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Gender-Based Differences in Counseling Time in a Community Health Worker Smoking Cessation Project

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ABSTRACT:

Smoking represents a serious public health burden that crosses gender, racial, and socioeconomic lines. Although the majority of smoking cessation counseling traditionally occurs in the setting of a Primary Care Provider's office, clinicians often lack the necessary time and/or cultural and language skills to provide adequate help to smokers prepared to quit. A Community Health Worker (CHW) smoking cessation project utilizing CHWs in San Diego, CA evaluated by Woodruff, et al effectively increased patient's abstinence rates in the intervention group. A similar project undertaken by the University of New Mexico Department of Family and Community Medicine employed bilingual CHWs to counsel patients regarding smoking cessation in a clinic with both Spanish and English-speaking patients. This study analyzes the differences in CHW counseling time required (using visitations and phone calls) based on gender. Ancillary outcomes of counseling time required based on language and ethnicity are also evaluated. Female smokers (N = 25) averaged mean total counseling times of 247.4 minutes (80-410) and male smokers (N = 9) averaged 217.8 (90-350), a difference that did not reach statistical significance ($p = 0.4343$). English speakers (N = 20) averaged total mean counseling times of 198.8 minutes while Spanish speakers (N = 14) averaged 297.9 minutes, a statistically significant result ($p = 0.0017$). Our findings are inconclusive with respect to the influence of gender on counseling times for a Community Health Worker based smoking cessation project. The difference in counseling times between men and women, though not reaching statistical significance, could be of clinical importance but would require further study with a larger sample size. Although several limitations exist in this project, these results indicate it is necessary to design counseling strategies to better treat certain target populations based on gender, language, and ethnicity more effectively and more research is needed to determine the most appropriate method.

INTRODUCTION:

Cigarette smoking is the leading cause of preventable death in the United States, leading to approximately 440,000 premature deaths each year.¹ Morbidity rates are much higher; an estimated 8.6 million persons in the United States have serious illnesses attributed to smoking, including chronic bronchitis and emphysema, heart attack, stroke, and cancer.² Direct medical costs from smoking-attributable illness are estimated at \$75 billion, with an additional \$82 billion in lost productivity - a total of over \$157 billion in health related economic losses.¹ The prevalence of cigarette smoking among adults in the United States was 22.5% in 2002, and had decreased slightly to 22.0% in 2003 according to the BRFSS. This rate of decline is not likely to meet the national health objective of less than 12% by 2010.³

Most individual tobacco cessation counseling takes place in the health care setting, generally in the primary care office. Since 70% of smokers report seeing a physician in an outpatient setting each year, clinic-based counseling has the potential to reach the majority of those who could benefit from cessation services.⁴ However, in a survey of a cohort of patients seeking health care services, only 37% of the persons who had smoked reported having received any advice to quit from a health-care professional during the preceding 12 months.⁴ The environment of primary care today leaves the clinician little time to engage in the type of extended support for individual cessation efforts that are likely to lead to success. Clinicians often lack adequate time and/or skills to counsel patients effectively, especially when that counseling must be done in Spanish. Language barriers add to the missed opportunities for effective counseling for limited English proficient Hispanics. Previous studies have documented that Hispanics are less

likely to receive counseling, though it is unclear how much of this decrease is due to a language barrier. While primary care clinicians will remain important in tobacco cessation, it is clear that effective strategies for individual tobacco cessation in low-income populations, especially among Hispanics with limited English proficiency and problems with access to care, must link the primary care setting with additional resources.

An innovative approach to providing community-based health care with expanded outreach and access has been the use of Community Health Workers (CHWs), or “promotoras de salud” in Spanish. CHWs are generally part of an existing social network in their community and have demonstrated leadership, compassion, and interest in helping with the community’s health problems. They often work as volunteers, but there is a growing recognition of the benefits of utilizing CHWs as paid staff members of a health care team, working to improve health of populations in areas such as diabetes education, cardiovascular risk reduction, cancer prevention, and prenatal care. There has been limited study of CHWs in the area of smoking cessation counseling and treatment. One recent study by Woodruff and colleagues evaluated a culturally appropriate home-based social support/counseling intervention for Spanish-speaking Hispanic smokers living in San Diego County that was delivered by trained promotoras.⁵ This study found a significantly increased rate of abstinence in the intervention group (20.5%), compared to a control group that was referred to the Spanish-language Smokers' Helpline (8.7%). This study showed great potential for the approach of using lay counselors, but abstinence rates were only assessed one week after the completion of the intervention, with no published data available on follow-up at 6 -12 months post-intervention. The

Woodruff study did not include pharmacotherapy, which has been recommended by evidenced-based guidelines as an effective intervention that should be offered to all smokers. Adding pharmacotherapy (bupropion) to the CHW counseling intervention could potentially further improve cessation rates, though the practicality of this approach has not yet been studied.

