Published in final edited form as:

Public Health Nurs. 2012 November ; 29(6): 490–498. doi:10.1111/j.1525-1446.2012.01026.x.

Exploring Weight and Lifestyle: Mexican Immigrant Men's Perspectives

Joseph Martinez, Jamie Powell, April Agne, Isabel Scarinci, PhD MPH¹, and Andrea Cherrington, MD MPH¹

¹School of Medicine, University of Alabama at Birmingham

²Graduate School of Public Health, San Diego State University

³School of Medicine, University of North Carolina at Chapel Hill

Abstract

Objective—Despite interest in family-centered obesity and diabetes prevention programs for Latinos, few studies have assessed men's perspectives on obesity-related behaviors. The objective of this study was to explore Mexican immigrant men's perspectives regarding weight, diet, and physical activity as they relate to the individual and the family.

Design and Sample—This was a focus group study with a convenience sample of Mexican immigrant men (n=16).

Measures—A moderator's guide was used to elicit perceptions of personal and family behaviors influencing weight, and lifestyle.

Results—Mean age of participants was 41 years (SD+/- 12.7), and 100% were born in Mexico. Mean time in Alabama was 8 years. Perceived benefits of a healthy weight included improved mobility and decreased morbidities. Perceived barriers to a healthy lifestyle included demanding work schedules and an environment not conducive to walking. Participants described immigration as having a negative impact on family unity and established meal structures.

Conclusion—Previous studies among Latinas cite husband resistance as a barrier to sustained diet and lifestyle change; however, men in this study voiced openness to programs for obesity and diabetes prevention. Future family-centered programs should engage men and promote communication within the family on common goals related to health and illness prevention.

Keywords

obesity; focus groups; men; Latinos

Obesity and poor dietary practices are clear, modifiable risk factors for diabetes and cardiovascular disease (American Diabetes Association, 2011; Roger, et al., 2011). Unfortunately, obesity rates worldwide have doubled in the last three decades (Swinburn, et al., 2011). In the United States (U.S.), the estimated prevalence of obesity is more than twice

as high as thirty years ago, with 26.7% of adults classified as obese ("Vital Signs," 2010). Obesity is also associated with a significant economic burden. In 2008, the total direct medical costs of obesity were estimated to be as high as \$147 billion (Finkelstein, Trogdon, Cohen, & Dietz, 2009).

Immigration is a global phenomenon, with recent estimates suggesting that there are 214 million migrants around the world, an increase of about 37 percent in two decades (DeParle, 2010). In the U.S., Latinos comprise the largest and fastest growing minority group, due in part to immigration (Dockterman, 2009). The obesity epidemic disproportionately affects Latinos. Among the Mexican American population, 40.4% of individuals aged twenty or older classified as obese compared to 32.4% of non-Hispanic whites (Flegal, Carroll, Ogden, & Curtin, 2010). Recent data suggests that without a significant shift in current practice, the adult Latino population will have an overwhelming diabetes burden projected at more than 20% by 2031 (Mainous, et al., 2007). Rates of obesity in the U.S. also vary by region. For example, data from 2009 showed that nine states, mostly from the Southeastern U.S including Alabama, had adult obesity prevalence greater than thirty percent, compared to only three states in 2007 ("Vital Signs," 2010). Thus, Latino immigrants to the southeastern U.S. may face a particularly obesigenic environment.

The differences in prevalence of obesity are attributable to a variety of reasons including genetic, metabolic, behavioral, and environmental factors, with behavioral and environmental factors predominating and explaining a majority of the recent percent increases (Malnick & Knobler, 2006). When it comes to health and related behaviors, immigrants often face distinct challenges including limited health care access, unfamiliar health care systems, social and cultural norms that differ from the majority population, financial stressors and occupational hazards that may increase health risks (Messias & Rubio, 2004). Given the high rates of obesity among Latinos in the U.S., an increasing number of studies have focused on understanding the factors influencing weight gain and loss in Latino immigrants (Diaz, Mainous, & Pope, 2007). For example, studies assessing the association of obesity with respect to birthplace demonstrate that Mexican-born immigrants have a lower risk for obesity than U.S.-born Mexicans (Barcenas, et al., 2007). Furthermore, longer lengths of residency in the U.S. are associated with higher rates of obesity, especially in women (Barcenas, et al., 2007). And most studies indicate that higher levels of acculturation are associated with less healthy dietary behaviors (Ayala, Baquero, & Klinger, 2008).

