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A QUALITATIVE STUDY OF TOBACCO USE IN 8 ECONOMICALLY DISADVANTAGED DOMINICAN REPUBLIC COMMUNITIES

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Abstract

Understanding social conditions prior to intervention design can enhance tobacco control interventions. This paper describes formative research conducted in 2010 about tobacco use in eight economically disadvantaged Dominican Republic (DR) communities, four of which participated in a previous intervention study (2003-2008). A combined US-DR team used a Rapid Assessment Process to collect qualitative social and cultural data on tobacco use, knowledge, and attitudes plus observations about social and policy factors such as exposure to secondhand smoke (SHS), tobacco regulations, pregnancy, health care provider (HCP) practices, and sustainability of the 2003-2008 intervention. This assessment found that tobacco use varied by age. While all ages typically used cigarettes, older adults used relatively more unprocessed tobacco, seen as less harmful and less addictive. Middle-aged smokers typically used commercial cigarettes, viewed as dangerous, addictive, expensive, and offensive. Young adults reported avoiding smoking but using relatively more smokeless tobacco. Smoking during pregnancy has reportedly decreased. SHS was viewed as harmful, although smokefree homes were uncommon. HCPs discussed tobacco issues mostly for patients with tobacco-related conditions. Sustainability of the 2003-2008 intervention

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CONTRIBUTOR STATEMENT

For this multi-authored publication, all the authors have made a substantial contribution to either to study design/analysis and/or the writing of the article. Specifically, NPC, AMD and DJO designed the study, the interview guides, and observation guides. DJO conducted the literature review. NPC, AMD and ZQ trained the data collection team, supervised the data collection, and lead the data analyses. NPC, AMD, ZQ, EW, HA, AB, and KR performed the data collection and organized the data for analyses. SD participated in the data analyses and overall project design. NPC, AMD and DJO interpreted the results and drafted the paper. SM participated in overall project design and edited manuscript drafts. All authors reviewed the manuscript prior to submission and have approved this version. NPC and DJO are responsible for the overall content as guarantor.

DECLARATION OF CONFLICTING INTERESTS

None

appeared to be linked to active Community Technology Centers with strong leadership, and community social capital. This information could be used to design better targeted interventions in these communities.

Keywords

tobacco; qualitative research; global tobacco use

INTRODUCTION

Noncommunicable diseases (NCDs) are the leading causes of preventable morbidity and mortality globally, with nearly 80% of NCD deaths occurring in low and middle income countries (LMICs) (1-3). Tobacco use and exposure is the leading behavioral risk factor for NCDs, causing nearly 6 million deaths each year worldwide. This number is projected to increase to one billion in the 21st century, with 80% of deaths occurring in LMICs (3,4). Tobacco use in LMICs raises the NCD burden in areas already beset by high morbidity and mortality, placing additional economic strain on poor households, thus increasing global health disparities (5,6). Tobacco use in Latin American and the Caribbean mirrors global trends, with nearly one in four adult men and one in seven adult women in the region smoking, and tobacco-related deaths expected to triple by 2020 (7,8).

Evidence-based approaches to addressing the tobacco epidemic have been identified. Implementation of many interventions, including those in the Framework Convention on Tobacco Control (FCTC) (9), requires effectively engaging communities. Increasing calls for Community Based Participatory Research (CBPR) approaches to interventions focus on establishing in-country partnerships, building capacity in local communities, and understanding sociocultural contexts in which risk behaviors such as tobacco use occur (10-12).

This paper describes formative research conducted in 2010 to guide development of a CBPR intervention trial for tobacco cessation and secondhand smoke reduction in eight economically disadvantaged Dominican Republic (DR) communities. The qualitative methodology provided a framework for partnerships and capacity building to identify sociocultural factors influencing tobacco practices, beliefs, and exposures. This approach was particularly important, as there had been a lack of data on tobacco use in the Dominican Republic prior to our work.

Dominican Republic

The Dominican Republic occupies the Eastern portion of the Caribbean island of Hispaniola. A tobacco-growing country with a population of nearly 10,000,000, it is the only country in Latin American and the Caribbean not signatory to the FCTC. To our knowledge no national-level tobacco control campaigns occurred in the DR between 2003 and 2010.

