



Mexican-origin male perspectives of diet-related behaviors associated with weight management

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1 **Title:**
2 **Mexican-Origin Male Perspectives of Diet-Related Behaviors Associated with Weight Management**

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4 **Running Head:**
5 **Mexican-Origin Male Perspectives of Diet Behaviors**

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48 **Abstract:**

49 **Background:** Prevalence of obesity and related diseases are quickly reaching epidemic
50 proportions among Hispanic males in the U.S. Hispanic males suffer from the highest
51 prevalence of obesity-related diseases when compared to all other racial/ethnic groups.
52 Despite evidence showing that weight loss can significantly reduce the risk of obesity-related
53 negative health implications, literature informing best practices to engage Hispanic males in
54 weight management programs is scarce. **Purpose:** The purpose of the current study was to
55 engage Spanish-speaking, Mexican-origin males with overweight or obesity to examine their
56 perspectives of diet-related behaviors related to weight management. **Methods:** Demographic
57 and acculturation data were collected using questionnaires. Fourteen semi-structured
58 interviews were completed with an all-Spanish speaking cohort of men (age: 45.0 ± 9.8 yrs;
59 BMI: 34.2 ± 6.5 kg/m²) who were born outside of the U.S. We conducted a thematic analysis
60 using a hybrid deductive-inductive analysis strategy using a previously developed codebook
61 that was updated during iterative analysis of interview transcripts. **Results:** Participants
62 reported that healthful eating habits were hindered, among other factors, by lack of
63 knowledge, sociocultural norms, and conceptualizations of masculinity. Viable diet-related
64 intervention approaches also surfaced, including building consciousness, promotion of
65 traditional knowledge, and the integration of the family in interventions. **Conclusion:** Findings
66 suggest that Spanish-speaking, Mexican-origin men have interest in actively engaging in
67 behavior changes that improve their dietary habits and engage in weight management. Our
68 findings yield valuable insights that can be used to formulate tailored intervention strategies to
69 improve obesity prevention and treatment programs for this vulnerable subgroup.
70

71

72 **BACKGROUND AND INTRODUCTION**

73 Prevalence of obesity and related diseases are quickly reaching epidemic proportions among
74 Hispanic males in the United States (U.S.). Mexican-origin Hispanic males have the highest
75 prevalence of age-adjusted (≥ 20 years) overweight and obesity compared with all other
76 race/ethnicity groups. Approximately 83% of Mexican-origin men are overweight (Body Mass
77 Index [BMI] ≥ 25.0 kg/m²) compared to nearly 74% of non-Hispanic white men and 70% of non-
78 Hispanic black men (1). Furthermore, over 43% of Mexican-origin males are classified as obese
79 (BMI ≥ 30.0 kg/m²) compared with 34% of non-Hispanic white men, and 37% of non-Hispanic
80 black men (1). Obesity is associated with myriad negative health implications including

81 cardiovascular disease, metabolic syndrome, type 2 diabetes, hypertension, and certain forms
82 of cancer (2, 3). As a result, Mexican-origin males suffer from the highest prevalence of obesity-
83 related diseases in the U.S. when compared to all other racial/ethnic groups (4-6). Despite
84 evidence showing that weight loss can significantly reduce the risk of obesity-related health
85 implications, literature informing best practices to engage Mexican-origin males in weight
86 management programs is scarce.

87

88 Research suggests that there are positive associations between acculturation into American
89 norms and increases in body mass index among immigrants (7). This association was found to
90 be more persistent in men (7). It also has been posited that the “healthy migrant effect”
91 weakens with greater acculturation as the receiving culture promotes more behaviors that may
92 cause unhealthy weight gain than sending cultures (7). English language proficiency has been
93 explored as a contributing factor of these effects. While English proficiency in Hispanics has
94 risen in the last decade, in 2013, only 34% of foreign-born Hispanics spoke English proficiently
95 and one third of all Hispanics were not proficient in English (8), which has been shown to be a
96 factor in health and health care access (9). Hispanics who are not native English speakers have
97 been shown to be harder to reach due to language barriers and low trust in information
98 provided in English (10). It is important to understand these barriers in Hispanic men’s culture
99 and acknowledge gender-bound beliefs regarding weight management related behaviors to
100 devise effective intervention strategies.

101

102 As such, the purpose of the current study was to engage overweight or obese, Spanish-
103 speaking, Mexican-origin males to examine their perspectives of health behaviors related to
104 weight management. Specifically, the work delineated below focused on eliciting diet-related
105 beliefs and perspectives to further refine and deliver a gender- and culturally-adapted weight
106 loss intervention for overweight or obese Hispanic men.