Social and environmental factors influencing obesity-related health behaviors can be conceptualized using the Social-Ecological Model (Bronfenbrenner, 1979) which divides the social world in 5 levels of influence, including 1) Individual; 2) Interpersonal; 3) Institutional/organizational; 4) Community; and 5) Social structure, policy, and systems (see Figure 1). This model has been applied to a number of health promotion programs, including nutritional education programs, which provide working definitions for each sphere of influence (Gregson, et al., 2001).

Research Questions

Using the Socio-Ecological Model as a guide, the objective of this study was to explore Mexican Immigrant men's perspectives on weight and lifestyle in order to advance the delivery of effective, culturally relevant weight loss interventions within the Latino community. To date, most studies examining the obesity epidemic among Latinos, particularly intervention studies, have focused on women due to their higher risk for obesity as well as their recognized nutritional influence in the home (Lindberg & Stevens, 2009). In addition to being at higher risk, women have historically been easier to engage in weight management studies. For example, a study published by Cousins and colleagues (1992) described the difficulty in involving husbands of overweight Latinas in attempts to create family-oriented weight loss interventions. After fifteen years, studies continue to show that efforts to promote healthy behaviors in the home are still being met with poor buy-in from the family, particularly the husbands (Diaz, et al., 2007). Despite these findings, there is a dearth of studies exploring how men view obesity and lifestyle management programs. This study sought to fill that gap.

Methods

Design and Sample

All study protocols and documents were approved by the University of Alabama at Birmingham's Institutional Review Board. This qualitative study used focus group methodology. Three focus groups were held between the months of June and August of 2010. All of the participants were informed in their native language (Spanish) of the risks and benefits of the study and all participants provided informed consent using a translated, low literacy consent written in Spanish.

Individuals were invited to participate if they were foreign-born Latino men of at least 19 years of age who had never been diagnosed with diabetes and were married or living together as married. Recruitment efforts were made through community-based organizations, local gathering places, and clinics serving a large number of Latinos. Information regarding the study was posted in church bulletins and in fliers placed in clinics, grocery stores, restaurants, and laundromats. In addition, personal contacts within the local Latino community facilitated recruitment through word of mouth advertising. Identification of the best location and time for the focus groups took place after obtaining the list of potential participants. Personal reminder calls were made the day prior to each focus group to minimize no-shows.

One focus group was held at a local health clinic, and the other two were held at a neighborhood park office. Prior to the focus group, research assistants collected participants weight and height and administered a short survey in Spanish to collect demographic information. A bilingual, bicultural research assistant moderated the focus groups while another bilingual, bicultural member of the research team was present for digital audio recording and note taking. Both the moderator and the note-taker were male. No women were present during the focus groups in order to minimize potential gender biases. Groups lasted approximately 90–120 minutes and participants received \$20 in cash for their time.

Measures

The moderator's guide was developed through a review of the existing literature. Specifically, the guide was developed to elicit Mexican immigrant men's perspectives on weight, diet, physical activity, perceived risk from and susceptibility to obesity and obesity-related illness, and perceived barriers and facilitators to healthy living and to participation in programs targeting healthy behaviors. The guide also probed participants to discuss their spouses' role in the home regarding nutrition and lifestyle as well as their weight management efforts (Table 1). The guide was initially written in English, translated into Spanish by the author, and then reviewed by one of the co-authors to verify content.

