Published in final edited form as:

Disabil Health J. 2016 January ; 9(1): 145–149. doi:10.1016/j.dhjo.2015.08.002.

Evaluation of a Newly Developed Tobacco Cessation Program for People with Disabilities

Jessica L. King, MS, CHES¹, Jamie L. Pomeranz, PhD, CRC, CLCP¹, Mary Ellen Young, PhD¹, Michael Moorhouse, PhD, CRC¹, and Julie W. Merten, PhD, MCHES²

¹University of Florida, Department of Behavioral Science & Community Health, Gainesville, FL

²University of North Florida, Brooks College of Health, Jacksonville, FL

Abstract

Background—Tobacco use is the single most preventable cause of morbidity and mortality, accounting for at least 480,000 deaths in the United States annually. People with disabilities smoke at a rate 1.5 times greater than the able-bodied population. Higher incidence of tobacco use among people with disabilities has been directly related to both unique and universal cessation barriers. Despite increased prevalence of tobacco use and cessation obstacles, evidence is lacking on the development of successful interventions targeting people with disabilities.

Objective—We aimed to assess the feasibility, acceptability, and potential effectiveness of a cessation intervention tailored to people with disabilities.

Methods—Eighteen tobacco users with disabilities (56% African American, 64% male) participated in a 4-week, 8-session tobacco cessation program consisting of group sessions on managing addiction, relapse, and lifestyle changes specific to people with disabilities. Semi-structured interviews were conducted at the conclusion of the program. A follow-up measure of smoking status, triggers, and nicotine replacement therapy usage was completed at 4 weeks and 6 months.

Results—Sixteen participants completed the intervention (89%), with participants on average attending 86% of sessions. Most participants rated the program as excellent (83%) or good (8%). Qualitative interviews revealed participants value social support, accessibility, and a tailored program. Four participants (22%) reported abstinence at six months, which is greater than the standard quit rate.

Corresponding Author: Jessica L. King, jessking@phhp.ufl.edu, 01 850.450.6054, Department of Behavioral Science and Community Health, PO Box 100175, Gainesville, FL 32610, Brooks College of Health, 1 UNF Drive, Jacksonville, FL 32224.

The authors have no conflicts of interest to report.

Similar research was presented at the 2014 American Public Health Association Conference and recognized at the 2015 Society for Public Health Conference.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Conclusion—This study suggests tailoring a cessation program to the characteristics unique to people with disabilities may be critical in delivering meaningful and effective cessation interventions among this population.

Keywords

Tobacco Cessation; Disability; CBPR; Intervention

Introduction

Tobacco use remains the single most preventable cause of morbidity and mortality in the United States (US), with cigarette smoking and exposure to second-hand smoke contributing to at least 480,000 deaths annually.¹ Furthermore, nearly 60% of smokers will die from a disease attributable to smoking.² Smoking rates have considerably declined since the publication of the first Surgeon General's report on smoking and health in 1964.¹ This decrease may in part be due to the availability of effective smoking cessation interventions and therapies.³ The effectiveness of a combination of behavioral and pharmacological therapies for smoking cessation is well supported in the literature.^{4,5} Despite successes in smoking prevention and cessation that have reduced total smoking prevalence over time, the rate of decline has slowed to a current prevalence at 18%.¹ Perhaps more concerning is tobacco use among certain populations remains disproportionately high, and little is being done to address this discrepancy.

Over 50 million Americans experience some form of disability,^{6,7} with evidence indicating smoking rates within the disabled community are double that of the general population.⁸ This increased rate of smoking is attributed to biological, psychosocial, cultural, and tobacco industry related factors, as well as lack of appropriate cessation interventions.⁹ Research indicates individuals with cognitive, affective, or sensory impairments may have difficulty obtaining, understanding or remembering cessation materials.^{10–13} Furthermore, people with disabilities face a series of unique challenges relative to tobacco cessation, yet intervention efforts are typically developed for the general population and fail to address or consider these challenges.

