NAQC Issue Paper

NAQC's Issue Papers aim to provide critical knowledge on important quitline topics and guidance for decision making.

The Use of Quitlines Among Priority Populations in the U.S.: Lessons from the Scientific Evidence

INTRODUCTION

Great progress has been made worldwide in tobacco control as evidenced by the World Health Organization's Framework Convention on Tobacco Control (FCTC) and strong anti-smoking legislation throughout the United States, Canada and other countries. Although gains in changing social norms in entire communities have been achieved, rates of tobacco use among particular segments of the population are still high or on the rise, and in some cases these rates have not decreased (Rodriguez-Esquivel et al., 2009). For example, there has been an alarming increase in tobacco use in the developing world (Croyle, 2010). In the U.S., a country with some of the most stringent anti-smoking legislation in the world, recent declines in smoking rates have become stagnant or are suffering a reverse trend in some populations. Tobacco use has impacted minority and disadvantaged communities in the U.S. and Canada in important ways. These communities remain at high risk for commercial tobacco use and suffer from significant tobacco-related health disparities.

Cigarette smoking is a major preventable cause of disease worldwide and it is the primary cause of premature death in North America. Increased incidence of smoking-related morbidity and mortality from cancer, cardiovascular disease, respiratory illness and pregnancy complications have been well established (U.S. DHHS, 1998; U.S. DHHS, 2000; U.S. DHHS, 2004). In the U.S., nearly 438,000 people die annually from tobacco-related diseases and some U.S. racial and ethnic minority populations consistently bear a disproportionate burden of tobacco-related diseases (U.S. DHHS, 1998). Twenty-one percent of all cancer deaths worldwide are attributable to cigarette smoking and other forms of tobacco use (De Vita et al., 2008). Approximately 60% of these tobacco-related deaths are attributable to lung cancer. As the incidence of tobacco-related disease increases within the U.S. and abroad, there must be an emphasis on early primary prevention (i.e., preventing youth from early initiation) and increased efforts to ensure that all current smokers who desire to do so, are able to quit. In this context, access to efficient, cost-effective and comprehensive cessation services (i.e., tobacco cessation quitlines) for particularly vulnerable populations becomes critically important.

According to the U.S. Preventive Services Task Force (2009), health care providers should inquire about the smoking status of all adults and provide access to tobacco cessation interventions for those who use tobacco products. The federal government's clinical practice guideline on tobacco cessation (Fiore, 2008) recommends quitlines as an effective service to reduce the burden of excess deaths and diseases related to the use of tobacco products. Given the disproportionate burden on some groups, this is an especially needed service among vulnerable populations.

Purpose of this Review

Since 2004, the North American Quitline Consortium (NAQC) has partnered with members of the quitline community to improve the effectiveness of, and access to tobacco dependence treatment through quitlines. NAQC is an international, non-profit membership organization that seeks to promote evidence-based quitline services across diverse communities throughout North America. NAQC members consist of organizations and individuals that fund and provide quitlines services, conduct research around quitline-related topics, advance national cessation policies, and work in other areas of tobacco control. Together, NAQC members work to promote and ensure quality in quitline

operations, promotion, and cessation interventions. Due to quitlines' proven effectiveness (Zhu et al., 2002), the American Legacy Foundation, American Cancer Society and the Robert Wood Johnson Foundation have also helped to support the growing quitline infrastructure in the U.S. (Croyle, 2010).

During 2010, NAQC, in collaboration with the six Centers for Disease Control and Prevention (CDC) Office on Smoking and Health (OSH)-funded National Networks for Tobacco Control and Prevention (http://www.tobaccopreventionnetworks.org/site), embarked on an effort to better understand the barriers, reach and acceptability of quitline services to six specific populations residing in the U.S. that are served by the Networks: African Americans/blacks (AA/B), American Indian and Alaska Natives (AI/AN), Asian American and Native Hawaiian and Pacific Islanders (API), Hispanic/Latinos (H/L), the lesbian, gay, bisexual and transgender (LGBT) community, and individuals of low socioeconomic status (low SES). The initial assessment resulted in two documents. Both will serve as the foundation upon which future quality-related work will be developed:

- *A NAQC report(http://www.naquitline.org/resource/resmgr/Issue_Papers/ReportImprovingtheQualityofQ.pdf) highlighting results from a series of six listening sessions with members from the six tobacco control networks (Thomas-Haase, 2010); and*

- *The current paper, which constitutes a systematic review of the scientific evidence regarding cessation services to these priority populations with a specific focus on the use, effectiveness and promotion of quitlines.*

In this review, priority populations and their use of quitlines is examined. Priority populations are identified by the CDC as groups that bear the burden of significant tobacco-related disparities. They experience increased targeting by the tobacco industry and tobacco use prevalence rates that vary substantially across populations and within subpopulations. To be clear, for the purposes of this review "priority populations" are identified as:

- ***African American/black (AA/B)***
- ***American Indian/Alaska Native (AI-AN)***
- ***Asian American/Pacific Islander (API)***
- ***Hispanic/Latino (H/L)***
- ***Lesbian, Gay, Bisexual and Transgender (LGBT)***
- ***Low Socioeconomic Status (Low SES)***

From the published literature, this review attempts to ascertain quitline utilization by, effectiveness of, and strategies for reaching these populations. In addition, this review attempts to provide lessons learned from the scientific evidence in order to better inform decision making within quitlines that serve racial/ethnic and sexual/gender minorities, and those of low socioeconomic status. Due to the limited volume of scientific evidence on quitlines and priority populations of any kind and the virtual absence of literature on quitlines and priority populations in Canada, this review focuses on the U.S.-focused list of priority populations noted above.

Tobacco Cessation Quitlines

Quitlines have emerged around the world as an important mechanism for expanding the reach of tobacco cessation services to North America, South America (Brazil), Europe, and parts of Asia (Anderson and Zhu, 2007; Croyle, 2010). A tobacco cessation quitline is a service that offers telephone and/or Web-based behavioral counseling for tobacco users who want to quit. Quitlines are centralized resources that provide easy access to evidence-based cessation counseling and supplemental information to assist in quitting. In North America, quitlines afford states and provinces the opportunity to reach a larger and more diverse population with tobacco cessation services in an efficient and cost-effective manner (Fiore et al., 2008; Zhu et al., 2002). Today, residents in all 50 U.S. states, the District of Columbia, the Commonwealth of Puerto Rico and the Territory of Guam have access to quitline services (Anderson and Zhu, 2007). Further comprising the North American Quitline Consortium, all ten Canadian provinces, two

Canadian territories, and more recently, Mexico, provide quitline services to residents.

This paper refers to quitlines in general, and while there are common structural, operational and service elements (Cummins et al., 2008) each quitline is unique. Throughout the U.S., quitlines provide different types and intensities of services, offer those services in multiple languages, operate with varying budgets, and differ in their marketing and/or promotion of their services to diverse populations. Quitlines offer a range of services including telephone and web-based counseling, referrals, distribution of self-help materials, training of health care providers, and in some cases, free or reduced-cost cessation medications. During Fiscal Year 2009, all quitlines provided services at least eight hours per day for at least five days per week. In addition, 94% of U.S. quitlines and 90% of Canadian quitlines were open at least one day of the weekend. The number of hours of quitline availability per week ranged from 40-240 in the U.S. and from 72-78 in Canada. All quitlines in the U.S. and Canada provided a multiple-call proactive quitline service, which is consistent with the U.S. Public Health Service guideline for tobacco cessation (Fiore et al., 2008). Referrals to quitlines were provided by fax from health care providers and other organizations for 94% of U.S. and 100% of Canadian quitlines. As of 2009, all U.S. quitlines provided services in English, and approximately 96% had the capacity to serve Spanish-speaking populations (NAQC Annual Survey, 2009). In response to the needs of the communities served, the California Smokers Helpline offers cessation services in Mandarin and Cantonese, Vietnamese and Korean (Zhu et al., 2010). All Canadian quitlines provide services in English and approximately 80% offer services in French (NAQC Annual Survey, 2009). While warranted, but perhaps in less demand, a majority of U.S. quitlines (89%) also conducted counseling through a third-party translation service, while 20% of Canadian quitlines contracted with third-party translation services as needed (NAQC Annual Survey, 2009). Free medications (e.g., patch, gum, or prescription medications) were provided to eligible callers by 70% of U.S. quitlines in FY 2009. No Canadian quitlines provided free medications to callers in FY 2009.