Analytic Strategy

The focus groups were digitally audio-recorded and transcribed verbatim for data collection. The transcripts were qualitatively reviewed by three independent research investigators. One of the investigators reviewed the transcripts in Spanish to avoid potential loss of meaning. The investigators used a combined inductive and deductive approach to coding the focus group data. Inductive analysis allows for themes to emerge from the data while deductive analysis is used to elicit themes related to predetermined theories (Miles, Huberman, 1994; Seidel, 1991). Focus group questions were used to drive deductive analysis while new themes were noted as they emerged. After independent review of the first transcript, a codebook was developed and then applied to each transcript through an iterative process with the three investigators meeting for consensus coding and refinement of the themes identified from the transcripts. The Social-Ecological Model (Bronfenbrenner, 1979) was used as conceptual frameworks to organize our thematic results, specifically related to barriers to healthy lifestyle.

Results

Of the 53 persons approached, 25 (47%) agreed to participate. Of those who agreed to participate, 16 (64%) actually arrived to participate. Reasons for no-shows included working later than scheduled, working out of town, being too tired to participate after work, or forgetting about the meeting.

Three focus groups were conducted with a total of 16 participants. The sample had a mean age of 41 years ranging from 20–64 with an average of 8 years living in Alabama and just over 10 years in the United States (U.S.) (Table 2). The average reported monthly family income was \$1,256. Each participant was born in Mexico and was either married or living together with a partner as married. Sixty-three percent had less than a 9th grade level of completed education. The average BMI of the participants was 28.4 kg/m². None of the participants had been diagnosed with diabetes, but 50% of them reported having at least one family member with diabetes. Three main themes arose from the focus group data. The first theme was a description of general perceptions of weight, diet, and physical activity. The other two themes were perceived barriers and perceived facilitators to healthy living.

Perceptions of Weight, Diet, and Physical Activity

The participants described both the benefits of maintaining a healthy weight and the perceived disadvantages of becoming overweight. Participants reported that maintaining a healthy weight could reduce the risk of heart disease, high cholesterol, and diabetes. For example Participant 6 (Group 1) explained, “*Your heart is healthier...of course, you avoid the cholesterol.*” The men described a general knowledge of BMI. References of weight relative to height arose in all focus groups. For example Participant 4 (Group 3) reported “*Well I think that the average weight goes with the average height...supposedly. I imagine that if you are tall you should weigh a bit more.*” One of the most commonly cited disadvantages of overweight was a decrease in mobility. Participant 5 (Group 1) stated, “*We don’t have agility...because the body is carrying too much. And it takes more to do the work or the things that you did before.*” Other disadvantages included depression, lowered self-esteem, and social rejection. Participant 5 (Group 3) explained “*You’re chubby and you want to talk to this girl and the girl tells you ‘no’, and to ‘go get some pizzas’ or she makes fun of you... and well it’s the disadvantage, see?*”

The participants discussed factors associated with diet and physical activity that influence the development of obesity. Ideas to prevent obesity included avoiding fast food due to high fat and salt contents and having the will power to select healthier food options. Participant 2 (Group 3) noted, “*Restaurants...have a lot of fat. That’s really bad. I buy oranges, bananas, mangos...and I feel healthy right now.*” The participants identified increased ability to purchase foods since moving to the U.S. For example in Group 1, Participant 4 said, “*it’s the same diet there (Mexico) as it is here just that it’s easier here because we buy more.*” Work was frequently cited as a means of physical activity due to strenuous manual labor. Participant 1 (Group 1) commented, “*I work and that’s what keeps me active*” and Participant 1 (Group 3) noted “*We work in the sun and we know that in question of one or two hours...you burn it! You burn those calories immediately!*”

Perceived Barriers to Healthy Living

Barriers were organized using the five different spheres of social influence within the Social-Ecological Model, including 1) Individual; 2) Interpersonal; 3) Institutional/organizational; 4) Community; and 5) Social structure, policy, and systems (Bronfenbrenner, 1979; Gregson, et al., 2001)