In May, 2000, the DR enacted law 48-00 that prohibited smoking in public enclosed spaces, public vehicles, and airplanes in national airspace, and tobacco sales to persons under 18 years of age; required smoking and nonsmoking spaces in public and private institutions,

advertising to be oriented to ages 18 and older; and inclusion of a warning (“tobacco is damaging to your health”) on advertising and on tobacco packaging; and restricted advertising in places and publications directed to youth (< 18 years old); and television, radio, and movie theatre advertising to only between 9:00 pm-6:00am (13). However, these laws were generally neither well known nor consistently enforced (14).

Tobacco Control Projects 1 and 2

Our work on tobacco control in the Dominican Republic (DR) is a collaborative effort between DR and US scientists, spanning two successively funded projects:

Proyecto Doble T1 (PDT1) (2003-2008)—In 2003, PDT1 began a 5 year study including a 3 year randomized trial of community-partnered tobacco cessation in six communities (14-17). PDT1 baseline qualitative data indicated a lack of knowledge of health risks of smoking, little evidence of quitting, limited involvement of health care providers (HCPs) in cessation interventions, virtually no anti-tobacco messaging in a context of widespread tobacco advertising, and some cultural norms to limit smoking around others (14-16).

Based on this qualitative assessment and subsequent baseline survey (17), community-partnered interventions were developed for a trial focusing on awareness-raising regarding risks of tobacco use and benefits of quitting, and cessation resources. The project trained Tobacco Control Specialists in each community who provided and coordinated community talks, video presentations in multiple community settings (such as Community Technology Centers described below, schools, parent groups, church groups, healthcare settings), informational brochures, posters, teen theatre groups, locally recorded radio public service announcements, smoking cessation classes (in groups, in homes, and by radio), healthcare provider trainings, and other locally generated resources within these modalities. Pharmacotherapy for cessation was not available. All communities received the intervention after a one-year intervention-control period.

Proyecto Doble T2 (PDT2) (2009-2014)—In 2009 the team began an expanded trial of cessation and secondhand smoke reduction. The first step was a baseline qualitative assessment. The goals of the PDT2 qualitative assessment were to extend the culturally-specific understanding of tobacco use and exposure, and to examine sustainability in the original communities.

The aim of this paper is to report on the findings of this baseline assessment.

METHODS

Participating Communities

Eight communities participated in PDT2, including 4 original PDT1 communities and 4 new communities. All communities had Community Technology Centers (CTCs), which operate in economically disadvantaged communities, under government auspices. CTCs provide public access to resources such as computers, internet, telephone/fax, and technology classes, operate a radio station, and served as bases for our study activities (13,17). Project

communities were selected based on population density around the CTC; geographic distribution; balance of small urban/urban adjacent and remote rural/peri-urban communities; tobacco-growing status; and type of health care services (Table 1).

Measures

An interview guide adapted from PDT1(14) was used, and included the following domains: general tobacco use, secondhand smoke and smokefree home policies, laws regulating the purchase and use of tobacco, smoking during pregnancy, health care providers' practices regarding tobacco counseling, and the sustainability of PDT1 interventions.

Team Training

Three experienced investigators (Chin, Dozier, and Quiñones) trained the joint US and DR team in interviewing, participant-observations, field-noting, and respondent verification. The training took place over two days and included practicing the methods at the training site. IRB approval was obtained from one United States (University of Rochester) and two DR Research Subjects Review Boards for this study.

Data Collection

The project used a rapid assessment process (RAP) to collect social and cultural data on tobacco use, knowledge, and attitudes. Though the short time frame could not produce a comprehensive ethnographic assessment, this anthropologically based methodology provided a qualitative approach for obtaining key community insights to guide and evaluate interventions (18). RAP involves immersion of a diverse team of data collectors in a study community for a circumscribed period of time. The communities were sufficiently small that teams were able to walk the entire area at least twice during their stay. This provided the opportunity to encounter people on their own territory engaged in ordinary social activities and interactions. The team used a variety of assessment tools including semi-structured interviews, naturally occurring focus groups, and participant-observations (see on-line appendix for interview- and observation guides). Participant-observations at events or sites where tobacco is traditionally used included baseball games, pool halls, bars, public domino games, and in the streets. This also provided the team with the opportunity to question participants about the tobacco use or the lack of it in that particular setting and elsewhere. This was an iterative process. Data from semi-structured interviews, for example, shaped the subsequent community observations and informed the causal questioning of participants at community events or sites. Triangulation of data was undertaken, providing validity and increased confidence in the results obtained.