According to the 2009 NAQC Annual Survey, there is considerable variability in the utilization rates of quitlines in the U.S. (1.60% to 7.25%) as well as the total dollars spent per smoker. Promotional reach (the number of tobacco users indicating an interest in services divided by the total number of smokers in each state) ranged from 0.16% to 9.84% with a median of 1.18%, while treatment reach (the number of tobacco users receiving evidence-based counseling or medications divided by the total number of smokers in each state) ranged from 0.05% to 7.25% with a median of 0.70%. U.S. quitline spending on services and medications per smoker in Fiscal Year 2009 ranged from $0.14 to $20.81, with a median of $1.87. It is estimated by NAQC and the CDC that if spending on services and medications per smoker reaches $10.53, quitlines could serve 6% of smokers with evidence-based counseling and medications (CDC, 2007; NAQC, 2008).

As state governments expend greater efforts to increase taxation of tobacco products and as they further institutionalize comprehensive smoke-free laws to reduce tobacco use, the role of quitlines will become more critical to assist those in need and to ensure access to affordable tobacco cessation services.

Smoking Disparities in U.S. Populations

Tobacco use among underserved populations in the U.S. is often understood as an indicator of health risk (Lee et al., 2009). However, there is a need for a more comprehensive approach that addresses both at-risk populations and the communities in which they reside (Robinson, 2005). Tobacco prevalence rates of the populations of interest in this review should not be viewed in isolation. Tobacco-related disparities are the result of interactions between the social, economic, geographic, and political environments within which people carry out their lives in their respective communities. In this context, history, culture, language and the communities themselves become particularly salient. Acknowledging this perspective, variations in patterns of smoking among those who disproportionately bear the burdens of tobacco-related disparities are presented.

Racial/Ethnic Minority Populations

Data from the Centers for Disease Control and Prevention (2008) reveal that American Indians experience the highest

rate of smoking (32.4%) when compared to non-Hispanic whites (22%) and other racial and ethnic groups such as African Americans (21.3%), while rates are lowest among Hispanic/Latinos (15.8%) and Asians (9.9%). After several years of decline, tobacco use rates among African American and Hispanic/Latino youth are on the rise. A 2008 Morbidity and Mortality Weekly Report showed a reverse trend in the percentage of adult smokers in the U.S. between 2007 and 2008. Rates of smoking among adults increased from 19.8% in 2007 to 20.6% in 2008. In previous years, these rates had significantly decreased. It is important to note that smoking prevalence data for Asians reveal an aggregate rate that masks the devastating effects and exceptionally high rates of smoking among vulnerable segments of this population. For example, Korean and Vietnamese men with low English proficiency have smoking prevalence rates as high as 39.4% and 32.7%, respectively (Tang, Shimizu and Chen, 2005).

Lesbian, Gay, Bisexual, Transgender (LGBT) Populations

In a systematic review of the literature, Lee et al. (2009) found that sexual and gender minority status of gay, lesbian, bisexual, transgender (LGBT) was associated with higher risk of smoking. Findings from several studies (Ryan et al., 2001; Eisenberg and Weschsler, 2003; Tang et al., 2004; Cardona et al., 2005; Scout and Senseman, 2007) show that smoking rates among LGBT adolescents and adults are higher than those in the general population. Data from the National Health Interview Survey (CDC, 2006) estimates smoking prevalence among men to be 24% however, among white gay or bisexual men estimates are 42% or higher. In an Oregon and Arizona study (Stall et al., 1999), the smoking prevalence among black gay or bisexual males was nearly double that of heterosexual men (62% vs. 34%). Hispanic, Asian and American Indian homosexual males had a relatively similar smoking prevalence to their heterosexual counterparts (Stall et al., 1999). Tang et al. (2004) compared smoking prevalence in LGBT adults of both genders and also their heterosexual counterparts. Results showed that the smoking rate for lesbians was 25.3%, while their heterosexual counterparts' rate was 14.9%. This trend remained constant among gay and heterosexual males, as their smoking rates were 33.2% and 21.3%, respectively. The study concluded that lesbians, bisexual females, and gay men had significantly higher cigarette smoking prevalence rates than their heterosexual counterparts.

Low Socioeconomic Status Populations

Levels of education, income, and occupational status are important determinants of smoking and individuals of low SES are smoking at higher rates than other groups. For example, the 2008 National Health Interview Survey revealed that adults with General Education Development (GED) certificates had the highest smoking rate (41.3%) compared with a rate of 6% among those with graduate degrees. Smoking rates tend to be highest among individuals who have obtained no more than a high school level of education. By contrast, smoking rates tend to decrease as levels of education increase and are reported to be the lowest among individuals with a college degree or more. This trend remains constant across most groups of men and women (Washington State Department of Health, 2007). Individuals below the poverty threshold have consistently had higher rates of smoking than those at or above the poverty threshold and the disparities gap has not changed in the last 10 years (Fagan et al., 2007). As of 2008, nearly 59% of adults near or below the federal poverty level were current smokers (CDC, 2008). Hispanic women with higher levels of acculturation, education, and income remain the sole exception to these trends and tend to have higher rates of tobacco use than their immigrant counterparts (Trinidad et al., 2006).

Among other groups of women, smoking rates vary by geographic location (urban vs. rural), with women residing in rural locations having significantly higher rates of smoking than their urban counterparts (Washington State Department of Health, 2007). Kim and Clark (2006) studied female adolescents of low SES to predict the likelihood of smoking initiation and transition to heavier tobacco use between adolescence and young adulthood. They found that individual factors and state level tobacco control policies were independently associated with smoking initiation and adverse transition in young adulthood. This was especially pronounced in low SES females. The authors concluded that state antismoking policies and programs have the potential to exert considerable influence on smoking behaviors that persist through adolescence and into young adulthood. There are however both positive and negative unintended consequences of local, state and federal policies on low-income women (Moore, McLellan, Tauras, Fagan, 2009). Low income, racial, and ethnic minority women in particular are more likely to be exposed to

secondhand smoke and have limited capacity to prevent exposure. Additionally, they may work in settings where workplace tobacco policy loopholes exist or may not be capable of requiring the enforcement of compliance with statewide laws (Moore et al., 2006).

Foreign-Born Populations

According to the 2010 U.S. Census, minority populations, especially Hispanic/Latinos and Asians, will continue to grow at an accelerated rate due to births and immigration into the U.S. By 2050, these minority populations are expected to account for almost 50% of the U.S. population. Recent Census data reveal that 12% of the U.S. population is foreign-born and another 11% have at least one parent born outside of the U.S. The U.S. ranks third in the world among countries with the largest number of Spanish speakers (U.S. Bureau of the Census, 2010). Reaching these populations for cessation services requires culturally and linguistically appropriate outreach. If tobacco use is not eliminated or further reduced in these and other minority groups, several reports (CDC, 2004; Buchting, 2004) predict an impending epidemic of diseases caused by tobacco as the numbers in these populations rise, especially among particularly disadvantaged groups such as Hispanic/Latinos.