GENDER DIFFERENCES:

Under some circumstances, women may benefit more from smoking cessation than men. For example, among people at risk for chronic obstructive pulmonary disease, smoking cessation has an even clearer advantage for women than it does for men. Among participants who quit smoking in the first year, mean forced expiratory volume in 1 second (FEV1) expressed as a percentage of the predicted value of FEV1 given the person's age, height, gender, and race (FEV1%) increased more in women (3.7% of predicted) than in men (1.6% of predicted) ($p < 0.001$). Across the 5-year follow-up period, among sustained quitters, women gained more in FEV1% of predicted than did men.⁶ Although women are generally aware of the risks of smoking and attempt to quit smoking at the same rate as men⁷, some data suggest that women are less able to quit smoking than men.^{8,9,10,11} Some have also suggested that nicotine replacement therapy (NRT) is less effective in women.^{22,10} However, analyses have generally found NRT equally effective in men and women.^{13,14,15,24}

Data suggest that women may be more likely to smoke to manage negative affect^{16,25,28}, and that women trying to quit report more depressed affect than men.^{12,20} Women may also be more concerned about weight gain during a cessation attempt.^{21,22}

In a meta-analysis published in 2004 by Sharf and Shiffman gender differences in smoking cessation with and without treatment with Bupropion SR were examined. They tested whether women and men have comparable success rates quitting smoking regardless of treatment, whether Bupropion SR is effective for women, and whether Bupropion SR efficacy differs for men and women. The authors concluded that Bupropion SR is an effective smoking cessation aid for women and that women have less success quitting smoking than men, whether treated with Bupropion SR or placebo.¹⁸

The higher failure rate among women is particularly surprising, because women generally appear to be less nicotine dependent than men.^{26,27} A number of mechanisms have been suggested to explain women's poorer outcomes in smoking cessation. It has been suggested that women may rely on smoking for affect management more than men²⁸, or may be more vulnerable to depression when quitting¹², and that this may create special challenges for women when they try to quit. Others have suggested that women's extra concern about weight gain during cessation may undermine quitting.²¹ It has also been suggested that women may be more responsive to smoking cues^{18,23}, which might make women more vulnerable to the cues that often precipitate relapse.¹⁷ For whatever reason, male sex is generally seen as a positive predictor of success in smoking cessation programs.

Clearly, it is necessary to gain a better understanding of gender differences in smoking cessation programs (in a predominantly Hispanic population) so that therapy efforts can be targeted appropriately to women.

A Community Health Worker based smoking cessation program in a low income, majority Spanish speaking community in the SE heights was established, in which CHWs

provide counseling and offer pharmacotherapy to smokers to aid in their cessation efforts. The details of the CHWs' involvement is outlined in detail in the methods section below. This study focused the influence of gender on smoking cessation therapy. Some research has suggested that women may have difficulty quitting smoking for psychosocial reasons which are not as prevalent for men (affect management, depression vulnerability, weight gain concerns). Due to these additional challenges compounding the difficulty of quitting smoking for women, it may follow that they require more therapy to aid their efforts. We therefore hypothesized that the total number of contact minutes required for counseling and support by the CHWs is greater for women than men.

METHODS:

A small-scale pilot project was constructed to study the feasibility of and refine protocols for an innovative, culturally appropriate, tobacco cessation program using CHWs in the low-income Southeast Heights (SEH) Albuquerque population. This area has a large Hispanic population, and many of these people speak Spanish only or speak both Spanish and English but prefer to speak Spanish. The use of bilingual CHWs is integral in order to fit into the population in a culturally sensitive manner. Both of the counselors are able to speak to the client in his/her preferred language. Presentations and flyers are delivered to local clinics, schools and churches by the counselors in order to recruit smoker participants in the study.

The two CHWs, one female and one male, employed for this study went through a hiring process through the University of New Mexico (UNM) and are required to have a GED or High School degree. The CHWs, one female and one male, were trained by three UNM physicians and the director of the UNM Tobacco cessation program. The

transtheoretical model of behavior change and motivational interviewing techniques is used as the foundations for counseling. Counseling is provided to those people committed to quit smoking at this time. This community-based project utilizes the home-based social support/counseling intervention developed in San Diego by Woodruff and colleagues called “Proyecto Sol.” However, a pharmacotherapy component is included. The CHW completes an Intake/Referral form (Appendix A). Each client completes a Spanish or English Smoking Questionnaire (Appendix B). The CHWs make four home visits of approximately one hour in length and three telephone contacts between the physical visits of approximately 10 minutes in length, though more phone calls and visits were found to be necessary for some of the patients in order to support their cessation attempt. The phone calls are initiated by either the CHW or the client. The CHWs each have a cellular phone for contact.