Project directors assigned four mixed teams of US and DR data collectors to two communities each. Teams spent on average 2-3 days in each community (staying overnight where possible) conducting interviews in Spanish. A purposive sampling approach was used to engage a diverse array of participants (see Table 2). Interviews began with a convenience sample of community members willing to participate. Snowball sampling, in which team members asked interviewees who else they should interview, was then employed to expand the sample. The study team informed potential participants about the project, stating that their responses would be confidential and that they could refuse at any time without

consequence. Verbal consent was obtained for the interviews. Study team members provided business-sized cards to participants that described (in Spanish) the study and included contact information in the event of questions or concerns.

Team members also conducted participant-observations at community gathering spots. These varied across communities but included at least six separate sites with a combination of health care offices/clinic, corner stores, residential neighborhoods, churches, pool halls, bus stops, municipal offices, and CTCs. Site observations were tailored to the specific social activities of each community. For example, in tobacco farming communities, teams went out to the farms. In some communities, dominoes were often played by residents in public areas. Other communities had a baseball diamond and active leagues playing. Length of observations varied depending on the setting and the amount of activity. Observations were of two broad types: those focusing on social interactions and those assessing the environment. Observations were guided by the project Community Observation Guide (see appendix) and included such social interaction items such as “Whom do you see smoking or using tobacco” “Are there any comments made about tobacco use” or environmental assessment items such as “Are there tobacco ads?” or “Do you see evidence of tobacco use in any litter in the area?”

Hand-written field notes and interviews were typed into a password protected computer for later analyses.

Data Analyses

Data analyses followed standard techniques for managing and interpreting qualitative data including identification of themes in the intervention domains of interest (19, 20). Analyses were conducted in three phases. Phase I occurred during data collection. Each team conducted daily data reviews in the field to ensure diversity of the sample (including age, sex and occupational diversity), identify emerging themes, and address gaps or contradictions in findings with subsequent interviews. Phase 2 took place after completion of data collection. All four teams met to compare data and preliminary themes, and to develop consensus around final themes. Teams used an analytic matrix juxtaposing interview domains against communities, and populating matrix cells with direct quotes and observations relevant to each domain (21). Additional matrices were constructed to examine the relationship between participant demographic characteristics and domains. Investigators reviewed these matrices and themes with a DR-based investigator who had knowledge of the communities but had not been part of the data collection, to obtain more objective feedback on cultural considerations in interpretation. In Phase 3, US team members independently reviewed all interview data, field notes, and matrices to ensure consistency with final themes.

RESULTS

Participants

The 370 participants included 146 females (sex unrecorded for 3 people); ages ranging from 18-100 years; and 88 current tobacco users, 52 former tobacco users, and 224 never users

(tobacco use was unrecorded for 9 respondents). Our initial interviews had indicated that men hold most positions of authority, are the main business owners, and are mostly like to be smokers or ex-smokers. They appear in our study population more often than women. For those with missing demographic data, interview content was included in examination of overall themes, but was excluded in analysis of content by demographic data.

General Tobacco Use

In all but two communities, there was almost no evidence of public smoking. Daytime and evening observations found smoking to be rare in public areas, buildings, and other establishments. Consistent with this observation, we almost never saw litter related to tobacco use in the streets.

Several novel types of tobacco use were identified, including various mixtures with alcohol or flavoring for smoking or chewing (supplemental file). In 6 communities, age-based patterns of tobacco use were prominent, including type of tobacco used (commercially produced versus unprocessed), frequency, and perceived impact on both health and social relationships. Although we confirmed that all participants were over age 18, as required in our IRB approved protocol, asking actual age in this setting was culturally inappropriate. In some cases people volunteered their age. Otherwise, age was estimated by visual appearance and interview clues, e.g. “I had my son when I was 20, he just started school last year.” To minimize the error in age estimates, we aggregated ages into three broad categories: young adult (18-40), middle-aged (41-60), and older adults (>60).

While commercial cigarettes (*cigarrillos*) were the most common form of tobacco used across all ages, older smokers (approximately 60 years old) were relatively more likely than younger groups to report smoking unprocessed tobacco either in hand-rolled cigars (*cigarros*, using *andullo*, *picadura*, *pachuche*, or *hueva*) or in pipes (*pipas/cachimbo*s, using *andullo* or *picadura*). People perceived these to be less harmful forms of tobacco, as they were not processed with chemicals used for commercially available cigarettes. Use of unprocessed tobacco was interpreted by locals as a less addictive, comfortable habit to relieve stress and boredom. Unprocessed tobacco is easily accessible.