As pointed out by Borelli and colleagues,¹⁴ tailored programs that target sub-populations may be more effective for special populations than tobacco treatment programs intended for the general population. Past prevention and intervention research targeting people with disabilities have shown positive results.^{9,15–21} Additionally, the ongoing shift in disability research and practice has led to a focus on health promotion with a goal of reducing secondary conditions and improving quality of life.¹⁹

Therefore, a team of researchers used a Community Based Participatory Research (CBPR) approach within the context of behavioral theory to tailor a mainstream tobacco cessation program to address the needs of people with disabilities. The Living Independent From Tobacco (LIFT) curriculum was designed as a collaboration between the research team and individuals with disabilities who were either current or former tobacco users and then extensively reviewed by a panel of tobacco cessation experts. The resulting curriculum incorporated 42 adaptations designed to make the LIFT more accommodating for people

with disabilities. Changes included program location and accessibility, modifications to the program manual and overall delivery (accommodating for visual or hearing impairments; increased readability), personal vignettes from people with disabilities, and appropriate counseling strategies and other pertinent information within a facilitator guide.²²

The purpose of this research was to evaluate the feasibility, acceptability, and potential effectiveness of a tobacco cessation intervention tailored to people with disabilities using qualitative methodology. We sought to understand whether the LIFT intervention would be more acceptable among individuals with disabilities than a standard tobacco cessation program, as well as which aspects of the LIFT cessation intervention were preferred by individuals with disabilities.

Methods

This IRB approved study occurred within the context of a larger quasi-experimental study comparing a four-week tobacco cessation intervention designed for people with disabilities (LIFT) to a standard six-week cessation program (Quit Smoking Now). A total of three four-week intervention programs were conducted between September 2012 and December 2013. All program sessions and qualitative interviews were held at a large center for independent living in the southeastern US. Participants were recruited through mailings and word of mouth via center staff and previous participants. Interested participants contacted the program coordinator via telephone to complete a brief telephone interview to determine availability and whether participant met all inclusion criteria. Inclusion criteria included diagnosis of a disability, current tobacco user, over the age of 18, and cognitively able to participate in the intervention.

Sample Characteristics

A total of eighteen individuals participated in the intervention, with sixteen completing the program (see Table 1). Reasons for not completing the program included time conflicts and lack of interest in quitting. Seven women and nine men with varying disabilities (e.g. cognitive, mobility, or multiple) also completed qualitative interviews that varied in time depending on participants' answers. Seven participants self-identified as Caucasian, nine as African American, and all were between the ages of 25 and 62 (mean = 52.31 years; SD = 13.38).

Data Collection

Following the final intervention meeting, participants completed a one-on-one guided interview (see Appendix 1) with a member of the research team. Interviewers included male and female university professors and a graduate assistant, all trained in qualitative methodology and experienced in working with tobacco cessation and individuals with disabilities. Interviewers had met participants prior to conducting the interviews which were semi-structured with probing relevant to the context of individual responses, each lasting between ten and thirty minutes. The interview guide was developed by former smokers with disabilities during development of the intervention²² and consisted of 11 questions over six content areas: overall assessment, accessibility, curriculum, facilitators, nicotine

replacement therapy, and group interaction. The interviews were recorded and later transcribed verbatim to ensure accuracy and completeness of data for analysis.

Data Analysis

Data were analyzed within a content analysis framework using NVivo® Qualitative Software. The authors used a multistage process in analyzing the data, first identifying themes and subthemes and later grouping into constructs and a final model product. The first author transcribed and analyzed all interviews. The transcriptions were reviewed by the other interviewers for accuracy. A second author analyzed each interview. Members of a qualitative data analysis team assisted in identifying themes and subthemes and grouping. Because no new descriptive themes or subthemes emerged during final analyses, saturation was considered met. The resulting categories and subcategories were compared for inter-coder reliability to ensure credibility.²³

Results

Sixteen participants completed the intervention (89%), with participants on average attending seven of the eight sessions. Most participants rated the program as excellent (83%) or good (8%). Four participants (22%) reported abstinence at 6 months. Qualitative results centered around three primary groupings: Group Characteristics, Program Characteristics, and Individual Characteristics.