Individual—At the individual level, the participants described fatigue and a lack of motivation as barriers to healthy behaviors. The participants reported that fatigue precluded any further forms of physical activity after work hours. Participant 3 (Group 2) explained, “*The truth is I work in construction and there are times when I don’t feel like even walking. Sometimes I go out and walk, but when I work well I don’t feel like it.*” Lack of motivation negatively influenced the pursuit of health information. Participant 5 (Group 1) reported, “*We don’t make the effort to inform ourselves about health programs. Part of it is that we’re all a little bit apathetic.*”

Perceived discrimination was also reported as a barrier, particularly for physical activity. A fear of authorities was identified as a barrier to physical activities such as walking. For

example Participant 4 (Group 1) commented, *“The police system keeps you from walking because if they see you walking alone they stop you, to see what you’re doing.”*

Interpersonal—A commonly identified influence at the interpersonal level was the partner. Men identified the woman as the nutritional gatekeeper of the home and as the person who decides what will be eaten and how much is prepared. Participant 4 (Group 1) described this influence, *“Look they (women) have enough power in the home to establish the amount of food and the type of food...the mother has the absolute power in the kitchen.”* The men also describe food etiquette, such that what is prepared cannot be declined as an expression of respect and appreciation. For example Participant 1 (Group 3) noted, *“You can’t complain about food and much less if made by the woman.”* They feel that the women of the house have a large role and a direct effect on the weight of the family. This feeling was described by Participant 5 (Group 1), *“The woman is the one that sometimes...the one that gets us chubby.”*

Institutional/organizational—At the institutional level, the men identify work as a barrier to healthy dietary practices. Strenuous work hours, fear of losing employment, and loss of meal structure were all attributed to skipping meals or eating fast food while at work. Participant 4 (Group 1) described this loss,

“Over there (Mexico) the meal schedules in each home are determined, but the jobs are like that too... you start at 8 in the morning and you’re finishing at 7 in the evening, but you have the weekend. You already know that the weekend is yours. So then that loss of control and traditions starts and it transfers to the kids...the disorder begins...”

Participant 5 (Group 1) shared his own experience, *“Many times I eat (lunch) like at 4 in the afternoon or sometimes I eat nothing.”*

Community—The men reported that the influence of American lifestyle led to a loss of family unity and eating structure, which ultimately led to poor dietary behaviors. For example Participant 4 (Group 1) noted, *“In this country, eating doesn’t follow schedules, it’s not like in Mexico, there the time for lunch is at 1 and everyone is sitting down.”* Participant 1 (Group 1) asked,

“Everyone goes out [here]...what they ate who knows? But they already ate on the street. Regardless we as Latinos, no matter how young, we are around the table. We sit together to eat and the Americans don’t. Would that be the way to maintain a diet or a healthy meal?”

The participants describe a change in culture promoting more independence for women that also leads to a loss of family structure. Participant 4 (Group 1) remarked,

“Here I’ve noticed that the mom says...‘I didn’t make any food eat whatever you want.’ When the woman comes to this country and starts working, the change is 180°. She starts making money she didn’t make over there. So then she becomes self sufficient, the differences begin... she starts buying her kids things that she

didn't buy them over there. She starts making food that she wouldn't make over there."

Social structure, policy, and systems—Participants described perceived barriers to healthy living at the systems level. The men reported a lack of information and health programs available in Spanish. For example Participant 4 (Group 1) noted, "*We really don't have programs right now. What we need are informative programs for the people, for example about diabetes...*"

Other perceived barriers were attributed to an environment not conducive to physical activity. Abundance of drive-thru businesses and lack of sidewalks promote mobility via automobile rather than by foot or bicycle. Participant 1 (Group 2) reported, "*We don't walk here. You don't get out of (the car) for anything, not even for food! You go through a drive-thru/same for the pharmacy or the bank!*" Another example is from Participant 4 (Group 1), "*There are not enough areas to walk. There aren't any sidewalks.*"