In contrast to older smokers, middle-aged smokers were more likely to use commercially available cigarettes (*cigarrillos*). The reason for this shift in product preference is not clear, however, the perceived consequences of this shift were described. People believed that chemicals used in manufacturing caused *cigarrillos* to be more addictive than unprocessed tobacco and vastly more harmful to health. People noted that *cigarrillos* were expensive, and their purchase negatively impacted household finances. Respondents declared that the smell of *cigarrillos* was more pervasive, offensive and potentially harmful than *cigarros*.

When asked about the benefits of *cigarrillos*, one middle-aged smoker snorted, “*Benefits? What benefits? Death? Less money?*” Another respondent reported, “*If you smoke, you are spending money to get sick.*” Similarly, another middle-aged smoker stated, “The cigarettes also give me problems and make me lose all my money unnecessarily.” Finally, a fourth respondent from another community wryly noted, “There are no benefits to the smoker. Only to those who sell them and to the government who gets the tax money.”

Young adults were much less likely to report using tobacco products in any form, explaining that smoking is harmful to your health, expensive, and smells bad. An 18 year-old unemployed male told the team that he never tried smoking, noting the packaging warning, “*smoking is harmful to health*”, and as he believes the law forbids it (he was mistaken; the law does not forbid it), he said it is “*very wrong*”. Young adults were relatively more likely than other age groups to use chewing tobacco though no groups reported using chewing tobacco on a regular basis. Some young adults reported chewing unflavored tobacco to spit and rub on roosters as a way to ‘*heat*’ the birds before a cockfight so that they would fight well. Others used chewing tobacco preparation known locally as *dic* that mixed various combinations of mint, alcohol, sodium bicarbonate and other additives with chew.

Secondhand Smoke (SHS)

Most people were familiar with the concept of SHS, but typically did not have a term for it. Many thought it to be more harmful to nonsmokers than smoking was for smokers, as described by a government worker, “...[SHS] is a time bomb” and, “...smoke is more harmful than the cigarette”. Another respondent from a different community noted, “[SHS] gets trapped in the lungs and does more damage to the person who is not used to smoke.” While smokers generally tried to protect nonsmokers by moving away or not smoking in front of them, this was not a universal practice. In contrast to PDT1 use of the term *respeto* (respect) to explain shielding others from SHS (13), PDT2 smokers were more likely to invoke terms such as *vergüenza* (embarrassment), *no molestar* (not bothering), and *consciencia* (awareness) to explain why they tried to shield others from their smoke. A 42-year old male, non-smoker remarked, “A person smoking near others is not a decent person.” This pattern was consistent in all eight communities including all of the PDT1 communities assessed in 2003 and 2010. This language shift may represent a changing attitude towards smoking generally, with a growing sense of stigma attached to smoking as an unacceptable public, or even individual, practice.

Nevertheless, smoke-free homes were not commonly reported regardless of household member's smoking status. Smokers avoided public critique of their smoking by either smoking in their homes or backyards, or smoking away from home at sites where there are other smokers.

Regulations

There was uneven awareness of the DR tobacco control laws and some skepticism about their enforcement (e.g., prohibiting tobacco sales to minors). Store owners claimed that they sold tobacco to minors only when the purchase was for an adult in the household, but there was no way to confirm this. Researchers observed sales to minors. The ban on smoking in public transportation was well-known and respected by smokers. When questioned, a 19-year-old bus driver responded:

“What do you do if someone smokes on the bus?”

“I remind them that smoking is not allowed and ask them to put it out.”

“What do you do if they refuse?”

“No one has ever refused!” [Laughter]

As compared to 2003, in our original PDT1 communities, there now appeared to be increased knowledge of laws restricting the use of tobacco in public spaces, people (e.g. bus drivers) more willing to enforce the laws, and people willing to comply. However, interviewees reported that there were no fines or penalties for breaking the smoking laws and this may have acted as a disincentive.

Pregnancy and Tobacco Use

Although respondents reported that one generation ago it was not uncommon for women to smoke throughout pregnancy, pregnant women now generally reported being counseled in prenatal clinics to not smoke. The research team never observed a pregnant woman smoking. The pregnant women we interviewed (N=6) said they did not smoke, even before pregnancy. Older women who smoked during their pregnancies now reported that their children typically do not use tobacco at all.

