-Collar Workers: A Mixed Methods Reasoned Action Approach

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Abstract

Blue-collar workers typically have high rates of tobacco use but low rates of using tobacco cessation resources available through their health benefits. Interventions to motivate blue-collar tobacco users to use effective cessation support are needed. Reasoned action theory is useful in this regard as it can be used to identify the beliefs that shape tobacco cessation benefit use intentions. However, conventional reasoned action research cannot speak to how those beliefs can best be translated into intervention messages. In the present work we expand the reasoned action approach by adding additional qualitative inquiry to better understand blue-collar smokers' beliefs about cessation benefit use. We report three studies—a belief elicitation study, a survey study and a focus group study—among unionized blue-collar tobacco users to demonstrate how a mixed method reasoned action approach can inform interventions that promote the use of tobacco cessation health benefits.

Keywords

Tobacco use cessation; health benefit use; reasoned action theory; blue-collar workers; mixed methods; intervention design

The decline of smoking within the U.S. adult population has been remarkably uneven among socio-economic levels and occupations. Whereas the smoking prevalence rate for all U.S. adults has dropped to about 19% (Centers for Disease Control & Prevention [CDC], 2011a), smoking rates among workers in the building trades, hospitality and other blue-collar occupations remain high (CDC, 2011b; Substance Abuse & Mental Health Services Administration, 2009). For example, it has been estimated that about 30% of construction, accommodation and food service workers smoke (CDC, 2011a).

The significance of these high smoking rates is underscored by the fact that blue-collar workers represent substantial proportions of the total workforce. Relevant for the geographical focus of the present research, for example, blue-collar workers comprise about 60% of the total Minnesota workforce (U.S. Census Bureau, 2014). Moreover, blue-collar workers are at substantially higher risk for health and economic harms caused by tobacco use than other workers (Barbeau et al., 2004; Smith, 2008). Not only are they more likely to use tobacco products than are white-collar workers, they are also more likely to be exposed to secondhand smoke at work, tend to start smoking at an earlier age, are heavier smokers, and have a harder time quitting and staying quit (Gerlach et al., 1997; Giovino et al., 2000; Sorensen et al., 2002).

Resources for smoking cessation exist for unionized, blue-collar workers through healthcare benefits negotiated by labor and management, typically administered by Taft-Hartley Health and Welfare Funds. Fund-administered healthcare benefits usually include some form of smoking cessation benefits such as cessation counseling, nicotine replacement therapy (NRT), and prescription medications. There is good evidence that these methods increase the success rate of quit attempts, most notably when counseling is used in conjunction with NRT and medications (Fiore et al., 2008). However, these methods are generally underutilized, particularly by blue-collar and service workers (Cokkinides et al., 2005; Shiffman et al., 2008). For example, Shiffman and colleagues (2008) found in a large sample of daily smokers that relatively educated and affluent smokers were more likely to use pharmacological aids and counseling when attempting to quit. Given the prevalence of smoking among blue-collar workers and the health risks associated with smoking, blue-collar smokers' weak utilization of smoking cessation benefits is an important issue for interventionists seeking to abate smoking-related health problems for this population of smokers.

Clearly, to inform interventions that ultimately can increase benefit use rates, one must understand why blue-collar smokers are or are not motivated to use cessation benefits offered through their Taft-Hartley Funds. Unfortunately, the vast majority of extant work singularly focuses on smokers' motivation to quit (Zhu et al., 2012). In contrast, in the present work we identify variables that explain blue-collar smokers' motivation to use cessation benefits. For this purpose we use reasoned action theory (Fishbein & Ajzen, 2010), a theory that has proven its ability to explain multiple behaviors in terms of unique sets of determinant variables, and for its ability to inform health promotion interventions (Ajzen, 2012; Yzer, 2013).

In terms of cessation benefit use, reasoned action theory proposes that smokers form intentions to use benefits and will act on their intention when environmental factors, such as the availability of cessation support, facilitate rather than obstruct actual benefit use, and when they have the skills required to successfully use benefits. Intention is a function of attitude, perceived normative pressure and perceived behavioral control regarding benefit use. Each of the three factors that form intention is proposed to have two dimensions (Fishbein & Ajzen, 2010). Attitude is a smoker's evaluation of his or her own benefit use, and includes instrumental attitude—an evaluation in terms of positive or negative attributes (e.g., foolish or wise)—and experiential attitude—an evaluation in terms of positive or negative affective experiences (e.g., pleasant or unpleasant). Perceived norm is the extent to which a smoker expects normative pressure for or against his or her own benefit use, and includes injunctive norm—the extent to which important referents are expected to approve or disapprove the smoker's benefit use—and descriptive norm—the extent to which important referents use cessation benefits. Perceived behavioral control is the extent to which a smoker expects that her or she can successfully use benefits, and includes perceived capacity—the perceived ability to use benefits—and perceived autonomy—the extent to which the decision to use benefits is perceived to be up to the smoker.