Perceived Facilitators to Healthy Living

There were several factors identified as facilitators of healthy living. The men described being open to changes in diet in the pursuit of general health. Participant 2 (Group 1) explained, "*If it's going to change for something that benefits me or that benefits both of us...I think from that side it's good.*" They felt that small changes consistent with traditions would be easier, such as decreasing portion sizes and making small changes with traditional foods. Participant 1 (Group 1) noted,

"I think...if it has to be a change in the way we cook...it has to start with the amount first." or *"Sometimes if you're used to eating something 'solid' right, and all of a sudden they give you something light. Your body is asking you for something more."*

In regards to physical activity, the men perceived communication of common goals between couples as a means to successful change. For example Participant 1 (Group 1) explained, "*There are many couples that...that don't coordinate either. I think that in that case there has to be a lot of communication, so that both can be parallel.*"

Discussion

This was a qualitative study that used focus group methodology to explore Mexican men's perspectives regarding weight and lifestyle among the immigrant community. This study identified several perceived barriers that influence lifestyle behaviors for these men. An inflexible work environment was described as a barrier to lifestyle modification. Additionally, men described the influence of the socially constructed role of women in the household. The men also expressed concern about a perceived threat to traditional family structure at different levels of society.

An inflexible work environment presents multiple challenges to lifestyle modification. Previous studies showed that recent immigrants, with lower socioeconomic levels, were less active during leisure time than more established immigrants who may also be more

financially sound (Crespo, Smit, Carter-Pokras, & Andersen, 2001). Also in the U.S., Latinos more than non-Latino whites reported having a more physically demanding job with less autonomy over their schedules leaving less time for leisurely activities (Abraido-Lanza, Chao, & Florez, 2005). Participants in this study attributed discrimination and a fear of job loss to the decreased autonomy at work. These findings of perceived discrimination highlight the need for public intervention for the healthcare needs of an underserved population. Our findings showed that, in addition to fatigue and time constraints from work, Mexican immigrants viewed work as a sufficient form of physical activity decreasing the perceived benefit from leisure-time physical activity. As such, these men may not prioritize leisure-time physical activity. At the same time, family-based programs that promote physical activity for all family members, especially for women and children who may not have the same high levels of baseline physical activity, may be more effective if they have the men's support. This underscores the importance of considering context, especially work-related constraints and traditional culture, during the design phase of family-oriented programs.

According to the men in this study, women of the household have control of the kitchen. Consistent with previous studies, these men agreed that the mother of the house has a social influence on what is consumed and viewed as a normal diet (H. Diaz, Marshak, Montgomery, Rea, & Backman, 2009). The men described their lack of dietary control in the home as a barrier to healthy diet and weight management at the interpersonal level. In contrast to previous studies with women describing poor buy-in from family members regarding dietary change, the men in this study describe a willingness to change for healthy purposes (Lindberg & Stevens, 2009). Supporting this willingness for change were several ideas for change generated by the participants such as smaller meal portions and making small, similar food changes at a time. Interestingly, the participants in this study shared a common motivator for dietary change with women from previous studies: illness prevention and health maintenance (Lindberg & Stevens, 2009). Taken together, these findings suggest that family-based lifestyle interventions may be acceptable but will likely require activities that facilitate communication and shared goal setting around health.

The participants in this study also described a slow loss of traditional family-centered social structure. This loss of structure was observed at the institutional/organizational and community levels of society, and over time, the participants believed it influences interpersonal and individual levels of society. Having set mealtimes, both at home and work, is a normal part of society in Mexico. The participants described a general loss of this structure upon immigration to the United States. They believed that this loss of structure begins to manifest with a loss of importance of structured family meals. Previous studies highlight the importance that Mexican-American culture places on family unity (Cousins, et al., 1992; Parsai, Voisine, Marsiglia, Kulis, & Nieri, 2009; Santiago-Rivera, 2003). The participants perceive that the loss of structured mealtimes and family unity could lead to the gradual development of poor dietary practices such as eating convenient fast foods and skipping meals both in the workplace and in the home. These perceptions are supported by previous studies in which Latina mothers described resorting to snacks and fast foods for themselves and their children, due to having less time from work, despite a desire maintain the traditional three meals per day (Santiago-Rivera, 2003; Sussner, Lindsay, Greaney, &