There were reports, however, of women who smoked throughout pregnancy. One 40-ish, ex-smoker told us this story of his sister, “I remember the story of my sister who had asthma and was pregnant and...she would not quit”. In an original PDT1 community, one respondent noted these women were also likely to engage in other high-risk behaviors such as drinking alcohol before becoming pregnant. People agreed that while smokers may not quit during pregnancy, it was rare for women to initiate smoking during pregnancy. Older women who had smoked through pregnancy claimed they had no idea it was bad and certainly would have quit had they known. “Inez's” story illustrates this perspective:

Inéz is a 60-ish pharmacy worker at a community hospital. She has been smoking “for many, many years.” She smokes 8 to 10 cigarrillos a day, which she buys at the colmado [small grocery store] outside the hospital. Inéz smoked through each of her eight pregnancies. Her youngest child is now 18 years old. She told us she would have quit had she known about the harm to the fetus.

Health Care Providers

Among the health care providers interviewed, screening patients for smoking status was not routine. Providers were more likely to screen for smoking among patients whose medical condition would be aggravated by tobacco use, for example, patients with high blood pressure or with asthma. When smokers were identified, providers urged them to quit, citing the harm of smoking to their condition. Cessation strategies, however, were generally not discussed. A health care professional in one community noted that while they have specifically designated roles for staff to provide interventions promoting vaccination and contraception, there is no such interventionist for smoking cessation. Another barrier to cessation counseling, one clinic director noted, was the health system practice of assigning newly trained physicians to one year of community service in rural clinics. This director noted that new physicians were not from the area and it was his belief that they did not engage in community wellness activities.

Sustainability

Three of the original four PDT1 communities appeared to have maintained the intervention, and evidence of smoking by report and observations was limited. We identified several community factors that seem to have supported sustainability, including an active, engaged CTC; a stable or growing economy; and reinforcement of project messages through local institutions. The active, engaged CTCs were open to the public at regularly scheduled hours; held computer classes that were widely attended by local residents; ran a local radio station with public health messages at regular intervals; and encouraged community members to drop in to use the internet. These CTCs also posted 'no smoking' signs and some had PDT1 anti-tobacco posters displayed. Some had seen changes supporting economic growth, such as a new road to transport goods to market and an internet site through which they promoted local products. One community sold organically grown coffee, and had implemented solar power to provide electricity that was previously absent. Finally, local community institutions supported the goals of the project. For example, high schools had a strong anti-tobacco message and students found smoking were expelled. In addition, many churches banned smoking among congregants, and public offices such as the town hall and the post offices banned smoking on the premises.

In contrast, one original PDT1 intervention community showed evidence of high rates of tobacco use and a lack of sustainability of interventions. This community was characterized by a declining economy, a deteriorating infrastructure (roads poorly maintained; electricity erratic), a CTC that was in disrepair and often closed, and evidence of great disparities in wealth (large elaborate houses next to shacks). Alcoholism was reportedly a major health concern among residents. Altogether these data pointed to a possible decline in the social capital of the community, which may impact smoking rates and detract from intervention sustainability.

Marta's Tobacco Story

"Marta's" story provides an eloquent summary of findings from almost all of our communities:

Yes, it is mostly the elderly that smoke – mostly cigarros [unprocessed, hand-rolled tobacco]. My father smoked [cigarros] until his death at 96 and his lungs were clean. Tobacco, unprocessed, [cigarros] is not as harmful as commercial cigarettes [cigarrillos], nor as addictive. People smoke it [cigarros] out of habit/custom. One in the morning with their coffee. One in the evening. Cigarrillos [commercially available cigarettes] on the other hand, are unhealthy and very addictive.

Yes, I did smoke during my pregnancies, but one of my sons was born with a heart problem. Now he is a vegetarian, and he doesn't smoke. His partner didn't smoke through her pregnancy. The couple doesn't let me smoke in their home or in front of them. Young people do not smoke. They know the consequences of tobacco use. I want to quit -- to save money and to feel clean, because smoking makes one feel dirty. My family – mostly non-smokers – can smell it on me when they come to embrace me. My grandson especially doesn't like tobacco smoke. He tells me, "I hate you because you smoke."

DISCUSSION

This study identified novel forms of tobacco use (e.g. *dic*), and supplied several points of contrast with similar formative research by our team in 2003. Our earlier work did not show such well demarcated age differences in use of tobacco. Now age differences are more apparent. Though commercially available cigarettes (*cigarillos*) were consistently the most common form of tobacco used, middle aged and younger cohorts were more likely to use *cigarillos* and less likely to use unprocessed tobacco relative to older tobacco users. The reasons for this cohort shift were not discussed by participants. However, the middle-aged smokers of *cigarillos* were generally unhappy with their choice and were struggling with the consequences of addiction: poor health, bad smells, and strained social relationships with non-smokers. There was a sense of personal embarrassment about tobacco use. Why there should be such well demarcated differences in generational tobacco use is not entirely clear, but it may serve as an index for developing age-specific interventions.