METHODS

Identification of Studies

Several scientific peer-reviewed journal articles were identified through computerized bibliographic databases. Accessed published articles were identified through computerized searches of PubMed (1980-2010), Google Scholar (1980-2010), MEDLINE (1974-2010), PsychINFO, ProQuest, and Science Direct databases through the end of 2010. All searches included either one of the specific population groups or quitlines. To search for articles pertaining to telephonic cessation programs or quitlines, keywords used were “quitline*,” “quit line*,” “helpline*,” “telephone,” and “telephone counseling.” To find studies on special populations and quitlines, keywords were combined with AND. Keywords for special populations used were “Hispanic,” “Latino,” “American Indian,” “North American Indian,” “Alaska Native,” “Asian,” “Pacific Islander,” “African American,” “Black,” “Lesbian,” “Gay,” “Bisexual,” “Transgender,” “Socioeconomic status,” and/or “Low Income.”

Additional literature was identified from the reference lists of published journal articles. Authors also searched for cross references that combined cultural competency and tobacco scientific articles among the identified population groups. Keywords searched included “cultural,” “competency,” “community oriented” AND “special population,” as well as “tobacco cessation” and “smoking cessation.” The search was limited to articles in English. No age limitations were given, nor were actual outcome cessation rates required for inclusion. Authors also reviewed reference sections of previously screened articles and discussed relevant, new and informative presentations that were pending or being considered for publication.

Two hundred ten (210) manuscripts were initially identified after a comprehensive review of the literature. Abstracts were read and coded for inclusion or exclusion by two independent reviewers. Abstracts and accompanying manuscripts were included as key sources in the review if they were evidence-based (defined as appearing in the published scientific literature) and met all of the following criteria:

1) *Focused on use of quitlines, quitline effectiveness and/or quitline-related interventions; and*
2) *the scope of research explicitly focused on one or more of the six previously identified populations (AA/B, AI-AN, H/L, API, low SES, LGBT) in quitline services.*

Of the 210 articles found in the literature search, 112 were automatically excluded for not meeting the criteria outlined above. Another 98 were carefully scrutinized but upon closer review 62 were excluded for not being specific to quitlines and/or not directly informing use of quitlines or telephone counseling among priority populations. Excluded articles did not primarily focus on quitlines though they may have focused on cessation interventions, and/or did not identify or include information on any priority populations of interest for this review. The remaining 36 articles out of

the original 210 met the criteria outlined above, at least in part.

Thirty-six abstracts either met inclusion criteria exclusively or helped inform the criteria and were directly relevant to answering research questions about quitlines in an important way. The full-text versions of the thirty-six studies retained for review were extracted and read thoroughly for further analysis. Eleven of the 36 studies were peer-reviewed and fell in to one of two categories: either they explicitly focused on quitlines AND specific racial/ethnic populations, sexual/gender minorities or low socioeconomic status groups, or they were deemed appropriate to help situate the primary sources within the broader body of relevant literature. These eleven studies are included and summarized in Appendix A. Two additional non-peer-reviewed articles were reviewed and are included in Appendix B. The authors felt these were important studies to include, even if non-peer-reviewed, because they addressed the LGBT population, a group for which very few peer-reviewed articles exist.

This systematic review of the scientific literature helps to answer three primary research questions with subsets of questions regarding priority populations (AA/B, AI/AN, H/L, API, Low SES, LGBT) and their use of quitlines. The research questions emerged during listening sessions with members of the six CDC National Networks (NAQC, 2010) and represent the key issues raised. A total of 13 studies (Appendices A and B) were systematically reviewed based on how they could help answer the following:

1) *Are the specified priority populations using quitlines? If so, are the specific priority populations satisfied with the services?*

2) *Are quitlines effective among these populations? If so, what has shown to be effective? What culturally-specific elements are important to incorporate into quitline services to increase effectiveness per the scientific evidence?*

3) *Are quitlines promoted to specific priority populations? If so, do promotional efforts increase callers from specific populations to quitlines?*

RESULTS

Are Priority Populations Using Quitlines?

Zhu et al. (2010) examined 15 years of data on the utilization by Asian language speakers of the California Smokers' Helpline (CSH). A free statewide tobacco cessation quitline available to all residents of California, the CSH is the only quitline in the U.S. that supports multiple language counseling for tobacco users who speak Chinese, Korean, or Vietnamese (CKV). The primary objective of this study was to assess quitline utilization by smokers who called the Asian-language lines and to compare their usage to Asians and non-Hispanic whites who called the English-language line. The study was, in part, a challenge to widely held assumptions that Asians do not use quitline services because they are less likely to seek counseling of any sort, and Asian immigrants are less likely to use quitlines due to cultural barriers such as a lack of familiarity with the concept of behavioral counseling. Secondary objectives included an examination of preferences for services delivered in target Asian languages (i.e., Chinese, Korean, and Vietnamese). During the initial period under study (1993-1994), Asian-language services were provided by the Asian Health Forum, a community-based organization. From 1994 to present, the University of California, San Diego serves all callers who speak English, Spanish, Chinese (Mandarin and Cantonese), Korean and Vietnamese.

Study measures included service data on whether callers phoned the quitline for themselves or someone else (i.e., proxy caller), their tobacco use status and readiness to quit, how callers learned of the program, and demographic data (namely, the specific ethnic category reported by callers who identified as Asian or Pacific Islander). Asians who called the CSH but preferred services provided in English were treated as Asian Americans/English-language speakers. The population of whites in this study included only English-speaking, non-Hispanic whites. Quitline

utilization was determined as a "usage rate" for each group (whites, English-speaking Asians, and CKV-speaking Asians). To derive this rate, researchers divided the annual total calls to the quitline from the corresponding group by the specific group's total estimated population of smokers in California. To compare quitline callers with the general smoking population in California, data from the 2003, 2005, and 2007 California Health Interview Survey (CHIS) were used.

Results show a total of 35,521 Asian American and Pacific Islanders called the CSH from 1993 to 2008. A total of 22,061 of these callers (62%) used the in-language lines (CKV) versus 13,460 (38% of the total) Asian American callers who used the English-language line. Among those who called the Asian-language line, 35.4% were proxy callers (calling for someone other than themselves). During the same time period, a total of 259,979 white smokers called the English-language line, of which 4.8% were proxy callers. During the first period comparing data from the quitline (2002-2004) with CHIS (2003) data, Asian smokers using the three in-language lines were significantly more likely to call the quitline than were whites ($p<.05$). However, English-speaking Asians were significantly less likely to call the quitline compared to white smokers ($p<.05$). This trend remained constant for both males and females. On the other hand, female CKV-speaking smokers were no less likely to call than whites. In the second comparison period of CSH (2004-2006) data and CHIS (2005) data, the trend remained similar in that English-speaking Asian American male and female smokers were significantly less likely to call the quitline than white smokers. CKV-speaking male and female smokers were not significantly less likely to call the quitline than white smokers. During the final comparison period of CSH (2006-2008) and CHIS (2007) data, CKV-speaking males and female smokers were significantly more likely to call the quitline than white smokers, however, English-speaking Asian male and female smokers were both less likely to call the quitline than white smokers.