Peterson, 2008). Increasingly, Latino children and adolescents prefer American foods, particularly fast foods (Sussner, et al., 2008) and may partially explain why almost one half of Latino children ages 6–11 are overweight (Sussner, et al., 2008; Taverno, Rollins, & Francis, 2010). Future programs that include education regarding healthy, traditional foods focusing on structured meals to benefit the family might resonate in these communities.

Several points regarding recruitment for this study are worth noting. Research has indicated that Latinos and African Americans perceive higher risks of being taken advantage of when participating in research studies than white Americans (Taverno, Rollins, & Francis, 2010). In order for community-based recruitment to be successful, recruiters must establish legitimacy, interpersonal relationships, and visibility within the population to help reduce potential misperceptions and fears about the research project common among minorities (Katz, et al., 2008). To facilitate our recruitment, we partnered with a more established community research program. Male Latino health promoters from within that program helped to identify and recruit men for the focus groups. Despite recruiting through community ties, several of the participants that had agreed to participate declined the day before or the day of the scheduled focus group due to working later than scheduled, working out of town, or being too tired to participate after work. This underscores the importance of considering men's work schedules when planning programs for family interventions.

This study has limitations. Data are from a convenience sample. Many of the participants knew each other and shared common interests, decreasing our ability to generalize the results to other groups. Similarly, all of the participants were Mexican immigrants living in the Southeast, and thus, the results may not generalize to other subsets of Latinos or other regions of the United States. However, the current study does provide important information about the perspectives of Mexican immigrant men regarding weight and perceived barriers and facilitators that is currently lacking in the scientific literature.

This research used the Social-Ecological Model as a framework for organizing perceptions of barriers to healthy living (Gregson, et al., 2001; Bronfenbrenner, 1979). This framework can help to identify points where behavioral interventions can be directed. On the front lines, public health nurses have the opportunity to intervene at different levels within the conceptual framework. For example, at the individual level, perceptions of discrimination can be addressed by providing safe and confidential areas for health programs; at the interpersonal level, communication in the home around health issues could be encouraged; and at the systems level, public health nurses can help ensure that culturally relevant health information in Spanish is readily available.

Mexican immigrant men in this qualitative study voiced openness towards programs promoting healthy lifestyle but identified several barriers to behavior modification, including a number related to work. The difficulty in recruitment for this study may portend the difficulty in involving men in family-based programs and public health research more generally. Once involved, the men in this study voiced willingness to return and seek out more information regarding health programs and health clinics. Given that the participants describe the lack of walkability in communities as a barrier to healthy living, the proximity to the home is a must for future public health and research programs for these immigrant

communities. The influence of the women over dietary practices in the home and the willingness of these men to change for healthy purposes is support for the idea that future programs should consider a family-based approach to weight management. Public health nursing programs should empower individuals to make healthful changes in the home while promoting communication between family members toward reaching common goals such as illness prevention and health maintenance. The focus of future health programs should be family-centered taking into account what Mexican men perceive as a priority in traditional culture such as family unity and structured mealtimes.

Acknowledgments

Funding support. The project was sponsored by grants from the RWJ Physician Faculty Scholar's Award (Dr. Cherrington)