Attitude, perceived norm and perceived behavioral control are themselves a function of highly specific beliefs about benefit use. Attitude is a function of behavioral beliefs, or the perceived likelihood of various consequences of benefit use. Perceived norm is a function of normative beliefs, which are perceptions of social support from particular members in people's social networks. Lastly, perceived behavioral control is a function of control beliefs, which regard the extent to which specific situational circumstances facilitate or hinder benefit use.

It is at the level of beliefs that the usefulness of reasoned action theory for intervention design becomes clear. Beliefs can be introduced, reinforced or changed by a number of sources, ranging from personal experience to media exposure. Once beliefs are formed they form the basis for decisions about performing the particular behavior (Fishbein & Ajzen, 2010). This has two important implications: One, interventions can be a tool for changing the most critical determinants of behavior and thereby ultimately behavior itself, and two, to inform interventions one must identify those beliefs that most importantly determine behavior.

To identify those beliefs a two-study approach is recommended (Bleakley & Hennessy, 2012; Fishbein & Ajzen, 2010). Because each behavior has a unique set of underlying beliefs, a first belief elicitation study serves to understand the belief system associated with the behavior. For this purpose open-ended questions are used to identify all behavioral, normative and control beliefs that exist in a sample that is representative of the population of interest. Responses are grouped in discrete belief categories, and these categorized beliefs are ranked based on how frequently they were mentioned. A second survey study then serves to establish which beliefs best explain intention. For this purpose beliefs are transformed into closed-ended questions and included in a questionnaire that quantitatively assesses all model variables. Survey data obtained from a sample representative of the target audience are used to first determine the extent to which attitude, perceived norm and perceived

behavioral control determine intention, and next test which of the beliefs underlying the primary determinant of intention are most strongly related to intention. These beliefs are then addressed in intervention messages, because changes in beliefs that correlate strongly with intention should theoretically lead to change in intention.

There is good evidence that successfully changing such key beliefs leads to behavior change (e.g., Albarracín et al., 2001). But how does one know how to design a message that successfully changes beliefs? Reasoned action theory was designed to identify key beliefs, but cannot speak to translating beliefs in real messages (Fishbein & Yzer, 2003). What is needed is information that can inform ideas about how to design messages that can change or reinforce key beliefs. For this purpose we argue for a third step in the reasoned action approach that gives creative experts information on how to best translate beliefs. We propose that once key beliefs have been identified, a third sample of the target population is asked to respond to these beliefs in a qualitative manner. Those responses are then analyzed to understand how people experience each particular belief. Assume, for example, that beliefs about costs of cessation benefit use correlate with intention to use benefits. Subsequent focus groups may show that the belief that cessation benefit use is costly is expressed as a lack of information about the benefits offered by their health insurance. Clearly, this finding is much more directly useful for message design than only knowing that the perceived likelihood of benefit costs correlates with intention.

We illustrate the usefulness of our proposed mixed methods reasoned action approach for informing intervention design in the context of smoking cessation benefit use among unionized blue-collar smokers in Minnesota. We used an explanatory mixed methods design (Ivankova, Creswell & Stick, 2006) by sequentially conducting three studies with different samples of blue-collar smokers: First, a belief elicitation study that identified beliefs about quitting smoking and using cessation benefits; second, a closed-ended survey that identified the beliefs that best explained quit intention and benefit use intention; and third, a set of focus groups that explored these beliefs more deeply to aid translation into effective messaging.

General Method

Target Population

This research is part of a larger intervention project for which data were collected regarding quitting smoking and cessation benefit use. In this manuscript we report on cessation benefit data. The intervention project targets active worker members of ten blue-collar unions whose healthcare benefits are administered by eleven affiliated Taft-Hartley Health and Welfare Funds. Funds represent building trades, retail grocery and pharmacy, and hospitality and accommodations, or about 25% of approximately 92,000 unionized workers in Minnesota who are Fund participants (D. Rubbelke, personal communication, November 1, 2013).

Study 1: Belief Elicitation Interviews

Study Objective

The objective of the belief elicitation study was to determine the beliefs smokers have about consequences, referents and behavioral circumstances of cessation benefit use.