107

108 **METHODS**

109 *Participants and Setting*

110 Participants were recruited from September to November 2015. Recruitment efforts took place
111 in a community-based setting (outdoor market place) in Tucson, Arizona, U.S. over the course
112 of three months. Content messaging identified in our formative research (11) with this
113 population included fear appeal/arousal (month 1), positive masculinity (month 2), and spousal
114 convergence (month 3). Two six-foot standing banners displayed content messages and
115 infographics in both English and Spanish. Trained bilingual members of the research team
116 engaged potential participants that approached our recruitment booth, provided study
117 information and answered any questions. Men interested in participating provided contact
118 information which was used to call them at a later time and conduct a brief screening. All
119 participants who were eligible were invited to participate. Eligible participants were
120 overweight or obese ($BMI \geq 25.0 \text{ kg/m}^2$) Hispanic males, aged 18-64 years. Potential participants
121 were excluded if they did not identify as Hispanic, were non-Spanish speaking, were >64 years
122 of age, or were *normal* weight. A wide age range of participants was used to ensure the
123 collection of a broad range of perspectives and opinions that may change with age and life

124 stages of adulthood, however, an age parameter was set at 64 due to the differences in physical
125 activity-related behaviors that are a result of physical impediments of a later life stages. All
126 study materials were available in Spanish and were approved by the University of Arizona
127 Institutional Review Board.

128

129 *Data Collection*

130 The purpose and protocol of the current study was explained in full during the consenting
131 process and all participants consented to participation prior to the start of data collection. We
132 conducted in-depth individual interviews instead of focus groups because individualized contact
133 has been shown to be preferred by Hispanic males in previous work (11). We employed a semi-
134 structured interview guide (**Table 1**) previously used with English-speaking Hispanic males to
135 elicit perspectives of general health and diet-related behaviors as well as intervention strategies
136 for weight management (11). Following the interview, participants were asked to complete a
137 brief questionnaire to collect demographic information, behaviors related to general health,
138 and weight management intervention delivery preferences. A Spanish-speaking, male member
139 of the research team (LV) consented all participants, conducted all interviews, measured
140 participant height and weight and administered a questionnaire eliciting demographic
141 information (age, marital status, employment status, income), acculturation level (ARSMA II,
142 detailed below), physical activity (>150 minutes/week or <150 minutes/week), and use of
143 technology (use of smartphone and internet preferences). Height was measured to the nearest
144 0.01 cm using a wall-mounted stadiometer and body weight was measured to the nearest 0.1
145 kg on a calibrated digital scale. The consenting process, interview, questionnaires, and

146 height/weight measurements lasted approximately 60 minutes and participants were
147 compensated \$25.00 for their time. All interviews were conducted at the University of Arizona's
148 Collaboratory for Metabolic Disease Prevention and Treatment in a private setting.

149

150 *Acculturation Rating*

151 We used the Acculturation Rating Scales for Mexican Americans-II (ARSMA-II) (12) to measure
152 acculturation in our sample. Participants were prompted to answer questions such as "I have
153 difficulty accepting certain attitudes held by Anglos" (MOS) and "I have difficulty accepting
154 some values held by Mexican Americans" (AOS) using a scale from 1 (not at all) to 5 (extremely
155 often or always). The ARSMA is used to calculate a linear acculturation score that is used to
156 place participants in any of five distinct levels of acculturation that range from less acculturated
157 (Level I) to highly acculturated (Level V).

158

159 *Data Analysis*

160 We conducted a thematic analysis using a hybrid deductive-inductive analysis strategy. Data
161 were initially approached with a codebook used during previous work (11). However, iterative
162 transcript analysis facilitated the identification of additional codes from emerging themes. Two
163 coders (LV and AA) analyzed each transcript independently and reached consensus on a priori
164 rules for operational definitions of codes. The coders used a constant comparison technique so
165 that newly developed codes were discussed and added to the codebook. All transcripts were
166 double-coded and discrepancies were resolved through referral to the codebook's a priori
167 coding parameters and discussion of coding justification. Recruitment efforts targeted 20

168 participants to ensure adequate data saturation of themes. However, after 14 transcribed and
169 coded transcripts, variation in data diminished and saturation was reached. We used NVivo 9
170 (QSR International, Cambridge, MA) to facilitate data management and analysis. Descriptive
171 statistics characterizing the sample were calculated using STATA 13.0 (Stata Corp).