References

- Abraido-Lanza AF, Chao MT, Florez KR. Do healthy behaviors decline with greater acculturation? Implications for the Latino mortality paradox. *Social Science Medicine*. 2005; 61(6):1243–1255. [PubMed: 15970234]
- American Diabetes Association. Diagnosis and Classification of Diabetes Mellitus. *Diabetes Care*. 2011; 34(S1):S64–S71.
- Ayala GX, Baquero B, Klinger S. A systematic review of the relationship between acculturation and diet among Latinos in the United States: implications for future research. *Journal of the American Dietetic Association*. 2008; 108(8):1330–1344. [PubMed: 18656573]
- Barcenas CH, Wilkinson AV, Strom SS, Cao Y, Saunders KC, Mahabir S, et al. Birthplace, years of residence in the United States, and obesity among Mexican-American adults. *Obesity (Silver Spring)*. 2007; 15(4):1043–1052. [PubMed: 17426341]
- Bronfenbrenner, U. *The ecology of human behavior: Experiments in Nature and Design*. Cambridge, MA: Harvard University Press; 1979.
- Cousins JH, Rubovits DS, Dunn JK, Reeves RS, Ramirez AG, Foreyt JP. Family versus individually oriented intervention for weight loss in Mexican American women. *Public Health Reports*. 1992; 107(5):549–555. [PubMed: 1410236]
- Crespo CJ, Smit E, Carter-Pokras O, Andersen R. Acculturation and leisure-time physical inactivity in Mexican American adults: results from NHANES III, 1988–1994. *American Journal of Public Health*. 2001; 91(8):1254–1257. [PubMed: 11499114]
- DeParle J. Global Migration: A world ever more on the move. *New York Times*. 2010 Jun 26.:WK1. from <http://www.nytimes.com/2010/06/27/weekinreview/27deparle.html>.
- Diaz H, Marshak HH, Montgomery S, Rea B, Backman D. Acculturation and gender: influence on healthy dietary outcomes for Latino adolescents in California. *Journal of Nutrition Education and Behavior*. 2009; 41(5):319–326. [PubMed: 19717114]
- Diaz VA, Mainous AG 3rd, Pope C. Cultural conflicts in the weight loss experience of overweight Latinos. *International Journal of Obesity (London)*. 2007; 31(2):328–333.
- Dockterman D. Statistical Portrait of Hispanics in the United States, 2007. 2009 from Pew Hispanic Center: <http://www.pewhispanic.org/2009/03/05/statistical-portrait-of-hispanics-in-the-united-states-2007/>.
- Finkelstein, EA.; Trogon, JG.; Cohen, JW.; Dietz, W. *Health Affairs (Millwood)*. Vol. 28. United States; 2009. Annual medical spending attributable to obesity: payer-and service-specific estimates; p. w822-w831.
- Flegal KM, Carroll MD, Ogden CL, Curtin LR. Prevalence and trends in obesity among US adults, 1999–2008. *Journal of the American Medical Association*. 2010; 303(3):235–241. [PubMed: 20071471]