Methods

Participants and Protocol.—Following advice from our union partners, we recruited participants at labor union booths at the Minnesota State Fair, a construction job site, a building trades apprenticeship training center, two retail grocery store break rooms, a nursing home break room, a hotel workers' cafeteria, and a local union hall. Forty-three participants completed paper copy questionnaires for which they received a \$15.00 grocery store gift card. Participants were 24 males (56%) and 19 (44%) females, $M_{\text{age}} = 41.12$ years, $SD = 11.33$, range 22–62 years. The sample was 72% white. See supplemental table S1 for full demographic data.

Instrument.—Following established procedures (Middlestadt et al., 1996) we first described cessation benefit use and next asked a number of open-ended questions about benefit use. The open-ended questions asked about behavioral beliefs (i.e., possible consequences), normative beliefs (i.e., possible referents) and control beliefs (i.e., behavioral circumstances). To tap **behavioral beliefs** we asked: “What do you see as the pros or benefits of your using tobacco cessation (“quit”) benefits? What good or positive things come to mind when you think about your using tobacco cessation benefits?” and “What do you see as the cons or downsides of your using tobacco cessation benefits? What negative things come to mind when you think about your using tobacco cessation benefits?” To tap **normative beliefs** participants responded to “What individuals or groups of people do you think would be supportive of you using tobacco cessation benefits?”, “What individuals or groups of people do you think would not be supportive of you using tobacco cessation benefits?”, “What individuals or groups of people do you think are most likely to use tobacco cessation benefits?” and “What individuals or groups of people do you think are unlikely to use tobacco cessation benefits?” Last, for **control beliefs** we asked “What would make it easy or help you use tobacco cessation benefits?” and “What would make it difficult or prevent you from using tobacco cessation benefits?”

Results

Two raters reviewed the written responses to the belief questions. First, the raters determined whether responses reflected behavioral, normative or control beliefs. There was 100% agreement between the raters. In a second step, all responses within each of the three behavioral, normative or control belief groups were categorized into a smaller number of distinct beliefs. The 43 participants gave a total of 219 responses. These responses represented 8 different consequences (behavioral beliefs), 15 normative referents (normative beliefs) and 12 behavioral circumstances (control beliefs; see Table 1). We selected five consequences (be able to quit smoking, feel healthier, save money, waste time, and have negative side effects), six normative referents (significant other, other family members, friends, co-workers, health professionals, and union members), and six control beliefs (when

treatment options are expensive, when treatment options are free, ease of sign-up, required completion time, need to see doctor for prescription, and treatment side effects) for further examination in Study 2.

Discussion

The variety of responses and belief categories underscores the utility of the belief elicitation method for revealing rich belief structures. In terms of primary themes, the belief categories indicate concerns related to the efficacy of cessation options as well as health and monetary consequences. Three major groups of referents were mentioned: family, people at work and health professionals. Themes related to control over benefit use were cost, convenience and effectiveness of treatment options. Which of these beliefs most strongly affect intention to use cessation benefits is a question we turn to next.

Study 2: Survey

Study Objective

The objective of the survey study was to determine which beliefs shaped intention to use cessation benefits.

Methods

Participants.—We mailed a survey booklet with a \$2 bill inserted as an incentive to 2,846 blue-collar workers randomly selected from the participant lists of 11 Minnesota-based Taft-Hartley Health and Welfare Funds. The survey was mailed on two occasions to the homes of those selected. Postcards were mailed before the survey to announce its impending arrival, and, after the second survey, to thank those who had responded and to remind those who had not to do so. Fund participants with Spanish surnames were mailed surveys in both Spanish and English. All 931 fund members who completed the survey were entered into a drawing for gift cards. Two \$100 gift cards were awarded per fund. Of those who completed the survey, 172 were current smokers. The sample of smokers represented all 10 unions and was 91% male (compared to 49.6% of all Minnesotans; U.S. Census Bureau, 2014) and 88% white (compared to 85.3% of all Minnesotans; U.S. Census Bureau, 2014). The median age was 43 years, $SD = 10.21$ years, range = 21–65 years). See supplemental table S2 for full demographic data.

Instrument.—Reasoned action variables were measured consistent with theory and measurement recommendations (Fishbein & Ajzen, 2010). Measures were phrased in terms of ‘using tobacco cessation treatment options in the next 12 months’.