Overall, this study showed that CKV-speaking Asians used the quitline at the same rate (~1% of total smoking population) as other groups, much of which may be attributed to media promotions. It must be noted that California had an ongoing antismoking media campaign promoting the availability of services provided in CKV languages. Across all years (1993-2008) and across all groups, callers were most likely to learn of the CSH's services via mass media. This pattern was also consistent among proxy callers. Given the high proportion of proxies calling from CKV-speaking groups, results from this study suggest great potential of mass media campaigns to motivate non-smokers to call the quitline on behalf of other smokers, thus extending the reach of the quitline. While mass media may have been a reliable means of reaching smokers, health care providers proved to be a less reliable referral source for CKV-speaking callers. On average, only 4.1% of CKV-speaking callers reported learning of the CSH from a health care provider. Approximately 28% of white callers, however, reported having heard about the CSH from a health care provider. This points to missed opportunities from CKV providers in utilizing the cessation service for their clients and suggests an important intervention point for quitline promotion in the future.

This study is not without limitations as there was no assessment of the number of CKV-speaking smokers who had seen the media promotions compared to English-speaking Asian smokers. As such, it was not possible to determine how much of the differences in use between the two groups could be attributed to exposures to the promotions. Additionally, there was no assessment of whether the media campaign had different effects on smokers by level of education. Finally, the impact of promotional efforts on the part of community-based organizations representing Asian groups was not examined. Nevertheless, findings from this study suggest that while at differing rates, residents of Asian descent and particularly those of CKV-speaking communities, utilize the California Smokers' Helpline at least as frequently as white smokers.

Andoh et al. (2008) conducted a cross-sectional study on sex- and race-related differences among smokers who called the American Lung Association (ALA) Helpline. The primary objective of this study was not related to the use and satisfaction of quitlines, but rather, to determine whether sex- and race-related differences in smoking behaviors were explained by socioeconomic status (SES). Approximately 99.1% (n=990) of current adult smoker recruits agreed to

participate in the study, and the demographic composition of the study sample included American Indian or Alaska Native (1.7%), Asian (0.6%), Native Hawaiian or Pacific Islander (2.4%), white (61.2%), black (34.0%), and Hispanic (4.7%). Due to the small sample size of other racial and ethnic minority groups, comparisons were restricted to white and black participants. Compared to men, women calling the helpline were less educated, more likely to be unemployed, and had a lower household income ($p<0.01$ for all analyses). Despite their low SES, women were more likely to use pharmacotherapy before calling the helpline. Similar to women within the study, black smokers had lower levels of education, a lower household income and were more likely reside in urban areas when compared to white smokers ($p<0.01$ for all analyses). Post adjustment for SES, black smokers in this study were less likely to have tried other evidence-based and non-evidence-based methods of quitting (i.e., use of smoking cessation medications or switching to lower-tar-delivery cigarettes) prior to their call to the helpline.

Findings from Andoh et al. confirmed those of a previous study by Sood et al. (2008) who conducted a cross-sectional study of 890 current adult smokers calling the same ALA Helpline. As precursor to the study by Andoh and colleagues, the primary objective of this study was to compare the proportion and characteristics of helpline callers to those of the general adult smoker population ascertained through the 2002 National Behavioral Risk Factor Surveillance Survey (BRFSS) and 1991-2001 National Health Information Survey (NHIS) data. When compared with the general adult population of smokers across the U.S., Helpline callers were significantly more likely to be women ($p<.01$), approximately 45 years of age ($p<.01$), black ($p<.01$), non-Hispanic ($p<.01$), educated up to the high school level ($p<.01$), reside in urban areas ($p<.01$), and earn an annual household income less than $35,000 ($p<.01$). Of particular interest, the authors found a significant overrepresentation of blacks, non-Hispanics, women, and urban residents, as well as poorer, older and less educated adults.

It is particularly important to note that the ALA Helpline used in both studies promoted services via general mass media campaigns using messages embedding the health consequences of smoking as opposed to tailored messaging targeting specific subpopulations of U.S. smokers. Despite this lack of targeted promotion, the findings show an overrepresentation of callers from traditionally underrepresented groups, particularly black and low SES smokers.

Prout et al. (2002) examined characteristics of callers using the Massachusetts Smokers' Quitline using provider service data, and compared them to the general population of smokers using data obtained from the state BRFSS. The primary aim of this study was to assess differences between quitline callers (n=23,938) using services between 1994-1997 and all adult smokers who responded to the 1994-1997 Massachusetts BRFSS (n=3,292). Results showed that callers completing the initial quitline assessment were more likely to be younger, female, have attended some college, and less likely to be non-Hispanic white. During the period under study, African Americans represented 6.2% of the total callers to the Massachusetts quitline, while this group represented 4.1% of smokers in the state. Also overrepresented within the quitline population, Hispanic smokers comprised 4.8% of total callers but represented 3.7% of smokers in the state.

The Question of LGBT Use of Quitlines

There are a dearth of studies within the published literature on the relationship between LGBT populations and their use of quitlines. Of those research studies and evaluations that do exist, most are not available through the commonly observed mechanisms for scientific evidence, that is, peer-reviewed journals. The paucity of literature within this area, however, cannot be attributed to a lack of quitline use by individuals within the LGBT community. Rather, the absence of scientifically published research may be attributable to a lack of consensus by the various stakeholders (e.g., state tobacco control programs, funding agencies, providers, community agencies, and advocacy groups) as to the relevance, appropriateness, and implications of requesting information in order to collect demographic information related to sexual orientation and gender identity of quitline callers. Based on 2009 NAQC Annual Survey data, 19 U.S. quitlines reported data on sexual orientation and gender identity of callers (North American Quitline Consortium, 2009). Given the absence of a widespread adoption of sexual orientation-related questions and limited collection of these demographic data, large scale efforts to examine the use and effectiveness of quitlines within the

LGBT population are somewhat hampered. However, in response to the lack of demographic data on these callers, other research focusing on the development of valid and reliable standardized questions related to sexual orientation and gender identity has emerged.

As part of a collaboration between the National LGBT Tobacco Control Network, a regional health plan in Minnesota and a Minnesota provider of quitline services, Scout and Senseman (2007) examined the use of cognitive testing in the development of a single item to assess sexual orientation and gender identity in an effort to successfully capture and portray tobacco use in LGBT communities. Thirty-three subjects aged 18 to 61 (median 29 years) participated in the first round of cognitive testing, while 39 subjects participated in a second round of cognitive testing utilizing an enhanced question that was revised based on results from round one testing. To ensure diversity and in order to explore variability, the total sample (n=72) consisted of individuals from the general population and the LGBT community. Further, racial and ethnic minorities and individuals of low SES comprised two-thirds of the sample. Upon completion of the two phases, the researchers found that the use of a single sexual orientation and gender identity question accurately classified 100% of the participants, no participants requested clarification or supplemental definition, and moreover, no participants refused to respond to the question.

While the findings by Scout and Senseman (2007) provide some support for adopting questions to accurately capture sexual orientation and gender identity, a separate study by Anderson et al. (2005) provides evidence of the use of the California quitline by LGBT residents. Using existing service data from the California Smoker's Helpline, Anderson et al. completed a follow-up evaluation with a random sample of callers (n=953) who had previously received services in order to determine LGBT use of quitline services. The researchers identified zip codes from census data known to be locations of heavily populated LGBT residents and oversampled within these areas. Within heavily populated LGBT locales, 22.8% of callers were identified as LGBT. Upon correcting for oversampled zip codes, 5.3% of the callers in the total California sample identified as LGBT. Only 4.3% of the respondents refused to answer questions related to their sexual orientation. Results from this study suggest that it is possible to verify whether LGBT tobacco users are currently using, or have in the past used quitline cessation programs. Furthermore, these findings provide evidence that some members of the LGBT smoking population are using the California Smoker's Helpline, although improvements in call volume can always be attained.