172

173 **RESULTS**

174 *Participant Demographic Characteristics*

175 We recruited in the fall months of September through November, 2015. A total of 76 men were
176 interested in participating in the study and provided contact information to study staff. We
177 were able to reach 52 of these men over the phone, of which 33 continued to be interested in
178 participating in the study. Of the 33 men screened 22 were deemed eligible and scheduled for
179 interviews; 2 men were ineligible because they were not Hispanic/Latino, 5 men were ineligible
180 because their self-reported BMI was within the “normal” range, and 3 men were ineligible
181 because they were 65 or older. Of the 22 men that were scheduled 4 men were unable to
182 attend or reschedule their interviews due to family/work conflicts and we lost contact with 4
183 others who did not attend their scheduled interviews. Demographic characteristics for the 14
184 interview participants are shown in **Table 2**. Mean age was 45 ± 9.8 years ranging from 24 to 64
185 years. Mean BMI was 34.2 ± 6.5 kg/m² and ranged from 27.6 to 47.3 kg/m². All participants
186 were born outside of the U.S. and the mean years spent in the U.S. was 14.7 ± 9.2 and ranged
187 from 3 to 35 years. Eight (57.1%) participants reported a yearly income of less than \$29,999 and
188 nine (64.2%) reported having less than a high school education. Two participants reported
189 having diagnosed hypertension, while one participant reported having diagnosed diabetes. Out

190 of 13 participants (1 refusal due to time constraints) who completed the ARSMA-II, 11 (84.6%)
191 were scored at an ARSMA-II Level I, which is *Very Mexican Oriented*, and two (15.4%) were
192 scored at an ARSMA-II Level II, which is *Mexican Oriented to Approximately Balanced Bicultural*
193 (12).

194

195 *Qualitative Analysis Results*

196 Below, our results are organized into two broad categories of barriers followed by facilitators to
197 making change, which encompass viable diet-related intervention strategies for this population.
198 **Table 3** displays quotes selected to represent barriers to healthful behaviors while **Table 4**
199 displays quotes selected to illustrate facilitators for change.

200

201 ***Barriers to Eating Healthily***

202

203 *Lack of Knowledge*

204 Some men ($n=8$) expressed doubt about what a healthy meal should consist of. When
205 participants were asked to provide a sample of a Mexican traditional dish that they believe
206 could improve health, they had trouble naming dishes that they ate with regularity. This topic
207 was further explored when the men were asked about specific barriers to healthful dietary
208 intake. A majority of the men ($n=10$) cited they often have difficulty shopping for, preparing,
209 and consuming healthy meals due to lack of knowledge of convenient, accessible, and
210 affordable recipes and time to prepare them.

211

212 On the other hand, some men expressed that even with ample knowledge of the benefits of
213 healthy eating, taste-based preferences, and issues of convenience counteracted the perceived
214 benefits of a healthy diet. For example, some men explained that they know the components of
215 a healthy diet, but do not prioritize eating healthy over eating what they perceive to taste good.
216 The men also believed it was common knowledge that meals, particularly at lunch time, should
217 be hearty to ensure they are provided with ample energy to work through the end of a
218 physically strenuous workday.

219

220 *Convenience is Key*

221 Men who reported not living with a partner or spouse ($n=4$) especially emphasized the
222 importance of convenience as they perceived not having enough time on their own to shop for,
223 plan, and prepare meals. There was mention of the preference for ready-to-eat foods and
224 eating out, particularly fast food, due to a perceived lack of time and fatigue. Several men
225 ($n=10$) mentioned that working long strenuous hours complicates grocery shopping, the
226 creation of weekly meal plans, and food preparation.

227

228 *Adapting to a New Food Environment*

229 Participants ($n=10$) believed that exposure to fast food advertisements are detrimental to their
230 own health and the health of their families. Interviews revealed that participants have a solid
231 grasp on the damaging effects of American fast and processed foods, and believe there is a lack
232 of balance between fast food advertisements and health promotion campaigns. Some
233 participants ($n=5$) attributed their harmful relationship with food to their arrival to the U.S.

234 from Mexico and exposure to American food culture, such as the overconsumption of
235 convenience foods like potato chips, sweet baked goods, burgers, and pizza.

236

237 *The Creation of Cultural Norms and Beliefs*

238 The men expressed that they came from environments where they may have never been
239 explicitly taught the benefits of a healthful diet. Nearly all of the men ($n=13$) mentioned that
240 mindfulness about eating was never something they were taught and that they grew up to
241 believe simply “being full” should be satisfactory. A large majority of the men ($n=13$) claimed to
242 be from big, poor/working class families and had parents who did what they could simply to put
243 food in their stomachs. This was done with little concern for the nutritional value of the food
244 they were fed.

245

246 Conversely, the men also stated that the dietary intake of their parents and grandparents was
247 better because of the lack of processed foods and refined sugars. It was mentioned that much
248 of the food consumed was cultivated by their own families. Participants attributed this
249 disconnect with past cultural dietary norms to their migration to the U.S., subsequent adoption
250 of Westernized American food culture, and the normalization of processed foods.