Intention was measured by asking participants ‘How likely is it that you will use tobacco cessation treatment options in the next 12 months?’ (1=*very unlikely*, 7=*very likely*) and respond to the statement ‘I expect to use tobacco cessation treatment options in the next 12 months’ (1=*definitely not* and 7=*definitely expect to*). Scores were averaged to form an intention scale, $r = .93$. Five seven-point semantic differential items measured instrumental and experiential **attitude**. The stem ‘My using tobacco cessation treatment options in the next 12 months would be...’ was followed by the items *bad–good*, *harmful–beneficial*,

unnecessary–necessary (for instrumental attitude), and *not enjoyable–enjoyable, stressful–relaxing* (for experiential attitude). Scores on the two sets of items were averaged to yield indicators of instrumental attitude, $\alpha=.87$, and experiential attitude, $r=.81$. **Perceived norms** were assessed on seven-point scales. An injunctive norm measure asked participants ‘How do you think most people important to you would feel about you using tobacco cessation treatment options in the next 12 months? They would: ...’ (scale anchors *strongly disapprove* and *strongly approve*). To measure descriptive norms we asked ‘How many of the people important to you who smoke tobacco do you think will use tobacco cessation treatment options in the next 12 months?’ (scale anchors *almost none, almost all*). The **perceived behavioral control** measures also used seven-point scales. To measure perceived capacity we asked ‘There can be a variety of obstacles to your using tobacco cessation treatment options in the next 12 months. Even in the face of such obstacles, how sure are you that if you really wanted to, you could use tobacco cessation treatment options in the next 12 months?’ We used two semantic differentials for perceived autonomy. The stem ‘My using tobacco cessation treatment options in the next 12 months would be...’ was followed by the items *not under my control–under my control* and *not up to me–up to me*. We averaged these two items to compute perceived autonomy scales, $r=.75$.

The beliefs selected from Study 1 were translated into survey measures. Specifically, to measure **behavioral beliefs** we used the stem ‘How likely is it that the following would happen to you if you use tobacco cessation treatment options in the next 12 months? I would ...’ (be able to quit smoking; feel healthier; save money; waste time; have negative side effects) and the response scale 1=*very unlikely*, 5=*very likely*. To measure **normative beliefs** we asked ‘How do you think ... (your significant other; your other family members; your friends; your co-workers; your doctor, nurse or other health professionals; your fellow union members) would feel about you using tobacco cessation treatment options in the next 12 months? They would ...’ and the response scale 1=*strongly disapprove*, 7=*strongly approve*. **Control beliefs** were assessed by asking: ‘How sure are you that you can use tobacco cessation treatment options in the next 12 months, if you really wanted to, if ...’ (treatment options were expensive; treatment options were free; treatment options were easy to sign up for; treatment options took very little time to complete; I would not have to go to the doctor to get a prescription for cessation medications; the medications caused side effects: response scale 1=*not at all sure*, 7=*completely sure*). Because beliefs are analyzed individually we did not scale belief measures (Fishbein & Ajzen, 2010).

Results

Table 2 shows a more positive instrumental attitude ($M=5.19$ on a 7-pt scale) than experiential attitude ($M=3.93$). Participants expected approval from people important to them ($M=5.60$), but at the same time believed it less likely that the smokers among those people use benefits themselves ($M=2.95$). They felt somewhat capable ($M=5.01$) and autonomous ($M=5.31$) regarding their using benefits, but reported a weak intention to use benefits ($M=3.25$). Note also that correlations between the two attitude scales ($r=.26$), the two normative scales ($r=.24$) and the two control scales ($r=.30$) were only moderate, which supports the reasoned action conceptualization of attitude, norms and control as each having two aspects.

We regressed intention to use benefits on instrumental attitude, experiential attitude, injunctive norm, descriptive norm, perceived capacity and perceived autonomy. These six variables explained 47% of the variance in intention to use benefits. Intention was a function of instrumental attitude ($\beta = .46, p < .001$), and to a lesser extent of injunctive ($\beta = .17, p < .05$) and of perceived capacity ($\beta = .19, p < .001$; see Table 3).

We next examined all three types of beliefs (see Table 4). Beliefs about negative side effects of treatment options were only weakly associated with intention to use benefits ($r = -.10$). Instead, beliefs about monetary savings ($r = .30$), the effectiveness of treatment options ($r = .30$), wasting time ($r = -.32$) and subsequent health improvement ($r = .40$) shaped intention to use cessation benefits. Intention was further associated with expected approval from all normative referents—but in particular from friends ($r = .37$) and family members ($r = .41$)—and with beliefs about one's capability to use benefits when treatment options were free ($r = .32$), ease of sign-up ($r = .39$), taking little time to use ($r = .31$) and requiring doctor visits ($r = .30$).

Discussion

Intention scores show that there is considerable room for improving intentions to use cessation benefits. This underscores the need for an intervention (Fishbein & Yzer, 2003). The analyses produced useful input for such an intervention. First, the set of reasoned action variables explained intention to use benefits well, and we were able to identify instrumental attitude as particularly important. Second, we identified the beliefs that most strongly informed intention. Because changes in those beliefs translate to the largest changes in intention, these beliefs can now be offered as candidate content for intervention messages. This is the point where recommended use of reasoned action theory stops. To obtain information necessary for translating beliefs to real messages, we conducted focus groups for additional inquiry.