Less is known, however, about LGBT use of other quitlines. Nevertheless the introduction of an item assessing sexual orientation and gender identity in the above-referenced studies provides an opportunity to more accurately capture this population and identify the particular characteristics of who is calling, and if LGBT populations are using and satisfied with quitline services. NAQC has adopted the item from the Minnesota study as an optional question for its Minimal Data Set for Evaluating Quitlines as an attempt to encourage quitlines who are interested in assessing sexual orientation and gender identity to use standard language and response options.

Summary

The literature reviewed provides some evidence of the utilization of the California Smokers' Helpline, quitlines in Massachusetts and Minnesota, as well as the American Lung Association National Helpline (Sood et al., 2008; Andoh et al., 2008; Prout et al., 2002; Zhu et al., 2010; Anderson, 2005; Scout & Senseman, 2007). Other research studies (reviewed in other sections of this paper) provide additional evidence of state quitline utilization and the use of other telephone-based tobacco cessation helplines (Orleans et al., 1998; Wetter et al., 2006; Niederdeppe et al., 2008; Boles et al., 2009; Burns & Levinson, 2010; Maher et al., 2010; Sheffer et al., 2010). Priority populations represented among telephone-based intervention study populations were African American, Hispanic/Latino, Asian and Pacific Islander, American Indian, low SES and LGBT. As discussed within the literature reviewed, at times some populations satisfied the criteria for more than one priority grouping (i.e., low income African American smokers). However, the vast majority of studies reported on the use of quitlines by each group independently. While there are between-group differences in terms of quitline utilization, the examples provided show use of quitline services, to varying degrees, by all of the priority populations of interest for this review. Furthermore, some groups such as African American and individuals of low SES were often times overrepresented within the population of quitline

callers when compared to the general population of smokers.

The provision of services in native languages may contribute to the use of quitlines by specific language minority groups. Chinese, Korean, and Vietnamese smokers and proxy callers telephoned the available quitlines, especially when there were services offered in-language (Mandarin and Cantonese, Vietnamese and Korean) for these groups. Moreover, the evidence suggests that these individuals are as, if not more, likely to phone the in-language quitline to seek cessation assistance than white smokers calling the English quitline. Asians who speak English well and Whites who are interviewed in English continue to use the quitline in high degree. An important finding is that among Asians, more individuals requesting services in-language tended to call the quitline than Asians requesting the service in English.

Are Priority Populations Satisfied with Quitline Services?

In a comparison between Alaska Native and non-Alaskan Native callers, Boles et al. (2009) evaluated the acceptability and effectiveness of the Alaska quitline. Researchers compared results from surveys of first-time Alaska Native (n=102) and non-Alaska Native (n=670) callers who had set a quit date. Study measures for both groups included satisfaction with the quitline, quit behavior (7-day point prevalence at three month follow up), experiences with the quitline, community perceptions of quitlines, and other tobacco-related questions. Alaska Native participants were asked four additional questions related to preferences for an Alaska Native quitline nurse, the level of comfort with the quitline questions via telephone, whether the quitline questions were presented in a manner viewed as too fast or slow, and participant views on the appropriateness of the quitline for the Alaska Native people.

Finding showed that 83.2% of Alaska Natives vs. 90.3% non-Alaska Natives (p=. 033) reported overall satisfaction with the quitline. Significantly fewer Alaska Natives reported satisfaction with the quitline nurse (88.9%) compare to non-Alaska Natives (94.6%). Despite generally high levels of satisfaction, Alaska Natives were much less likely to quit smoking cigarettes than non-Alaska Natives (22.2% vs. 40.7%). Fifteen of the eighty-eight Alaska Natives mentioned their satisfaction would improve if additional forms of NRT and other cessation services like face-to-face counseling and peer-to-peer groups were offered. Additionally, eight mentioned more follow up calls or the need for a longer time to talk to a quitline nurse, while three were concerned about judgmental or disrespectful interactions with a quitline nurse. In response to the cultural questions asked only of the Alaska Natives, of the eighty-five respondents 13 reported that they preferred to speak with an Alaska Native nurse, three stated that the questions were too personal, 16 reported that the pace of questioning was too fast, and four reported the quitline to be an inappropriate service for Alaska Natives. It also should be noted that a significant difference (p<. 001) was found where Alaska Natives (20.2%) vs. non-Alaska Natives (8.1%) agreed with the statement, “People think that the quitline nurses would not be culturally sensitive.” In terms of quitting, the Alaska quitline was not as effective for Alaska Natives as for other quitline callers. However, three-month quit rates within the Alaska Native group were generally good and overall satisfaction with the services was positive.

Maher et al. (2010) conducted a survey of a random sample of Washington quitline callers to assess whether quit rates and satisfaction with services varied across racial/ethnic populations and geographic location (urban vs. rural). Baseline study measures on the types of services received were obtained from the Washington quitline database. Demographic measures included race/ethnicity, education level, and sex. Quit rates were measured at 7-day point prevalence at three months post initial call to the quitline. The racial and ethnic composition of those surveyed included white non-Latino (n= 762), Latino (n=154), African American non-Latino (147), American Indian/Alaska Native (n=101), and Asian/Pacific Islander (n=58). Quit rates were similar among all racial/ethnic groups with Latinos (35%), African Americans (35%), Asian and Pacific Islanders (58%), and American Indian/Alaskan Native (35%) all having higher rates than whites (30%).

Findings from Maher et al. (2010) showed no significant differences in quit rates by gender, education level or region. More than 90% of participants in each racial/ethnic group reported overall satisfaction with the quitline service,

would suggest the service to others, and were satisfied with the specialist on the phone. Cognizant of the needs of diverse populations, the Washington quitline trained specialists in various culturally specific communication styles and barriers to quitting from callers' perspectives, and as such, one limitation of this study includes the inability to generalize to other quitlines. Other limitations to the study were that the survey was conducted in English only, the absence of sexual orientation/gender identity demographic data (not collected by the quitline until 2006), and low representation of members from the Asian/Pacific Islander community. Despite these limitations, the findings from this study suggest that the Washington quitline was effective in that there was little variation in quit rates and satisfaction across demographic groups.

Summary

Although priority populations may vary in terms of their satisfaction and acceptance of quitlines, the vast majority of participant smokers in the reviewed studies reported a favorable response in terms of satisfaction suggesting that free telephone-based cessation counseling is most often well-received. Beyond studies focusing on client satisfaction of quitline services, this is further evidenced by research exploring the utilization of quitlines as use of quitlines may be indicative of acceptance of this type of cessation service delivery. However, the dearth of studies on this topic indicates a clear need for additional research focusing on priority populations to help elucidate the relationship between caller experiences and subsequent outcomes, as well as to assist in improving services. No randomized controlled trials exist that specifically compare quitline service satisfaction with satisfaction from other types of cessation services among priority populations. More research needs to be conducted in this area.

Are Quitlines Effective for Priority Populations?