- Gregson J, Foerster SB, Orr R, Jones L, Benedict J, Clarke B, et al. System, Environmental, and Policy Changes: Using the Social-Ecological Model as a Framework for Evaluating Nutrition Education and Social Marketing Programs with Low-Income Audiences. *Journal of Nutrition Education*. 2001; 33:S4–S15. [PubMed: 12857540]
- Katz RV, Wang MQ, Green BL, Kressin NR, Claudio C, Russell SL, et al. Participation in biomedical research studies and cancer screenings: perceptions of risks to minorities compared with whites. *Cancer Control*. 2008; 15(4):344–351. [PubMed: 18813202]
- Lindberg NM, Stevens VJ. Immigration and Weight Gain: Mexican-American Women's Perspectives. *Journal of Immigrant and Minority Health*. 2009; 13(1):155–116. [PubMed: 19859807]
- Mainous AG 3rd, Baker R, Koopman RJ, Saxena S, Diaz VA, Everett CJ, et al. Impact of the population at risk of diabetes on projections of diabetes burden in the United States: an epidemic on the way. *Diabetologia*. 2007; 50(5):934–940. [PubMed: 17119914]
- Malnick SD, Knobler H. The medical complications of obesity. *QJM*. 2006; 99(9):565–579. [PubMed: 16916862]
- Messias D, Rubio M. Immigration and health. *Annual review of nursing research*. 2004; 22:101–134.
- Miles, MB. *Qualitative Data Analysis*. Thousand Oaks, CA: Sage; 1994.
- Parsai M, Voisine S, Marsiglia FF, Kulis S, Nieri T. The Protective and Risk Effects of Parents and Peers on Substance Use, Attitudes, and Behaviors of Mexican and Mexican American Female and Male Adolescents. *Youth & Society*. 2009; 40(3):353–376. [PubMed: 19478992]
- Roger VL, Go AS, Lloyd-Jones DM, Adams RJ, Berry JD, Brown TM, et al. Heart disease and stroke statistics--2011 update: a report from the American Heart Association. *Circulation*. 123(4):e18–e209. [PubMed: 21160056]
- Santiago-Rivera AL. Latinos, value, and family transitions: Practical considerations for counseling. *Journal of Counseling and Human Development*. 2003; 35:1–12.
- Seidel, J. *Method and Madness in the Application of Computer Technology to Qualitative Data Analysis*. London: Sage; 1991.
- Sussner KM, Lindsay AC, Greaney ML, Peterson KE. The influence of immigrant status and acculturation on the development of overweight in Latino families: a qualitative study. *J Immigr Minor Health*. 2008a; 10(6):497–505. [PubMed: 18373200]
- Swinburn B, Sacks G, Hall K, McPherson K, Finegood D, Moodie M, et al. The global obesity pandemic: Shaped by global drivers and local environments. *Lancet*. 2011; 378(9793):804–814. [PubMed: 21872749]
- Taverno, SE.; Rollins, BY.; Francis, LA. *Am J Prev Med*. Vol. 38. Netherlands: 2010 American Journal of Preventive Medicine. Published by Elsevier Inc.; 2010a. Generation, language, body mass index, and activity patterns in Hispanic children; p. 145-153.
- Taverno, SE.; Rollins, BY.; Francis, LA. *Am J Prev Med*. Vol. 38. Netherlands: 2010 American Journal of Preventive Medicine. Published by Elsevier Inc.; 2010b. Generation, language, body mass index, and activity patterns in Hispanic children 10.1016/j.amepre.2009.09.041; p. 145-153.
- [Retrieved 9/3/2011] Vital Signs: State Specific Obesity Prevalence Among Adults, United States, 2009. 2010. from Centers for Disease Control and Prevention: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5930a4.htm?s_cid=mm5930a4_w

Adapted from: Gregson, J., Foerster, S. B., Orr, R., Jones, L., Benedict, J., Clarke, B., . . . Zoltz, K. (2001). System, Environmental, and Policy Changes: Using the Social-Ecological Model as a Framework for Evaluating Nutrition Education and Social Marketing Programs with Low-Income Audiences. *Journal of Nutrition Education*, 33, 54-515.

Figure 1.
Barriers to Healthy Living among Mexican Immigrant Men by Social Ecologic Level

Table 1**Sample of Focus Group Questions**

-
1. What does it mean to have a healthy weight?
 2. What are advantages/disadvantages that come from being overweight?
 3. How can someone avoid being overweight?
 4. If anything, what kinds of things have people here tried to do to lose weight?
 5. Has your partner ever expressed a desire to lose weight?
Probe: What are your thoughts about that?
 6. Who plans the home meals?
Probe: Who does the shopping? The cooking?
 7. What kinds of things get in the way of healthy eating habits?
 8. What can you tell me about your physical activity since moving to the U.S.?
 9. Describe potential barriers to becoming more physically active.
Probe: Are these barriers the same for you and your spouse?
-

Table 2

Focus Group Participant Characteristics

Characteristic (n=16)	Mean (range) or Percent (n)
Age (years)	41 (20–64)
Average Monthly Household Income	\$1,256 (\$600–2,400)
Education (years completed)	
9 th grade	63% (10)
10 th –12 th grade	19% (3)
Any University	6% (1)
Country of Origin: Mexico	100% (16)
Years in Alabama	8 (2–14)
BMI (kg/m ²)	28.4 (21.9–36.7)
Family history of diabetes	50% (8)