Group Characteristics

Group Characteristics includes social support from other group members as well as facilitator characteristics. Participants appreciated the group setting and listed it as a major influence in reducing or quitting tobacco use.

Group Support—Participants approved of the group support for a variety of reasons, including support and the ability to learn from other smokers with disabilities. For example, George stated during the interview: “I think it’s a good program because mainly because ... it helps when you know somebody else is witnessed it, it helps build up your strength because they have the same weaknesses you have.”

Facilitator Characteristics—Participants valued the facilitator’s tailoring of the program. Some participants further discussed the significance of having a facilitator who had previously used tobacco; participants liked the facilitator was able to share personal experiences of quitting tobacco use. Furthermore, participants remarked that facilitators were easy going and created a welcoming environment.

Program Characteristics

This program was designed to be more beneficial to people with disabilities interested in quitting using tobacco products. In designing this intervention, the research team made 42 modifications from a standard tobacco cessation intervention.²² Participants referred to the following categories in interviews: tailoring to people with disabilities, program duration

and accessibility, access to nicotine replacement therapy, the curriculum, and use of carbon monoxide monitoring.

Tailoring—Both the curriculum and program facilitation were targeted towards people with disabilities and tailored to individual participants via directed discussions during group meetings and individualized recommendations either in the group atmosphere or before or after sessions. Tailoring included how common medications and nicotine/nicotine replacement therapies interact, the effects of tobacco on wound healing, and what to do with idle time:

Isaac: “people with disabilities, we have a little more time on our hands, we’re not in the same nine to five ... we end up waiting for busses, we [have] a time abundance ... something that hasn’t been paid attention to ... The extra time that folks with disabilities are able to, you know, un-manage in smoking. We have more time on our hands to dwell on or pick up a cigarette.”

Program Duration—Program duration was discussed in terms of frequency per week, length of each meeting, and number of weeks. Most participants wanted the program to continue for additional weeks, primarily to offer continued support during the maintenance stage. However, participants provided a range of responses, from more meetings per week to fewer meetings per week, as well as fewer sessions overall or longer meeting times.

Accessibility—Accessibility refers to program location convenience. Participants found the program to be accessible because it was on a bus route and many participants were already receiving independent living services at the location, and therefore familiar with the staff at location.

CO Monitor—Carbon monoxide was assessed at each session as part of the study. Participants found this objective measure to be a motivational tool as well as a form of competition, both with other participants and with themselves. Emily: “I liked the CO monitor because it’s an instant reading. I feel better inside, and my self-esteem is higher. I feel strong and feel like I can keep going.”

Tangible Resources—Tangible resources are items provided to the participants as part of their participation in the program, including nicotine replacement therapy and the curriculum.

Nicotine Replacement Therapy: Nicotine Replacement Therapy (NRT) has been shown effective in helping people quit using tobacco. This program provided NRT throughout the four-week intervention, including lozenges, patches, and gum in a variety of nicotine levels and flavors at no cost to participants. Considering people with disabilities are often low income, free NRT was another aspect of the program participants appreciated: Nancy: “The aids that help us not to smoke are very expensive. Without it [the NRT provided through the program] I couldn’t afford it.” Many of the participants found the NRT to be helpful in reducing cravings and tobacco use: George: “It [patches] reduced my cravings, and I know it’s part of what helped me quit.”

Book: Participants were each provided the LIFT curriculum for personal use. Participants found the book easy to understand, informative, and interesting. The participants appreciated being able to review the book at home and that it contained personal stories from individuals with disabilities who had previously quit smoking. The personal stories included topics on secondary complications due to smoking, overcoming barriers to quitting, and incentives for quitting: Karen: [Referring to the vignettes in book] “It’s a motivator, I’m looking at people with disabilities worse than mine and they could stop smoking cigarettes. We have stress on top of stress, and I can see how these people were still able to quit smoking.”