That the meaning and significance of tobacco use varies among different age groups has been documented in other studies (23-25). Although younger adults in this study cite health harms, expense, and offensive odor as reasons for not using tobacco, it is possible that additional social influences informed their reported rejection of tobacco. This group may directly observe differential perceptions of commercial cigarettes used by their parents and unprocessed tobacco by their grandparents. While elders approach tobacco use almost casually, the parent's use of tobacco is more stress driven, "a vice", "an addiction", from which they perceive it is difficult to abstain. DR young adults may also observe the economic impacts of commercial tobacco versus unprocessed tobacco. Finally, parents express negative attitudes about the use of commercial *cigarillos* and cite what they perceive as the less harmful effects of unprocessed tobacco on elders. This potentially reinforces younger adults' reported rejection of smoking and may at least partly explain why younger adults are more likely to use chewing tobacco as compared to other age groups.

Secondhand smoke was generally understood as harmful, but homes were typically not yet smokefree. This suggests a need for interventions on creating and maintaining smokefree homes, (26) including strategies for banning smoking by guests. In our prior PDT1 trial, at least one community used locally written plays to encourage parents to quit smoking in the home for the health of their children; this community-generated strategy could be extended to messaging to ban smoking by guests in the home. Smokefree home interventions can also protect pregnant women and their infants (27). Although women of all ages recognized maternal smoking in pregnancy as harmful to the fetus, at least some pregnant women smoked and others were exposed through family members.

In contrast to the findings from PDT1 RAPs in 2003, national smoking regulations were better known, adhered to more closely, and according to some, have decreased public smoking. However, gaps in knowledge and enforcement remain, providing opportunities for intervention.

Health care providers reported screening for tobacco use in those with medical conditions, similar to previous findings. Routine screening among healthy individuals is lacking and

almost no resources are offered to support quitting. Similar to our earlier studies, health care providers expressed interest in more education on this topic. While most agreed that Internet access for training remained limited, they recommended training at national conferences and regional workshops. Engaging medical societies in providing such training may provide a sustainable option for enhancing health care provider interventions.

Sustainability of PDT1 project activities and evidence of a decrease in tobacco use was noted in three original PDT1 communities. In a fourth community, however, there was abundant and clear evidence of smoking. The lack of sustainability this community, with its concomitant decline in the economy, is being furthered researched through a community survey containing questions on social capital and neighborhood trust. Previous studies of social capital and health have shown a strong inverse relationship and might inform intervention sustainability for future work (28).

There are limitations to this study. Results may not generalize to other DR communities, particularly larger cities. In addition, much of the information is self-reported, which may have resulted in socially desirable responses, particularly regarding tobacco use. Similarly, it is possible that individuals felt community pressure to demonstrate project success to retain project resources at their CTC. However, the consistency of interview findings with direct observations, and the “socially non-desirable” reports of few smokefree homes increase confidence in study findings.

Overall, this study provides social and cultural information on tobacco use in eight DR communities. This study can be used as a model for other researchers collecting social and cultural data on health behaviors to inform intervention design in low-income countries. In this study results provide guidance for tailoring interventions to local conditions, including identifying gaps in tobacco control activities in original and new communities. Such culturally sensitive tailoring may enhance intervention effectiveness in economically disadvantaged communities.

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Appendix A: Interview Guide and Observation List

General Tobacco Use: Attitudes, Beliefs, Knowledge and Practices

- What can you tell me about tobacco use in your community?
 - Probe for gender; age; type of tobacco used (hand-rolled products, chewing tobacco, etc)

- Who most commonly uses tobacco – men/women, old/young, rich/poor, etc.?
- Where do people mostly commonly smoke or use tobacco? Is there a particular time of day when people smoke or use tobacco? With whom do they smoke?
- Why do people take up smoking or tobacco use? What influences them?
- What do people see as the benefits of smoking or using tobacco?
- What do people see as the harmful effects of smoking or using tobacco?

Second Hand Smoke Exposure: Attitudes, Beliefs, Knowledge and Practices

- With whom do people typically smoke or use tobacco? Where are people exposed to breathing others' smoke?
- Do you think it is harmful to breathe other people's smoke? How so?
- Do people smoke around children? Pregnant women?