Bupropion pharmacotherapy is offered to each client to assist in the cessation process. The medication is provided through the Medication Assistance Program and is supervised by the sponsoring physicians. The CHWs are trained to help clients apply for medication through this program. Although the application for the Medical Assistance Program is time-consuming, the medication would be too costly for the low-income clients otherwise.

Data was collected from the CHWs at the completion of the project. The CHWs have logged in accounts of their contacts with the study participants, including time elapsed, number of contacts, types of contacts, primary language spoken, and patient’s ethnicity. This information was transferred to a Microsoft Excel spreadsheet. An

interview with the CHWs was used to estimate the average number of minutes of minutes per phone call of 10 minutes and average number of minutes per visit of 60 minutes.

The SAS system software was used for statistical analysis. A t-test analysis was used along with a wilcoxon two-sample test to separately analyze differences in counseling time based on gender. Two additional outcomes were analyzed using the same methods: counseling time based on primary language spoken and counseling time based on ethnicity.

RESULTS:

Table 1 displays the findings of the study. The progress of 25 females and 9 males was followed. The total number of counseling minutes was totaled from an estimated average of 10 minutes per patient phone call and 60 minutes per patient visit. The patient's primary spoken language was recorded along with his/her ethnicity and this data was analyzed as well.

Gender: Mean total counseling time for the 25 females was calculated to be 247.4 minutes with a standard deviation of 94.6 minutes and a minimum of 80 minutes and maximum of 410 minutes. Mean total counseling time for the 9 males was calculated to be 217.8 minutes with a standard deviation of 100.8 and a minimum of 90 minutes and maximum of 350 minutes. After analyzing difference in total mean counseling time between males and females t-test calculated a pooled p-value of 0.4343 and wilcoxon two-sample test calculated a two-sided t approximation for a p-value of 0.3705.

Language: 20 patients studied spoke English as their primary language and 14 spoke Spanish. Mean total counseling time for the native English speakers was 198.8 minutes with a standard deviation of 78.5 minutes and a minimum of 80 minutes and maximum of

350 minutes. Mean total counseling time for the native Spanish speakers was 297.9 with a standard deviation of 89.5 minutes and a minimum of 95 minutes and maximum of 410 minutes. After analyzing difference in total mean counseling time between primary English and primary Spanish speakers t-test calculated a pooled p-value of 0.0017 and wilcoxon two-sample test calculated a two-sided t approximation for a p-value of 0.0069.

Ethnicity: 10 patients studied were Caucasian and 24 patients studied were Hispanic.

Mean total counseling time for the Caucasian group was 183.5 minutes with a standard deviation of 78.7 minutes and a minimum of 80 minutes and maximum of 350 minutes.

Mean total counseling time for the Hispanic group was 262.9 minutes with a standard deviation of 93.7 minutes and a minimum of 90 minutes and maximum of 410 minutes.

After analyzing difference in total mean counseling time between Caucasian patients and Hispanic patients t-test calculated a pooled p-value of 0.0250 and wilcoxon two-sample test calculated a two-sided t approximation for a p-value of 0.0510.

Preliminary data on smoking cessation rates are as follows. 12 total women were followed up. 3 of 12 women (25%) quit smoking completely at the six month interval, leaving 9/12 women (75%) who relapsed. 3 total men were followed up. 2 of 3 men (66%) quit smoking completely at the six month interval, leaving 1/3 men (33%) who relapsed. Follow up was not complete for the remainder of the patients.

DISCUSSION:

This is the first study comparing gender and language/ethnic differences in counseling time required in a smoking cessation program. In this pilot study that utilizes CHWs as smoking cessation counselors, women required an average of 30 minutes more

counseling time than men, a difference that did not reach statistical significance. The data for six month follow up smoking cessation rates in this study has not been fully documented at this time. Only 15 total patients out of 34 who began the study had complete follow up due to several reasons: phone numbers were changed, individuals permanently moved and certain patients were not able to be reached.