Individual Characteristics

In contrast to program and group characteristics, individual characteristics were more latent rather than manifest findings. The qualitative interview guide did not specifically question materials related to individual characteristics, whereas it did probe specific to both group and program characteristics. Individual characteristics are those traits within the participant or individual that were influenced through the program and may have impacted success in quitting tobacco use. These characteristics included self-esteem, self-confidence, willpower, and locus of control.

Fran: “It helps me and it gives me a little more willpower. Because when I first started I didn’t think I could do it. Now I know I can do it. So my confidence is better. I’ve got the confidence ... Well at first I thought ‘no way, I should stop, because I can’t do it’ but I just stuck in there and you know talking to them and everything, you still stick with it, don’t try to quit. So I stuck with it.”

Discussion

Existing studies highlight various components regarding tobacco cessation programs and their effectiveness; however, to our knowledge, no research has looked specifically at cessation for people with disabilities. This study was designed as a process evaluation of a tobacco cessation program designed specifically for people with disabilities. Using qualitative interviews, we were able to gain greater understanding of specific components of the tobacco cessation program that might be more favorable to this population.

The three overarching themes that emerged from the analysis as likely to contribute to the successful quit rate were program characteristics, group characteristics and individual characteristics. The program likely contributed to individual characteristics, however, the primary areas which can be controlled are program characteristics and group characteristics. As identified through the interviews, the group setting is important for behavior change. Social support via the group setting was a reoccurring theme: participants enjoyed learning from other participants and comparing their own personal experiences. Additionally, having a facilitator that tailored the program to individual participants and allowed for flexibility was essential. When asked to compare the program to other quit programs, participants stated more rigorous and less flexible programs led to resistance and less positive outcomes.

Through participation with the disability resource center, many of the participants obtained free bus passes. While most participants found the location to be easily accessible via bus,

there was an individual who highlighted other participants' inability to make the meetings due to transportation issues. This personal bias could have affected the analysis.

This program was designed to meet more frequently (twice per week) compared to a standard program. The participants were mixed regarding frequency and length of session, but most did request ongoing meetings. This may in part be due to idle time, which was an unanticipated finding. While the programs were held during working hours, lack of employment of participants have increased the likelihood of attendance. Participants remarked being home all day was a trigger for continued smoking and attending group meetings was a way to avoid smoking. Among our sample, other than doctors' appointments, participants lacked regularly scheduled activities. Individuals with disabilities may lack goals or regular activities which may contribute to the likelihood for tobacco use.

Another unexpected theme was lack of tobacco knowledge among participants. Several participants stated they were unaware tobacco use could cause further disability, with one participant mentioning the possibility of tobacco being a major factor in her own suffering and pain. This emphasizes the importance of tobacco and disability-related health education, whether at a hospital setting (many of these individuals are seeing a doctor on a regular basis – some as often as weekly) or within a community setting such as a disability resource center.

We found that a tobacco cessation program tailored to the specific needs of people with disabilities is both feasible and acceptable. Tailoring a cessation program to the characteristics unique to people with disabilities may be critical in delivering meaningful and effective cessation interventions among this population. Findings suggest our sample of tobacco users with disabilities have unique characteristics that need to be addressed during a cessation intervention. Further identifying these characteristics unique to people with disabilities will help researchers develop successful tobacco cessation interventions.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

This project was supported by NIH/NCI Grant #: 5R21CA141600-2.