Laws: Attitudes, Beliefs, Knowledge and Practices

- Tell me about the customs or policies that regulate where and when people use tobacco.
 - What are the laws? How do people learn about them?
 - Church? Schools? Offices? Public Transportation?
- Are there any laws that regulate where and when people use tobacco?
 - Are they enforced? Do people comply with them?
- What would help to protect people from SHS exposure? What wouldn't help?

Tobacco-Growing Experience: Attitudes, Beliefs, Knowledge and Practices

- What do people think about growing tobacco in this community?
- Do you know people in the community who grow tobacco?
- Do you grow tobacco? Does anyone in your family grow tobacco?

Networking

- Is there anything else we should know about tobacco use in this community?
- Who else could I talk to about tobacco use and second hand smoke exposure in this community?

Questions for Individual Tobacco Use

- Do you smoke or chew tobacco?

○ If yes:

- For how long/when did you start?
- Why?
- What did/do you smoke – cigars, cigarettes, other?
 - What brand?
- Describe your tobacco use:
 - Probe: vice; habit/custom; addiction
- Have you ever tried to quit?
 - How many times?
- How did you try to quit?
 - Did you use any community resources?
 - OBSERVATION: Do they mention any PDT specific interventions / resources (Tobacco cessation specialist; charlas; how to quit classes; one-on-one; self-help materials; health fairs; website); HCP referrals or counseling?
- What do you think it takes to quit?
- What do you think would have been helpful?
 - A place to call with questions? Talk to other who have quit? A class? Herbs? Medicines?
 - Why or why not?
 - OBSERVATION: Do they mention any PDT specific interventions / resources (Tobacco cessation specialist; charlas; how to quit classes; one-on-one; self-help materials; health fairs; website); HCP referrals or counseling?
- What did/do you like about smoking?
- What don't you like about smoking or using tobacco? What do you like about it?
- Have you experienced any harmful effects due to tobacco use?
 - Can you tell me about them?

- Does anyone in your family smoke?

○ If yes:

- Who?
- What do you think about that?
- Have they tried to quit?

- Can you tell me about that?

Questions for Women

- Have you been pregnant in the past and/or are you currently pregnant?
 - If yes:
 - Do you currently use tobacco?
 - What kind?
 - An estimate of how frequently
 - Did you smoke while pregnant?
 - Can you tell me about that (how much, what did doctor say, etc.?)
 - Who in your family uses tobacco?
 - Parents; partner (husband); children
 - Did your HCP ever advise you to quit using tobacco?
 - Before, during or after pregnancy?
 - Describe any effects of using tobacco before, during and/or pregnancy on your family.
 - Probe: younger children

Questions for Parents

- What do you tell your children about smoking?
 - Prompt: are the children allowed to use tobacco?
- Do any of your children use tobacco?
 - Prompt for demographics
- Are there any resources available in your community to help educate your family about tobacco use?
- What do you think about smoking around children?

Intervention-related Questions

- Do you know of any available community resources in place to educate people about tobacco use?
 - If so, what are they?
 - Who is providing them?
 - Where are these resources available?

- Are they free of charge?
- OBSERVATION: Do they mention any PDT specific interventions / resources (Tobacco cessation specialist; charlas; how to quit classes; one-on-one; self-help materials; health fairs; website); HCP referrals or counseling?
- Do you know of any available community resources in place to help people quit their tobacco use?
 - If so, what are they?
 - Who is providing them?
 - Where are these resources available?
 - Are they free of charge?
 - OBSERVATION: Do they mention any PDT specific interventions / resources (Tobacco cessation specialist; charlas; how to quit classes; one-on-one; self-help materials; health fairs; website); HCP referrals or counseling?
- Have you seen any anti-smoking messages?
 - Where?
 - Probe for non-smoking areas
 - Can you tell me about them?
 - Do they sound/look interesting?
- Do you know anyone who used to smoke and no longer does?
- Is smoking allowed in homes? How is that communicated? How could I find out if it was acceptable to smoke in a home?
- Is there anything else we should know about tobacco use in your community?

For GPs

- Have any of your patients successfully quit smoking?
 - Probe: Why? How many attempts? Relapses? What makes it hard to quit?
- What are your recommendations for quitting?
- What do people see as the benefits of smoking or using tobacco?
- What do people see as the harmful effects of smoking or using tobacco?
- Why do people take up smoking or tobacco use? What influences them?
- How do you talk to your patients about smoking or using tobacco?
- Do you ever advise them to stop?
- Do you smoke or use tobacco?