Several limitations exist in the study. Data for five of the males originally enrolled in the study were not documented, which lowered the final sample size to $n = 9$ from $n = 14$ for males. Power analysis conducted at the outset of the study by Dr. Betty Skipper was based on a two-sample t-test to achieve 80% power with estimated sample sizes of 23 women and 14 men. A statistically significant difference of 20 total counseling minutes between women and men was detectable with an estimated standard deviation of 20 minutes and estimated means of 288 total counseling minutes for women and 268 total counseling minutes for men. Our study did not achieve 80% power, which rendered our results statistically insignificant. Despite the fact that both CHWs were trained identically, they each may have had different “styles” and therefore counseling sessions likely varied in length depending on which of the two CHWs were counseling the patient, which represents a collection bias. Results may be confounded by several other variables which were not controlled for in patients such as ethnicity, language spoken, complicating social situations, other medical problems, smoking history, and previous quit attempts.

A statistically significant difference in mean total counseling times exists between primary English speakers and primary Spanish speakers of almost 100 total minutes and after comparing ethnicity results, the results approached a statistically significant

difference of approximately 80 minutes in mean total counseling times existed between Caucasians and Hispanics. Although no formal study has been conducted measuring differences in counseling times based on ethnicity or language, research has been conducted on the impact of language and race on smoking. Although the prevalence of smoking is lower among Hispanics than among the general population (16.4% vs. 22.7%)³², smoking still levies a terrible public health burden on this group. Five of the 10 leading causes of death among Hispanics are related to smoking (i.e., heart disease, cancer, stroke, birth defects, and chronic respiratory diseases)³³, and lung cancer is the leading cause of cancer death among Hispanics.³⁴

The National Cancer Institute's Cancer Information Service devised a study entitled, *Adios al Fumar (Goodbye to Smoking)*, which was designed to evaluate strategies for increasing the reach of smoking cessation interventions among Spanish-speaking smokers and to evaluate the efficacy of a culturally sensitive, proactive behavioral treatment program.³⁵ There are many barriers to reaching Hispanic smokers, including language limitations, low availability and accessibility of appropriate providers and services, cost, and inadequate insurance coverage.³¹ For example, 41% of the U.S. Hispanic population speak only Spanish or have limited English proficiency, suggesting that interventions need to be offered in Spanish. Moreover, even after controlling for socioeconomic and health status, Hispanics are less likely than non-Hispanics to have health insurance or a personal health care provider, and, not surprisingly, are also less likely than non-Hispanics to have received preventive care, including the receipt of cessation advice from a physician during a quit attempt. Thus, access to smoking

cessation treatments among Hispanics is limited when compared with non-Hispanics, and particularly so for individuals with no or limited English proficiency.³³

Similar limitations exist when analyzing results across language and ethnicity that do for gender. Other variables were not controlled for during the study. The CHWs were fluent in Spanish, however, ideas are frequently communicated differently across languages and across cultures, therefore inherent uncontrollable linguistic and cultural differences may exist between Spanish speakers, which may render counseling sessions longer than those of their English-speaking counterparts. A CHW bias may during counseling sessions to spend additional time with Spanish-speaking patients.

As this study began as a community project rather than a full-fledged research project, it possessed numerous limitations. Future studies should be conducted that involve larger sample sizes to help achieve greater statistical power. Co-variables should be controlled for as well. A standard training protocol should be used for CHWs to specifically avoid behaviors which may result in collection bias. Also, more research should be done to study differences in language or culture which may inherently impact counseling times beyond the control of a fluent Spanish-speaking CHW.

In summary, our findings are inconclusive with respect to the influence of gender on counseling times for a Community Health Worker based smoking cessation project. The difference in counseling times between men and women, though not reaching statistical significance, could be of clinical importance but would require further study with a larger sample size. Although not part of the original research question, the finding of a significant difference in counseling time in Spanish speakers compared to English speakers, if confirmed in further studies, could have important implications for the

planning of smoking cessation programs for this population. Although several limitations exist in this project, these results indicate it is necessary to design counseling strategies to better treat certain target populations based on gender, language, and ethnicity more effectively and more research is needed to determine the most appropriate method.