References

1. US Department of Health and Human Services. A Report of the Surgeon General. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2014. The Health Consequences of Smoking—50 Years of Progress.
2. Jha P, Ramasundarahettige C, Landsman V, Rostron B, Thun M, Anderson RN, Peto R. 21st-century hazards of smoking and benefits of cessation in the United States. *New England Journal of Medicine*. 2013; 368(4):341–350. [PubMed: 23343063]
3. Vidrine JI, Cofta-Woerpel L, Daza P, Wright KL, Wetter DW. Smoking cessation 2: behavioral treatments. *Behavioral Medicine*. 2006; 32(3):99–109. [PubMed: 17120385]

4. US Department of Health and Human Services. [Accessed August 6, 2014] Treating Tobacco Use and Dependence: 2008 Update. 2008. Retrieved from <http://bphc.hrsa.gov/buckets/treatingtobacco.pdf>
5. US Department of Health and Human Services. [Accessed August 6, 2014] Cessation Interventions. Best Practices for Comprehensive Tobacco Control Programs. 2014. Retrieved from http://www.cdc.gov/tobacco/stateandcommunity/best_practices/pdfs/2014/sectionA-III.pdf
6. Brault, MW. Current Populations Reports. Washington: US Census Bureau; 2012. Americans with disabilities: 2010; p. 70-131.
7. Horner-Johnson W, Drum CE, Abdullah N. A randomized trial of a health promotion intervention for adults with disabilities. *Disability and Health Journal*. 2011; 4(4):254–261. [PubMed: 22014673]
8. Amour BS, Campbell VA. State level prevalence of cigarette smoking and treatment advice, by disability status, United States. *Preventative Chronic Disease*. 2007; 4(4):A86.
9. Schroeder SA, Morris CD. Confronting a neglected epidemic: Tobacco cessation for persons with mental illnesses and substance abuse problems. *Annual Review of Public Health*. 2010; 31:297–314.
10. Brawarsky P, Brooks DR, Wilber N, Gertz RE Jr, Klein Walker D. Tobacco use among adults with disabilities in Massachusetts. *Tobacco Control*. 2002; 11(Suppl 2):ii29–33. [PubMed: 12034978]
11. Diab ME, Johnston MV. Relationships between level of disability and receipt of preventive health services. *Archives of physical medicine and rehabilitation*. 2004; 85(5):749–757. [PubMed: 15129399]
12. Iezzoni LI, McCarthy EP, Davis RB, Siebens H. Mobility impairments and use of screening and preventive services. *American Journal of Public Health*. 2000; 90(6):955–961. [PubMed: 10846515]
13. Iezzoni LI, McCarthy EP, Davis RB, Harris-David L, O'Day B. Use of screening and preventive services among women with disabilities. *American Journal of Medical Quality: The Official Journal of the American College of Medical Quality*. 2001; 16(4):135–144. [PubMed: 11477958]
14. Borrelli B, Busch AM, Trotter DRM. Methods used to quit smoking by people with physical disabilities. *Rehabilitation Psychology*. 2013; 58(2):117–123.10.1037/a0031577 [PubMed: 23437992]
15. Mitra M, Chung M, Wilber N, Walker DK. Smoking status and quality of life: a longitudinal study among adults with disabilities. *American Journal of Preventive Medicine*. 2004; 27(3):258–260. [PubMed: 15450640]
16. Bazzano AT, Zeldin AS, Diab IR, Garro NM, Allevato NA, Lehrer D. WRC Project Oversight Team. The healthy lifestyle change program: a pilot of a community-based health promotion intervention for adults with developmental disabilities. *American Journal of Preventive Medicine*. 37(6 suppl):S201–S208. [PubMed: 19896020]
17. Harper SK, Webb TL, Rayner K. The effectiveness of mindfulness-based interventions for supporting people with intellectual disabilities: a narrative review. *Behavior Modification*. 2013; 37(3):431–453.10.1177/0145445513476085 [PubMed: 23420077]
18. Hassouneh D, Alcala-Moss A, McNeff E. Practical Strategies for Promoting Full Inclusion of Individuals with Disabilities in Community-Based Participatory Intervention Research. *Research in Nursing & Health*. 2011; 34(3):253–265.10.1002/nur.20434 [PubMed: 21472736]
19. Rimmer JH. Health promotion for people with disabilities: the emerging paradigm shift from disability prevention to prevention of secondary conditions. *Physical Therapy*. 1999; 79(5):495–502. [PubMed: 10331753]
20. Rimmer JH, Rowland JL. Health promotion for people with disabilities: Implications for empowering the person and promoting disability-friendly environments. *American Journal of Lifestyle Medicine*. 2008; 2(5):409–420.
21. Sullivan MJL, Ward LC, Tripp D, French DJ, Adams H, Stanish WD. Secondary prevention of work disability: Community-based psychosocial intervention for musculoskeletal disorders. *Journal of Occupational Rehabilitation*. 2005; 15(3):377–392. [PubMed: 16119228]
22. Pomeranz JL, Moorhouse MD, King J, Barnett TE, Young ME. Creating a tobacco cessation program for people with disabilities: a community based participatory research approach. *Journal of Addiction Research & Therapy*. 2014; 5(4):204.

23. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*. 2004; 24:105–112. [PubMed: 14769454]

Appendix 1. Interview Guide: Process Evaluation for the Tobacco Cessation Program for People with Disabilities

This interview is to be done as soon as practical after the completion of the 4-week tobacco cessation program. The interview should be scheduled separately and be done by a member of the research team who was not a facilitator for the specific program the participant received. The interview will be audiotaped and professionally transcribed for data analysis. Qualitative data will be linked with demographic and quantitative data collected pre-and post-tobacco cessation program participation for interpretation. The following questions will serve as an interview guide. The guide may be modified during the interview as appropriate by 1) changing the wording of the questions to reflect the participant's language use and understanding of the questions, 2) changing the order of the questions appropriately following the participant's lead in bringing up particular issues, 3) asking additional questions as probes to elaborate on topics brought up by the participant.

“The purpose of this interview is to follow-up on your participation in the Tobacco Cessation Program for People with Disabilities.”

1. Tell me what you think about the program. Probes: What did you like or dislike about the program?
2. What was the program like for you? Probes specific to:
 - a. the number, duration and type of sessions,
 - b. fit in schedule,
 - c. accessibility and convenience of location,
 - d. transportation,
 - e. organization of program and specific sessions,
 - f. usefulness of materials,
 - g. helpfulness and knowledge of facilitators,
 - h. compared to other quit attempts or programs
3. Have you quit smoking as a result of your participation in the program? What aspects of the program were most helpful to you in quitting? What aspects of the program may be most influential in helping you quit in the future?
4. If you have quit, what problems (if any) do you anticipate staying tobacco free? If you have not quit, what will make it hard for you to quit in the future?
5. What do think about having the quit date in session 3? What do you think we should do with those who don't quit by the quit date?

6. This program was designed to be more useful to people with disabilities than traditional tobacco cessation programs. What aspects of the program specific to people with disabilities were helpful for you? What aspects of the program were not helpful?
7. What do you think about the written materials (i.e., the book)? Easy to understand? Appropriate pictures? Addresses your questions about tobacco? Captured your own personal experiences with tobacco (e.g., reasons for smoking)?
8. Tell us your experience with the nicotine replacement therapy? What did you use? Was it effective? Reduce cravings? Help you quit or cut down?
9. What recommendations do you have for changing or improving the program?
10. Would you recommend this program to other people with disabilities? Why or why not?
11. How do you think the group worked together?

Table 1

Characteristics of Participants

Participant *	Age	Gender	Race	Disability
Albert	65	Male	Black	Cognitive and Physical
Benjamin	53	Male	Black	Cognitive
Cynthia	29	Female	White	Cognitive
Donald	70	Male	White	Cognitive
Emily	52	Female	White	Cognitive and Physical
Fran	53	Female	Black	Cognitive
George	56	Male	Black	Physical
Harry	54	Male	White	Cognitive and Physical
Isaac	59	Male	White	Physical
Joan	69	Female	White	Cognitive and Physical
Karen	34	Female	Black	Cognitive
Lincoln	28	Male	Black	Cognitive
Margaret	51	Female	Black	Cognitive and Physical
Nancy	60	Female	White	Physical
Oscar	65	Male	Black	Cognitive
Peter	39	Male	Black	Cognitive

* Names have been changed