Study 3: Focus Groups

Study Objectives

The purpose of this third, qualitative phase was to enrich and explain quantitative findings regarding beliefs about cessation benefit use by asking participants to describe in their own words beliefs that correlated with benefit use intention.

Methods

Participants and Protocol.—Three two-hour focus groups with a total of 10 participants were conducted in July 2013. To recruit participants we used sign-up sheets at a labor union health fair and posted signs at union halls and worksites. Participants were five males and five females ranging in age from 20 to 50 years, of whom six were White, two were Hispanic and two were Black. Participants represented unions in the building trades, retail grocery, and hospitality/accommodations. All were experienced smokers and all but one had experience with quit attempts. Participants received \$75 for their time.

The focus group moderator described the objective of the discussion, next presented a particular belief, and then asked: “Let’s talk about [a particular belief]. What does that mean to you? What comes to mind when you hear or read this? Any other thoughts or images that came to mind when you read that initially or as you were trying to decide how you felt about it?”

Analysis strategy.—The design of our focus groups study was consistent with the objective to enrich quantitative findings, which means that validity considerations regard conclusions about themes within the focus group data rather than broader generalizability (Ivankova, Creswell & Stick, 2006). Our analysis strategy aimed to uncover meaningful and actionable insights. We focused on finding patterns and themes that indicate a reasonable level of agreement among participants as well as finding infrequent responses that have the potential to highlight alternative perspectives.

All three focus groups were recorded and then transcribed. To determine levels of agreement responses were first categorized in distinct themes, and next counted within each category. We included participants who voiced a particular sentiment directly (e.g., “It makes me think of being able to climb the stairs more easily”) as well as those who added on to that thought (e.g., “Me too. I was thinking about how I feel when I can breathe more easily”), or simply echoed agreement verbally during the conversation (e.g., “I agree with what ____ said.”). Agreement levels were labeled *just a few* when only one or two participants voiced a particular sentiment; *few* when up to 25% of total participants voiced a sentiment or verbalized agreement (indicating a minority opinion); *some* when up to 50% of participants voiced a sentiment or verbalized agreement (indicating some general level of agreement but not a majority sentiment); *many* when up to 75% of participants voiced a sentiment or verbalized agreement (indicating broad agreement); and *most* when 75% or more of all participants verbalized a sentiment or voiced agreement (indicating a commonly-held opinion).

Results

Behavioral beliefs.—Beliefs were presented as possible consequences of using treatment options offered through participants’ health benefits.

I would be able to quit smoking. Many participants said that they were not sure that treatment options would enable them to quit smoking permanently or for a long period of time. These participants had tried gum, nicotine patches or similar options without success. Participants said that although they wanted to believe that there is a treatment option that effectively helps them quit, they were keenly aware of the many times they tried some treatment yet started smoking again. Some said that it was not the treatment option itself, but their own attitude, willpower, and desire that dictated whether they succeeded or failed.

I would feel healthier. Most agreed that they would feel healthier if they quit smoking, particularly once the first few days or weeks had passed and they were past physical withdrawal symptoms. However, when pressed on whether they would feel healthier “using treatment options” to quit smoking, they were less convinced. A few participants mentioned

that treatment options can help a smoker “feel better sooner” by helping them adjust through the withdrawal period and feel less ill along the way.

I would save money.: Most participants agreed that once successfully quit, they would not be spending money on cigarettes and would therefore save money. A few others mentioned immediate cost-savings on the treatment options themselves, such as cheaper access to an expensive drug like Chantix or free gum or patches as part of quitline-type programs.

I would waste time.: Participants were ambivalent about this statement. Most understood “waste time” to refer to the idea that a quit attempt might be unsuccessful, that is, that it would be a “waste of time” to try if the attempt were unsuccessful. Some others said that it is never a waste of time to try. For example, some said that the same tool could work once and not work another time, but trying a treatment option would only be a waste of time if they went into it expecting to fail.

Normative beliefs.—Participants talked about how different referents would feel if the participant would use smoking cessation benefits.

My significant other.: Discussion primarily focused on how a participant’s partner would be extremely happy for them to quit, regardless of which treatment options they might or might not use. A few commented that their partner might take the quit attempt more seriously if they were using cessation benefits, because use of treatment options would show more commitment.