Orleans et al. (1998) recruited African American smokers to a two-group randomized clinical trial testing the effectiveness of a culturally-tailored cessation intervention for African Americans (AA) using a media campaign. The paid media campaign combined television and radio advertisements with limited community outreach to African American smokers. Central to the media campaign was increasing calls to the National Cancer Institute's Cancer Information Service (CIS) for free quit smoking information and materials. Study participants were 1,422 African Americans smokers who called one of the four regional offices of the CIS. Over 85% of the subjects called in response to a tailored communications campaign targeting 14 communities. Researchers randomized the subjects to one of two conditions: 1) standard intervention (standard CIS smoking cessation counseling with the offer of generic quit smoking materials), or 2) tailored intervention (modified CIS counseling with culturally-tailored quit smoking materials). The tailored intervention consisted of providing the "Pathways to Freedom" cessation guide and tailored counseling to quitting and dealing with barriers. Tailored counseling was slightly modified from the standard counseling in that the Information Specialists used an interactive approach in order to encourage commitment to a stage-based quit and relapse prevention protocol. Tailored interventions lasted 19 minutes within a range of 10-28 minutes, while standard intervention calls lasted a median length of 13 minutes with a range of 8-23 minutes ($P<.05$). Baseline study measures included demographics, smoking characteristics (e.g., current smoking status, number of years smoked, Fagerstrom Test for Nicotine Dependence scores, quit attempts in the past year) and standard definitions of stages of change. Follow up measures at 6 and 12 months consisted of use and ratings of self-help guide, use of pre-quitting strategies, number of quit attempts, 7-day point prevalence abstinence, progress through stages of change, and use of nicotine replacement.

Results show callers in this study were mostly African American females (63%) between the ages of 20-49 years (88%), and had either a high school education or more (84%). Using a standard definition of stages of change, 50% of smokers were in the contemplation stage and reported they were interested in quitting smoking within the next six months. Another 47% were in the preparation stage (intended to quit in the next 30 days) and 2% were in the action stage, having made a serious attempt (24 hours or more) in the past six months. Six-month follow up results showed a preference of the tailored intervention for each strategy assessed. Participants in the tailored intervention initiated significantly more quit attempts than the CIS standard group ($P=0.007$). No significant differences were found in any other outcomes. At 12-month follow-up, self-reported abstinence rates were significantly higher for the tailored

intervention (25.0%) when compared to the standard intervention group at 25.0% and 15.4%, respectively (P=0.034).

Findings from this study suggest that tailored materials and enhanced counseling (i.e., longer duration and increased frequency of calls) were of some benefit over standard or generic approaches for African American smokers calling the CIS. What remains unclear, however, is the extent to which of the intervention components had the greatest effect. A further limitation to this study is that the 12-month follow up occurred for part of the cohort (only those subjects who enrolled during the second year). The absence of quit rates for the other part of the cohort who were not assessed at 12 months brings into question the generalizability of these findings across the entire study population. While it is possible that improved abstinence rates may be attributed to tailored materials and/or counseling, it is important to note the context of the study. A targeted communications media campaign, which was highly correlated with an increased call volume to the CIS, may have influenced the smokers' perceptions of the need for tailored materials. Consequently, we cannot conclude from this study that there is a direct link between culturally-tailored materials and counseling protocols and increased abstinence.

Wetter et al. (2006) recruited Hispanic smokers to a two-group randomized clinical trial entitled "*Adiós al Fumar*" (Goodbye to Smoking). The objective of the study was to evaluate the effectiveness of paid media for increasing use of the CIS Spanish language services and to examine the efficacy of the culturally-tailored telephone-based behavioral treatment in Hispanic populations. Study participants tended to be of low socioeconomic status (SES), two-thirds Mexican American with 95% being of immigrant status, and approximately 60% of the subjects spoke solely Spanish at home. The researchers randomized the 297 participants to one of two conditions: 1) standard counseling (one telephone contact with the offer of self-help materials), or 2) enhanced counseling (four telephone contacts). The enhanced counseling consisted of culturally-tailored sessions delivered in three additional proactive counseling calls at one, two, and four weeks after the initial call to the CIS. The calls consisted of practical counseling (identification of triggers to smoking and strategies for coping), supportive counseling, and strategies to increase social support from significant others. Motivational enhancement techniques and cultural tailoring were also included. Cultural tailoring consisted of a protocol that incorporated relevant Hispanic cultural elements such as *respeto, simpatia, familismo,* and *personalismo* (i.e., respect, pleasant and agreeable, family, and positive social relationships respectively). Abstinence rates measured at 7-day point prevalence at five and 12 weeks were the primary study outcomes. Results demonstrated that the enhanced condition (27.4%) produced greater 7-day point prevalence abstinence compared with the standard condition (20.5%) at the three-month follow-up. The researchers noted an increase in calls to the CIS for assistance with cessation, however, they acknowledge that this increase could very well be attributed to paid media advertisements (television, radio, newspaper and direct mail) selectively delivered in English and Spanish. Promotional efforts showed an increase from an average of less than one call per month to nearly 18 calls per month among the targeted population. A culturally-tailored approach to tobacco cessation for Hispanic populations was the strength of the study. Limitations, however, included unmatched intervention intensity and contact, a short follow-up duration, and reliance on self-reported quit rates. Nevertheless, these data show that culturally-tailored proactive telephone counseling programs, in conjunction with targeted and tailored media campaigns for Spanish-speaking smokers, may be effective in the short-term.

Summary

The effectiveness of quitlines has been repeatedly demonstrated among broader audiences. A meta-analysis by Lichtenstein, Glasgow, Lando, Ossip-Klein & Boles (1996) showed that in different settings, proactive counseling calls have consistently shown beneficial effects with regard to short-term abstinence. Long-term quit rates, however, are less consistent within the published literature and those found in studies related to telephone-based interventions for priority populations are no exception. Orleans and colleagues (1998) showed higher abstinence rates in African American smokers at 12 months as did Wetter et al. (2006) in Hispanic smokers at three months. While both studies found that smokers who received culturally-tailored/enhanced interventions experienced higher quit rates, given that the period at which these rates were measured was relatively short, it is difficult to ascertain whether or not cultural tailoring results in a more sustained quit. While short and/or long-term abstinence rates are often associated with the

effectiveness of quitline services, it is important to note that other factors may contribute to quitting. Consequently, the definition of effectiveness must be extended beyond the common default of focusing solely on quit rates.

Results from both studies reviewed for this section emphasized the use of targeted, paid media campaigns that were strategically employed in order to increase call volume from target groups (i.e., African American and Hispanic/Latino). Both studies revealed the effectiveness of using paid media to increase initial calls to the quitline. It is possible that the use of paid media influenced other outcomes to include numerous quit attempts resultant from repeated exposure to tobacco cessation media promotions. Based on limited data, the effectiveness of culturally specific educational materials and/or self-help guides used in these studies remains unclear. While the findings suggest that it is possible study participants from priority populations preferred tailored materials, it is not clear that the use of these materials resulted in higher quit rates for the short or long-term among these populations. What is clear, however, is a positive association between paid media promotion of telephone-based services and an increase in call volume.

Are Quitlines Promoted to Priority Populations?

Burns and Levinson (2010) conducted a quasi-experimental study on the effects of a Spanish-language media campaign on quitline utilization. Study eligibility criteria included if potential participants had called the Colorado quitline for themselves during the pre-campaign or campaign periods and answered race/ethnicity-related questions. The researchers compared proportions and demographics of callers with other races/ethnicities. Study measures included call volume, service utilization, and quit rates at 7-month follow-up and compared Latino (N=243) and non-Latino (N=527) callers before and during the media campaigns. Tailored media campaigns in Spanish targeted Spanish TV and radio stations, as well as movie theaters catering to Latino audiences. In addition to the media campaign, there were other elements of a more comprehensive approach that may, in part, account for the increased quitline reach. During the study period, the Colorado Quitline offered free nicotine replacement therapy (NRT) and five telephone counseling sessions, which were used marginally more by Latino/Hispanic enrollees than non-Latino enrollees.