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Table 1: Patient

Gender	Phone Call Time (mins)	Visit Time (mins)	Tot Time (mins)	Ethnicity	Language	Follow up
f	70	240	310	hispanic	english	relapsed
f	70	240	310	hispanic	english	relapsed
f	75	300	375	hispanic	spanish	relapsed
f	70	240	310	hispanic	english	relapsed
f	70	240	310	hispanic	spanish	relapsed
f	110	240	350	hispanic	spanish	relapsed
f	110	240	350	caucasian	english	
f	90	120	210	hispanic	english	
f	70	180	250	hispanic	english	
f	110	240	350	hispanic	spanish	
f	110	300	410	hispanic	spanish	
f	70	180	250	caucasian	english	
f	35	60	95	hispanic	spanish	
f	110	240	350	hispanic	spanish	
f	70	240	310	hispanic	spanish	
f	70	120	180	hispanic	spanish	
f	45	180	225	caucasian	english	relapsed
f	0	180	180	caucasian	english	relapsed
f	0	180	180	hispanic	english	relapsed
f	0	120	120	caucasian	english	quit
f	0	180	180	caucasian	english	quit
f	20	180	200	caucasian	english	
f	0	180	180	hispanic	english	quit
f	20	60	80	caucasian	english	
f	0	120	120	caucasian	english	
m	0	120	120	hispanic	english	relapsed
m	0	180	180	hispanic	english	quit
m	30	60	90	hispanic	english	
m	10	120	130	caucasian	english	quit
m	70	240	310	hispanic	spanish	
m	110	240	350	hispanic	spanish	
m	40	120	160	hispanic	spanish	
m	70	240	310	hispanic	spanish	
m	70	240	310	hispanic	spanish	

Table 2: Results

	Gender		Language		Ethnicity	
	<i>Male</i>	<i>Female</i>	<i>English</i>	<i>Spanish</i>	<i>Caucasian</i>	<i>Hispanic</i>
Mean Tot Counseling Time (mins)	217.8	247.4	198.8	297.9	183.5	262.9
Standard Deviation	100.8	94.6	78.5	89.5	78.7	93.7
Minimum	90	80	80	95	80	90
Maximum	350	410	350	410	350	410
t-test pooled p-value	0.4343		0.017		0.025	
Wilcoxon two-sided p-value	0.3705		0.0069		0.051	

APPENDIX A

Community Health Worker Smoking Cessation Project
Intake/Referral form

Instructions to Community Health Worker: Please review the inclusion and exclusion criteria to determine if a patient qualifies for the study. If the patient qualifies, please ask the two questions that assess readiness to quit. If the patient answers "Very important" and "Right now," finish completing the form with the patient identifying information and contact information, and keep the form for the study records.

A patient can be included in the study if he/she:

- 1) resides in the Southeast Heights area and is at least 18 years of age
- 2) has smoked at least 1 cigarette per day for most days during the past year
- 3) is motivated to stop smoking (see the 2 questions below)
- 4) is in generally good health

A patient is NOT eligible if he/she:

- 1) has a history of active alcohol or drug abuse
- 2) has schizophrenia or other psychotic diagnosis

Readiness to quit questions:

1. How important is it for you to stop smoking cigarettes?

_____ Not important _____ Somewhat important _____ Very important

2. When do you want to stop smoking?

_____ Never _____ Within 6 months _____ Right now

Patient information:

Name _____ Best time to reach you

Date of birth _____

Address _____

Telephone: _____ (Home)
 _____ (Work)
 _____ (Cell)

Alternate contact person (and their contact information) who would know how to reach you:

APPENDIX B
University of New Mexico School of Medicine
Cuestionario de Fumar

Clínica: _____ Fecha: _____

Nombre _____

Fecha de nacimiento: _____ Sexo: ___ M ___ F

Dirección:

Número(s) de teléfono: _____

- 1) ¿Cuántos cigarillos fuma usted por día? _____ cigarillos
- 2) ¿Cuánto tiempo ha fumado cigarillos? _____ años
- 3) ¿Cuánto tiempo después de despertar fuma cigarillos?
_____ menos de 30 minutos _____ más de 30 minutos
- 5) ¿Hay alguien más en su casa que fuma? ___ Sí ___ No
- 6) ¿Ha probado usted productos de nicotina (chicle o parche) en el pasado para dejar de fumar?
___ Sí ___ No
- 7) ¿Ha sufrido de la depresión (deprimido/deprimida)? ___ Sí ___ No
- 8) ¿Ha recibido usted tratamiento por la depresión? ___ Sí ___ No
- 9) ¿Cuál es el nivel de educación que terminó usted?
 - a. No fue a la escuela o solo al kinder
 - b. Grados 1ero. al 6.
 - c. Grados 7 al 11
 - d. Se graduó de la preparatoria o terminó el GED
 - e. Algo de Universidad
 - f. Licenciatura universitaria
- 10) ¿Cuál es el ingreso total de su familia?
 - a. Menos de \$700 al mes
 - b. Entre \$700 y \$1,099
 - c. Entre \$1,100 y \$1,499
 - d. Entre \$1,500 y \$1,899
 - e. Entre \$1,900 y \$2,199
 - f. Entre \$2,200 y \$2,599
 - g. \$2,600 o más por mes