My other family members.: Participants typically thought about their children next, particularly those whose children had expressed a desire for them to quit. The use of benefits seemed less likely to be necessary as a marker of dedication for children, even adult children. Some said that they did not think other family members would care, particularly siblings. Siblings might not even care if they quit smoking, and would be even less interested in how. A few mentioned that a family member who also smokes might be curious about what tool they were using to quit and it might spark their interest in trying it.

My friends.: Many said that this would vary depending on whether the friend was a smoker or not. For close friends who are non-smokers, using benefits might be a meaningful indicator that the smoker was serious. Friends who smoke might be curious because they were interested in trying the tool if it worked, or because they had their own experiences to share.

The people I work with.: Most said their co-workers would not care or would be unlikely to know how the smoker was quitting. In apparent contrast, there was spontaneous discussion throughout the groups around smokers chatting at work about what they have and have not done to quit smoking.

My healthcare professional.: Most felt that their health care provider would be very happy to see them quit. Several had been told by a doctor or other healthcare professional to quit

for health reasons. A few mentioned that their use of treatment options might be the reason why the healthcare professional even finds out that they are attempting to quit.

Control beliefs.—Participants talked about how sure they were that they would use cessation benefits under various circumstances.

If treatment options were expensive.: This was perceived as a meaningful issue. Some said, for example, that gum or patches are relatively inexpensive and that benefits might make little difference in their ability to use them, but prescription medications like Chantix are expensive and that having benefits available might make its use more feasible. Overall, cost was perceived as a real barrier. Participants said that the higher the cost, the more they need to believe that the treatment option will work in order for it to be considered worth the expense.

If treatment options were free.: Whether treatment options would be considered if they were free seemed dependent on how familiar participants are with the treatment and whether those options were effective for them in the past. For example, free nicotine patches when tried unsuccessfully in previous quit attempts were not as appealing as other options that have the potential to be more effective even if those had a cost attached. Note that “free” for most meant not having to pay a co-pay or submit anything for reimbursement.

If treatment options were easy to sign up for.: Most felt that easy sign-up for treatment options was a requirement for cessation benefit use. When asked what “easy” meant to them, most participants described a scenario where they were able to submit information online and/or receive the treatment directly. For a few others the ability to make a phone call or sign up at an event was also considered “easy.” One participant said he wished there was a kiosk or storefront location he could visit to access smoking cessation treatment options.

If treatment options took very little time to complete.: Many perceived time to complete in terms of access to treatment. When asked about treatment options that require participation in counseling, many reported that the duration of counseling was a barrier. For some, counseling meant commitment that they would rather avoid. One participant who had used a quitline in the past said that someone still occasionally checks in with her, but she finds that a nuisance.

If I would not have to go to the doctor to get a prescription for cessation medications.: This statement caused some confusion. Some interpreted it as “I could get prescription medication without visiting or needing a doctor” which was appealing. Others assumed it meant that they would get other types of treatments that did not require a prescription, which was only mildly appealing, largely because many had already tried the non-prescription options available to them. In general, not having to have a doctor’s appointment was appealing.

Discussion

Beliefs about consequences of benefit use represented more varied construals than the survey question stems might suggest. Normative beliefs about benefit use were primarily

phrased in terms of perceived commitment to quitting smoking instead of how referents might think about particular benefits. One control belief singularly triggered thoughts of monetary costs of treatment options, whereas all other control beliefs clustered around how complicated benefit use might be. The focus groups thus provided a deeper understanding of smokers' beliefs about benefit use. We discuss its implications next in the general discussion of our research.

General Discussion

This research is novel in a number of ways. First, whereas reasoned action theory has been used often to test determinants of smoking cessation (e.g., Hoie et al., 2012; Hukkelberg et al., 2013), it has not been applied to tobacco cessation benefit use. We tested the theory in three samples of unionized blue-collar smokers—a population for whom cessation benefits are as important as they are underutilized. Second, most reasoned action research has reported attitudinal, normative and control effects on intention but did not measure beliefs underlying these effects (Yzer, 2013). Such research can demonstrate that, for example, intention in a particular sample is shaped by attitudinal perceptions, but it cannot explain which beliefs are responsible for this effect. This significantly limits understanding of intention formation processes and offers little guidance for intervention design. In contrast, all three studies in our research addressed beliefs underlying cessation benefit use.

Last, this is the first research to apply an explanatory mixed methods design to the reasoned action approach. Reasoned action recommendations call for belief elicitation and survey research. Although belief elicitation research is critically important for identifying salient beliefs, its quantitative approach leaves obscured how people construe beliefs (Middlestadt, 2012). The focus groups that we added as part of a novel mixed methods reasoned action approach advance such understanding of beliefs. But more important than how the present research is novel is the question what can be learned from it. To answer that question we briefly discuss the belief elicitation and survey findings, and next discuss more deeply the implications of the focus group findings in the context of the quantitative findings.