The results showed that Colorado quitline calls increased among Hispanics/Latinos by 57.6% and 6-month abstinence rates were significantly higher during the campaign than pre-campaign (18.8% vs. 9.6%). Abstinence rates at 7-day point prevalence were also significantly higher among Hispanics/Latinos during the campaign period (29.6% vs. 41%). Additionally, 82.1% of Hispanics/Latinos used the free NRT compared to 74.6% before the campaign. Latinos who called the quitline during the campaign were younger than 45 years, more likely to be uninsured and had lower levels of educational attainment (less than high school) than those who called during the pre-campaign period.

Contrary to the authors' assertion, the lack of a direct measure of exposure to the media campaign is a limitation to this study. However, the researchers noted a limited ability of their study to assess the direct effect of the media campaign on cessation-related knowledge and attitudes in their study with a Spanish speaking population. In addition, authors noted that when media is well designed, Spanish language media campaigns can reach younger and low SES Hispanics/Latinos. Future research to determine the maximum reach of quitlines to Hispanics/Latinos through Spanish language media is warranted.

The Wisconsin Tobacco Prevention and Control Program broadcasts smoking cessation campaigns on television which mainly focus on two primary media messages, 1) a "keep trying to quit" ad to encourage quitline use (KTQ) and 2) a secondhand smoke (SHS) ad to educate viewers about the harmful effects of smoking and to promote quit attempts. Niederdeppe et al. (2008) examined whether the messages had different effects on socioeconomically advantaged populations as compared to the disadvantaged. Further, the researchers tested the impact of KTQ and SHS ads on quit attempts and smoking abstinence. Longitudinal data from the Wisconsin Tobacco Survey (2003) was used for baseline measures of media campaign recall, while follow-up data obtained from the Wisconsin Behavioral Health Survey (2004) were used to capture abstinence rates.

A total of 452 adult current smokers were interviewed in 2003 and one year post-media campaign in 2004. Recall of KTQ ads was positively associated with telephone quitline awareness in both the upper SES and lower SES samples, but was not associated with secondhand smoke beliefs in either group. These results were consistent across education and income lines. Making at least one quit attempt in the past year was not associated with recall of KTQ or SHS ads. The KTQ ads were more effective in promoting quit attempts among the higher educated when compared to lower educated groups. There was no association between recall of either ad and abstinence at one year by education or income.

Findings from this study suggest that smoking cessation media messages can have greater influence on upper SES populations as opposed to those of lower SES. The researchers noted that upper SES smokers may have found KTQ ads more compelling than lower SES smokers. Consequently, upper SES smokers may have been more amendable to the suggested messages which may in turn influence quit attempts. Study limitations included a low study enrollment rate (29%) that may have impacted the measurement of recall effects, as well as inadequately represented Wisconsin smokers. Overall finding from this study suggests a potential need for media campaigns targeting individuals of low SES.

Sheffer et al. (2010) conducted a media campaign in preparation for a $1 per pack cigarette tax increase by the Wisconsin State Legislature which would impact the Wisconsin quitline. The primary objective of the campaign was to enhance knowledge of quitlines and the availability of services with the goal of increasing demand. Between 2002 and 2007 the quitline served approximately 10,000 tobacco consumers annually. The media campaign included 15 television stations, 15 radio stations, and 93 newspapers. During the first three months of 2008, the quitline received 27,000 calls, and reached 3% of the smoking population thus demonstrating the significant potential of coordinated strategies to increase consumer demand. Among the highest populations reached were the uninsured (29.1%), Medicaid beneficiaries (13.9%), and African Americans (11.2%). Findings suggest that an aggressive statewide campaign can be an effective tool for increasing the reach of quitlines.

Summary

Taken together, findings from the literature reviewed suggest that quitlines are promoted to specific populations with some degree of success. Throughout the various studies, White, African American, Hispanic/Latino and Asian American audiences responded to paid media promotions as measured by an increase in quitline calls. However, different groups of callers learned about the telephone-based cessation services through varied mechanisms of communication. While for some mass media (e.g., television and radio) is the most accessible outlet, for other groups, health care providers and/or their social networks of family and friends may be more influential. The literature review revealed differences by socioeconomic status, showing that media is more influential among individuals of upper versus lower SES. Barriers to individuals of low SES are critical to address, and media campaigns need to be in tune with the realities of quitting and the realities of the communities in which individuals spend their daily lives that may deter or promote cessation.

Finally, findings from these studies demonstrate a need to embed media campaigns within comprehensive programs or interventions. Studies suggest that media campaigns alone are not enough to produce sustained changes in quitting over time. However, when combined with a comprehensive behavioral intervention, such as a quitline program, their impact is not only more noticeable it is also more sustained in the long term.

CONCLUSION

Our purpose has been to systematically review the existent published scientific literature on quitline services as relevant to the inclusion of any of the six specific populations addressed. Our goal has been to provide a better understanding of the reach and quality of quitline services to these particularly vulnerable communities (African

Americans/blacks, American Indians/Alaska Natives, Hispanic/Latinos, Asian/Pacific Islanders, individuals of low SES, and LGBTs). The 13 studies reviewed identified important issues related to quitlines and helped inform questions related to ethnic/racial, low SES and sexual/gender minority utilization of quitlines. This paper brings together the literature on these populations and use of quitline services in the U.S. and contributes to a better understanding of the scientific published literature available to answer key questions important for informing future program planning.

The review provided some evidence of varying promotion, utilization, satisfaction and effectiveness of tobacco cessation quitlines among ethnic/racial and other priority populations. Increased promotion of quitlines to priority populations is warranted, as well as encouraging referrals by clinical and other providers to quitlines, especially when available in the language of the tobacco user. Determining how best to promote quitlines to priority populations is key if they are to participate more fully in cessation services. Given the lack of data collected on sexual orientation and gender identity, there is limited research available on LGBTs seeking cessation services via quitlines and subsequent outcomes. This is identified as a significant gap in the scientific literature. Studies are needed to better understand the characteristics of callers from priority populations and the specific barriers and facilitators to utilization of quitline services. Moreover, studies are needed to best understand which elements of quitline treatment are most effective for priority populations as well as the general population of smokers in the U.S.

Of all the studies reviewed, only eleven were peer reviewed and published in scientific journals. Two studies, though relevant, appeared in the non-peer-reviewed literature. Methodologically, we also found weaknesses in the published information with minority groups and quitlines. Considering the number of years quitlines have been available in the U.S., and over 200 articles available overall dealing with cessation services, it is surprising that only a handful of studies included control groups and only two were randomized control trials. Most studies were descriptive in nature or quasi-experimental with two group, pre- and post-test designs. Although some studies did include follow-up, the length of follow-up was sometimes as little as three months. This does not provide enough time to determine if the intervention really worked over time. With the exception of two randomized trials, it was also difficult to determine "loss to follow-up" on final outcomes of these studies, weakening the little scientific evidence available. Most studies lacked a theoretical framework or guiding model and varied widely in terms of conceptualization. Further studies could emphasize the use of one or more models or frameworks that best fit with priority populations in order to build rigorous scientific evidence that is grounded in proven theory.

Overall, review authors found a paucity of studies in the overall literature that specifically addressed our questions of interest regarding the use, satisfaction and promotion of quitlines in minority communities. Due to the lack of studies with rigorous methodologies related to priority populations and quitlines, utilizing randomized controlled trials was not the most appropriate method to answer the research questions. The inclusion criteria for the literature search needed to be expanded. The tremendous gap in the literature calls for more research in this area with ethnic/racial populations, sexual/gender minorities and those of low SES. It also calls for more rigorous methodologies, more standardized protocols, larger sample sizes, and multi-quitline partnerships to address some of the gaps and methodological weaknesses found in the published scientific literature.