- If yes, go to **Individual** questions
 - Is there anything you worry about with your smoking?
 - Health effects for you?
 - Effects on your family?
- Do you think it is harmful to breathe other people's smoke? How so?
- Is there anything else we should know about tobacco use in this community?

Community Observations of Tobacco Use

- Where and when do you see people smoke or use tobacco?
- Who do you see smoking or using tobacco?
 - Professionals/laborers, men/women, light/dark-skinned, young/old?
 - What are people generally doing while they smoke or use tobacco?
 - Who are they with?
- Are any comments made about tobacco use? What are they?
- How is tobacco use promoted?
 - TV, radio, magazines, posters, bill boards, sporting events?
 - Who is depicted smoking?
 - Men/women, athletes, young/old, light/dark-skinned?
 - What are they doing?
- How is tobacco use discouraged?
 - OBSERVATION: Do they mention any PDT specific interventions / resources
- Do you notice any groups or individuals who might be interested in doing interventions (for sustainability)?; e.g. priests, TB nurses
- What is the cost of tobacco products – cigarettes, cigars, smoking papers/loose tobacco, chew, other?

Observations of Patient Encounters

- Does the health provider (HP) ask about tobacco use?
- Are the health effects of tobacco use addressed? How?
- For identified smokers – is quitting recommended?
- Is advice on quitting offered? What is it?
- Is any disease prevention/health promotion counseling done? Describe.

Observations of Patient Waiting Areas

- Are there any health promotion posters, pamphlets or other materials around? Do any of them have to do with tobacco use?
- Are there any magazines?
 - Do they contain tobacco ads? Describe.
 - Do they show images of people using tobacco? Describe.
- Is anyone in the area using tobacco? Age? Gender? Other?

APPENDIX B

NOVEL FORMS OF UNPROCESSED TOBACCO

Name	Description
Andullo	Unprocessed tobacco rolled in a long pole (usually 6' long) after harvest and wrapped in leaves and secured with rope. Cut into small rounds and sold individually, or by the pole.
Cachimbo/a:	Method of smoking unprocessed tobacco using a pipe or other handmade device (sometimes carved out of wood)
Dic	A mixture of chewing tobacco (picadura or andullo), water and baking soda to make a paste. Can also be mixed with vinegar, alcohol (rum), and/or vanilla, mint, etc.
Hueva	Tobacco leaves braided, soaked in coffee or alcohol and smoked or chewed
Pachuché	Unprocessed tobacco rolled in rustic or store-bought rolling papers and smoked
Picadura	Cut or shredded unprocessed tobacco used in pipes or self-rolled cigars or cigarettes
Pirulí	Tobacco mixed with orange leaves or rinds to be smoked as cachimbo, tubano or pachuche
Túbano	Unprocessed tobacco rolled in a large tobacco leaf and smoked

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RESEARCH ETHICS

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. This study was approved by the Research Subjects Review Board at the University of XXXX in the United States of America and the Instituto Oncológico Regional del Cibao (IORC), the Comité Independiente de Ética de Investigación de Cibao (CIEIC) and the Consejo Nacional de Bioética en Salud (CONABIOS) in the Dominican Republic.

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Table 1

Community Characteristics

Community	Population *	PDT Project	Geographic Structure		Grows Tobacco Yes/No	Type of Health Care Services
			Peri-Urban/Rural	Small Urban/Urban Adjacent		
1	est. 3,000 **	1 & 2	X		Yes	Clinic
2	~4,000	1 & 2	X		No	Clinic
3	~9,000	1 & 2	X		Yes	Clinic
4	~7,000	1 & 2	X		No	Clinic
5	~3,000	2		X	No	Hospital
6	~8,000	2		X	Yes	Hospital
7	~12,000	2		X	Yes	Hospital
8	~7,000	2		X	No	Hospital

* 2002 Census estimates

** Census data not available

TABLE 2

PARTICIPANT DEMOGRAPHICS N = 370

Sex	N	% *
Male	224	61
Female	146	39
Age Range		
18-40	170	47
41-60	126	34
61-100	73	21
* Missing	1	-
Smoking Status		
Current	88	24
Former	52	14
Never	224	61
Missing	6	2
Occupation		
Agriculture	27	7.3
Health Care	45	12.0
Business/Service	89	24.1
Education	12	3.2
Government Official/Worker	19	5.1
Student	13	3.5
Homemaker	33	8.9
Unemployed	35	9.5
Other	97	26.2
Pregnancy		
Number of pregnant women	6	-

* Columns may not equal 100% as figures are rounded to the nearest whole number