The belief elicitation study produced 35 unique behavioral beliefs, normative beliefs and control beliefs. Clearly, having identified such a large number of specific beliefs people hold about cessation benefit use greatly improves understanding of perceptions of benefit use compared to research that only has data on general attitudinal, normative and control perceptions. Our next survey study first showed that the attitudinal, normative and control variables that reasoned action theory proposes as the most proximal determinants of intention did in fact account for a substantial proportion of the variance in benefit use intention (47%). We then identified 15 different behavioral, normative and control beliefs as ultimately underlying benefit use intention. These 15 beliefs are candidates for the design of messages that seek to move smokers to cessation benefit use (Fishbein & Ajzen, 2010; Fishbein & Yzer, 2003).

But although a list of 15 beliefs importantly tells the message designer what messages should convey, such a list is silent on how to creatively translate beliefs to actual messages. This is where focus group findings offer useful information. To begin, focus group responses

suggested that each behavioral belief may have multiple meanings. Perceptions about whether treatment options would strengthen one's ability to quit smoking were an integration of thoughts about the effectiveness of treatment options, generally unsuccessful experiences with cessation options, and awareness of the need to be motivated for treatment options to work. Similar associations were presented in response to the belief whether benefit use is a waste of time. This can inform messages that present a particular method's effectiveness while expressively relating to smokers' personal, often unsuccessful experiences with treatment options. It can also inform the decision to target such messages to smokers who already have some commitment to quitting, as they may have the required motivation to try.

Perceptions about health effects of treatment options suggested an interpretation in terms of time perspective. As a longer term outcome, treatment options may result in better health if they successfully help someone quit. In the short term, a treatment option might help get through the discomfort of withdrawal. Because quit attempts take place in the present, concrete short term outcomes are more salient than the abstract longer term general health outcomes of being quit (Trope & Liberman, 2010). Similarly, saving money was associated with money not spent on tobacco products when quit in the future as well as affordable access to expensive drugs as more proximal outcome of using benefits. This informs the possibility to focus on the experience of withdrawal when communicating health effects of treatment options, and on affordability of treatment options when communicating about monetary effects of benefit use.

Normative beliefs primarily focused on how benefit use would be perceived by others as indicative of a smoker's commitment to quitting smoking. This usefully suggests messages that emphasize that by using cessation benefits, smokers show people they care about that they are committed to quitting. An additional interpretation of normative beliefs focused on how other smokers in someone's social network may observe the person's use of cessation benefits to learn about treatment effectiveness. This offers modeling opportunities, for example by using testimonial messages of people who effectively quit through their cessation benefit use.

The interpretation of the control belief about benefit use if treatment options were expensive was straightforward: The more money treatment options cost, the more challenging it will be to use them. All other control beliefs (about benefit use if it were free, easy to use, was easy to sign up for, and did not require a doctor) were all interpreted in terms of how bothersome cessation benefit use is. This consistency in qualitative findings for these four control beliefs was consistent with quantitative survey data that showed that these four beliefs correlated strongly with each other, $.72 < r < .91$. These findings inform a dual message approach. One, a straightforward informational message that educates about the costs of treatment options available through health benefits. Two, a message that emphasizes how little effort, time and other resources it takes to access cessation benefits. Of course, such messages can only be effective if funds have made sure that benefit use is in fact uncomplicated.

The focus groups added to belief elicitation and survey findings in a number of different ways. The behavioral beliefs interpretations showed that a single belief can have more than

one interpretation, which informs more message ideas than what otherwise would have been possible. The normative beliefs interpretations suggested that to move people towards a behavior (smokers towards benefit use), messages may focus on another behavior (what normative referents think about quitting smoking). The control beliefs interpretations showed that multiple beliefs can represent one single representation, which allows fewer and more consistent messages. In more general terms, the findings demonstrate the usefulness of a mixed methods reasoned action approach for a deeper understanding of cessation benefits use among our samples of unionized blue-collar smokers in Minnesota. The mixed methods approach can be applied to any health behavior across various populations, and thus offers an important methodological opportunities for applied health communication science.