In order to address the current gaps in the literature, partnerships among quitlines, clinicians, and the CDC National Networks are highly encouraged. These partnerships may provide a more effective way of reaching priority populations through culturally-tailored promotional campaigns. Partnerships might also provide guidance regarding the need for language-specific services in particularly vulnerable communities. These partnerships are also a strong vehicle for capacity building among quitline counselors, as they can provide guidance in how to best address culturally-specific cessation issues in a culturally-engaged manner. The partnerships may also provide assistance with designing research projects to test some of the program modifications that could address many of the issues identified in this paper, and with evaluating quitline services for minority communities. More importantly, they are a strong vehicle for the dissemination of findings to others who might be interested in the implementation of culturally and

linguistically specific programs for cessation that meet the needs of minority groups.

Because not all of the research questions identified for this review could be fully answered with the existing available literature, we are left with a need to focus our research efforts in these areas. NAQC is in the process of finalizing a research agenda for quitlines, and will work to ensure these questions are included in the agenda moving forward. In addition, NAQC staff will work to identify quitlines and researchers with the capacity and interest to pursue specific research questions in these areas.

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Appendix A – Peer-Reviewed Articles (11)

Author	Population	Design	Intervention	Control	Outcomes / Follow-up	Notes
Andoh et al., 2008	*Adults in the US who speak and understand English (over age 18, no pregnant women) N= 990, females 619 and males 371*	Cross sectional	990 active smokers were interviewed by telephone during their initial call to the National Helpline. Mass media advertising campaign was used to increase the Helpline usage.		Women and black smokers had lower SES than men and white smokers. Women had lower rates of tobacco exposure and more likely tempted to smoke by environmental cues.	They found that sex and race related differences in smoking among helpline callers are not explained by SES
Boles et al., 2009	*Alaska Native (N=772) and Non AN (40%)*	Descriptive – comparative study	8 proactive follow-up counseling calls, a quit kit, and free NRT		3 month	Quitline less effective for AN
Burns & Levinson, 2010	*Hispanics (Spanish Speaking) N=243*	Quasi-experimental (2-group randomized)	Campaign aired via TV, radio, movie theaters for CO quitline, free NRT and 5 proactive sessions		7 month (quit rate, number of quit attempts, progress through stages of change, use of NRT, ratings of self help guide, use of pre-quitting strategies)	Quitline calls increased by 58% with media campaign
Maher et al., 2007	*African American, Latino, Asian, American Indian AM=147 Latino=154 Asian=58 AI=101*	Descriptive-comparative study (vs. ethnic groups)	One call with QL counselor or "WA benefit"-8 weeks of free NRT and 4 more counseling calls.		3 month	Quit rates did not vary significantly by race, ethnicity, education level, area of residence or sex

	Or N=1312					
Niederdeppe et al., 2008	*Low SES N=452*	Descriptive comparative study	Television smoking cessation ads.		12 month (quit rates, quit attempts, ad recall	Some media campaigns are more effective for highly educated
Orleans et al., 1998	*African Americans N=1,422*	2-group randomized	Tailored CIS quitline Pathways to Freedom guide w/ interactive telephone counseling style	Standard CIS quitline counseling w/ Clearing the Air quit guide	6 month & 12 month in 2nd year only (quit rate, # of quit attempts, progress through stages of change, use of NRT, ratings of self help guide, use of pre-quitting strategies)	6 month follow up significantly higher quit rates with standard vs. tailored. 12 month follow up sig. higher quit rate w/tailored vs. standard
Prout et al., 2002	*Massachusetts residents currently smoking N =23,938 6.2% Black 4.8% Hispanic/ Latino*	2 groups, telephone survey interview	Current smokers calling the Massachusetts Quitline between 1994-1997	Data on smokers from the Massachusetts Behavioral Risk Factor Surveillance System (BRFSS) from 1994-1997, a telephone health survey. Also a separate group was created for smokers planning to quit in 30 days from the BRFSS (since Quitline callers are more likely to want to quit)	Quitline callers are more likely to be younger, female, have some college education, are less likely white, non-Hispanic 93% of Quitline callers plan to quit in 30 days but only 15% feel confident they could quit.	More research is needed on the users of public services such as Quitlines. Callers are usually the more addicted from the general smoking population.
Scheffer et al., 2010	*N=25,384 9% African American 2% Native*	Descriptive/ comparative	Statewide collaboration and Media Coverage. Four	Data from previous years without the 4-component intervention.	An immediate increase in earned media coverage. An increase in Quitline usage from regular 10,000	Consumer demand for these Quitline services can be increased using policy and the media.

	American		Component: 1). Build on other state experiences that achieved lower smoking rates. 2). Generate earned media coverage. 3). WTQL would start 2 new treatments (2 weeks of free NRT and an interactive web coaching service). 4). New calendar year with WTQL		calls/year to 27,000 calls/ 3 months. WTQL would reach 1% of the smoking population in previous years and reached 3% of the population with the statewide collaboration and media campaign.	
Sood et al., 2008	*N=890* *Adult smokers* *5% Hispanic/ Latino* *33% Black*	Cross-sectional. Telephone survey of first time callers to the American Lung Association (ALA) Illinois and Iowa Quitlines. Convenience sample. Self reported.	Live counseling based on the trans-theoretical model of behavioral change and social cognitive theory, patient center counseling strategy and expert recommendation . All callers also received a free self-help educational	Information was compared from the Behavioral Risk Factor Surveillance System 2002 (BRFSS) and the National Health Interview Study (NHIS) 1999-2001. The BRFSS is a cross-sectional telephone survey and the NHIS is a cross-sectional face- to-face interview.	There is an over representation of blacks, non-Hispanic, women, and urban residents. Also, poorer, older, less educated, and heavier smokers are abundant within the study population.	The point of the study was to describe the characteristics of the smokers who were calling the Quitlines. A disadvantaged population who also smokes more and needs more assistance uses Quitlines.

			material " Freedom from Smoking" Services provided in Eng and Span			
Wetter et al., 2006	*Hispanic/Latino (Spanish speaking) N=297*	2-group randomized	Single counseling session during initial quitline phone call + self help materials	Single counseling during initial quitline phone call + 3 proactive counseling calls	5 weeks and 3 month (quit rate)	83% completed the full course of 4 counseling calls and 27.4% reported 7 day abstinence at 3 month follow-up
Zhu et al., 2010	*Asian (Chinese, Vietnamese, Korean)*	Descriptive – comparative study	(Evaluate state quitline utilization) (Whites, English speaking Asians, 3-Asian language groups)		# of smokers and proxies (callers calling on behalf of someone else), how heard of quitline	Active participation of CKV speaking Asians.

Appendix B – Non-Peer Reviewed Articles (2)

Author	Population	Design	Intervention	Control	Outcomes/ Follow-up	Notes
Scout & Senseman, 2007	*General Population and LGBT community (N=72)*	Case Study	Cognitive Testing and implementation of new LGBT question on the quitline	N/A	Single sexual orientation and gender identity question accurately classified 100% of the participants.	Use of cognitive testing to assess sexual orientation to better understand tobacco use in LGBT communities
Anderson et al., 2005	*5.3% of 953 were LGBT (N=50)*	Descriptive	Follow-up interview with randomly selected Helpline participants	N/A	LGBT Helpline callers are satisfied with service and benefit from Helpline service.	LGBT population being served by CA Smokers Helpline but improvements in call volume can be attained.