Limitations

Although our primary objective was to demonstrate the usefulness of a mixed methods approach to reasoned action research on smoking cessation benefit use, which arguably is less vulnerable to external validity than research that seeks to generalize to populations, we must warn against an interpretation of our findings as representative of all unionized blue-collar smokers in Minnesota. For example, the survey sample was predominantly male, and of the union members who participated in our survey, 18% were smokers. This is a smaller proportion than the estimated 30% of smokers among blue-collar workers in Minnesota. This might mean that smokers were less likely to respond to our research invitation than non-smokers. Because we cannot refute the possibility that non-participating unionized blue-collar smokers differ in some ways from participating smokers, we cannot generalize our findings beyond our sample.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

Preparation of this article was supported by research grant RC-2012-0007 from ClearWay Minnesota. Dr. Choi's effort on the manuscript was supported by the Division of Intramural Research, National Institute on Minority Health and Health Disparities, National Institutes of Health. The opinions and comments expressed in this manuscript are the authors' own and do not represent those of ClearWay Minnesota or the National Institutes of Health and the U.S. Government. The authors declare that they have no conflict of interest.

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Table 1
 Belief Elicitation Results: Description and Frequency of Unique Beliefs about Cessation Benefit Use

Behavioral beliefs: Outcomes related to...	Frequency	Normative referents	Frequency	Control beliefs: Factors that facilitate or hinder behavioral performance	Frequency
help make quitting easier	18	Family	34	cost of treatment	17
effectiveness	16	Friends	17	side effects	8
time commitment	10	coworkers, supervisors	10	knowledge about cessation resources	7
money	9	tobacco industry	7	social support	5
side effects	9	younger people	5	Time	4
health	6	healthcare professionals	4	Medication	3
cancer / lungs	2	older people	4	personal health scare	3
gaining weight	1	people with children	2	Stress	2
		people who drink	2	having to go to doctor for a prescription	2
		people who tried to quit	2	having a child	1
		people with health	2	money or health incentives	1
		people with health	2	(not) being around people who smoke	1
		church	1		
		significant other	1		
		union members	1		

Table 2

Descriptive Statistics: Correlations, Means and Standard Deviations

	Correlations						Dispersion		
	I-Att	E-Att	IN	DN	Cap	Aut	<i>M</i> [*]	<i>SD</i>	<i>n</i> ^{**}
Behavioral intention (BI)	.61	.12	.50	.28	.44	.44	3.25	2.04	226
Instrumental attitude (I-Att)		.26	.52	.17	.35	.68	5.19	1.48	207
Experiential attitude (E-Att)			.07	.18	.06	.30	3.93	1.51	201
Injunctive norm (IN)				.24	.44	.38	5.60	1.53	221
Descriptive norm (DN)					.22	.12	2.95	1.86	213
Perceived capacity (Cap)						.30	5.01	1.68	216
Perceived autonomy (Aut)							5.31	1.47	203

Note.

* Means are relative to scales ranging from 1 (negative; weak) to 7 (positive; strong).

** In addition to the 172 current smokers in our sample, recently quit participants could also answer cessation benefits questions. Numbers vary slightly because of occasional missing data.

Table 3

Regression Results: Intention Regressed on Attitudinal, Normative and Control Variables (N = 191)

	β	p
Instrumental attitude	.46	.000
Experiential attitude	-.08	.192
Injunctive norm	.17	.012
Descriptive norm	.11	.066
Perceived capacity	.19	.003
Perceived autonomy	.01	.873
R^2	.47	

Table 4

Behavioral, Injunctive Norm, and Control Beliefs about Cessation Benefits Use: Means, Standard Deviations and Correlations with Intention to Use Cessation Benefits

	<i>M</i>	<i>SD</i>	<i>r_{w/intention}</i>	<i>p</i>
Perceived likelihood of cessation benefit use outcomes (1=very unlikely, 5=very likely)				
...be able to quit smoking or quit using smokeless tobacco	3.73	.87	.30	.000
...feel healthier	4.17	.89	.40	.000
...save money	4.31	.91	.30	.000
...waste time	2.49	1.01	-.32	.000
...have negative side effects	2.76	1.07	-.10	.160
Perceived approval for using cessation benefits from ... (1= strongly disapprove, 7=strongly approve)				
...your significant other	6.16	1.51	.33	.000
...your other family members	5.99	1.51	.41	.000
...your friends	5.36	1.71	.37	.000
...your co-workers; the people you work with	5.12	1.74	.32	.000
...your doctor, nurse or other healthcare professional	6.43	1.33	.26	.000
...your fellow union members	5.34	1.76	.27	.000
Perceived behavioral control over using cessation benefits if... (1=not at all sure I can, 7=completely sure I can)				
...treatment options were expensive	2.57	1.84	.25	.000
...treatment options were free	5.03	2.17	.32	.000
...treatment options were easy to sign up for	4.78	2.10	.39	.000
...treatment options took very little time to complete	4.80	2.13	.31	.000
...I would not have to go to the doctor to get a prescription for cessation medications	4.63	2.18	.30	.000
...the medications caused side-effects	2.65	1.76	.15	.034