251

252 *Masculinity and Dietary Norms*

253 The data indicated that there is a social stigmatization of “out of norm” eating habits driven by
254 traditional conceptualizations of masculinity. For example, some men ($n=5$) expressed their
255 own masculinity-driven preferences for meats and fats over whole foods, fruits, and vegetables,

256 coupled with perceptions that their female spouses were more likely to consume the latter.
257 Inclusively, the men indicated that adherence to traditional gender roles may be a barrier to
258 taking control of their dietary intake. Some men ($n=7$) commented that their spouses influence
259 what they eat and the women are traditionally required to prepare foods that are perceived to
260 be highly desirable and filling (e.g. meats, fats).

261

262 *Perceived Differences Driven by Socioeconomic Status*

263 Some participants ($n=6$) also shared that they see themselves, their daily lives, and their food
264 consumption norms to be very different than those of non-Hispanic white men. Non-Hispanic
265 white men are perceived to have different lives because of ample opportunities for success
266 (e.g. increased access to education, better employment opportunities, and having the
267 necessary resources for prosperity)

268

269 The men expressed that disparities in socioeconomic status may generate or exacerbate gaps in
270 sociocultural norms where dietary behaviors are fostered at one extreme, and under-prioritized
271 at the other. For instance, wealth begets dietary norms centered around ample consumption of
272 whole foods, and organic produce; while scarce resources may foster the need for caloric
273 density. Conversely, some of the men saw this disparity as something that is generated by
274 overarching dietary norms that are fostered by systemic factors. Participants ($n=12$) stated that
275 across racial, ethnic, and cultural divides, the most socioeconomically- disadvantaged people all
276 share similar detrimental dietary patterns.

277

278 ***Facilitators to Generating Behavior Change***

279 When the men were asked about which changes needed to be made in their lives to facilitate
280 diet-related behavior modifications, four overarching themes surfaced: the need to create
281 consciousness in the community, promotion of traditional foods, need for social accountability,
282 and integration of the family into interventions.

283

284 *“Hay que crear conciencia” (We need to create consciousness)*

285 Most of the participants ($n=13$) shared the belief that if men knew the negative health
286 consequences of their dietary behaviors they would be more apt to adhere to positive
287 behaviors. However, the men also expressed that knowledge of the risks of poor dietary
288 behaviors or benefits of the contrary on their own may not be enough to trigger change. There
289 was an evident need to create a critical consciousness where men would be equipped with the
290 knowledge *and* skills to improve their daily decision process regarding dietary choices.
291 However, this knowledge and skill need to be supplemented with adequate access to affordable
292 food source alternatives.

293

294 *Promotion of Traditional Knowledge*

295 Initially, when asked about the health profile of traditional foods, the men had a difficult time
296 thinking of which traditional Mexican foods they would consider to be healthy. However, with
297 further probing, participants ultimately realized that they were aware of a wide variety of
298 traditional foods that they considered to be healthy, primarily composed of things that could be
299 locally sourced from the lands of the Sonoran Desert. Participants ($n=7$) mentioned the

300 consumption of the seasonal fruit and pads from the prickly pear cactus, and of *quelites* (wild,
301 spinach-like greens), that are common to the local environment and were once considered
302 staple foods. Many expressed that while they were familiar with these foods from their
303 upbringing, the knowledge of how to cultivate, grow, harvest, and prepare these foods is
304 knowledge that was lost with their grandparents. Nevertheless, participants suggested that
305 promotion of the knowledge of how to cultivate and prepare these foods could result in
306 positive dietary behavior changes.

307

308 *Accountability*

309 Another theme that surfaced was the concept of accountability and how it facilitated behavior
310 change and maintenance. For example, participants ($n=8$) expressed that when they perceive to
311 be accountable to an authority figure, like a physician or another healthcare provider, they are
312 more likely to adhere to recommended health behavior changes. Further, participants
313 mentioned that it is important to be able to adequately communicate with a provider to ensure
314 understanding of recommended changes. It was shared that feelings of accountability to
315 authority coupled with the ability to understand the knowledge shared by a healthcare provider
316 could be catalysts for change.

317

318 *Integration of the Family*

319 While not all participants were married, or lived with a partner, most ($n=13$) cited the highly
320 influential relationships with their spouses, particularly regarding the stimulus of dietary
321 behaviors. The men ($n=9$) explained that they rely on their partners to do the family meal

322 planning and preparation, at times without the input of the men, which they perceive to leave
323 them with little control over what they eat. This means that to change meal options,
324 consciousness building would have to take place with the participant's spouse as well. This was
325 something that the men suggested could be a viable option for family- or dyad-based
326 intervention. Furthermore, participants mentioned that their wives regularly motivated them to
327 eat and/or drink less and that this influence could be integrated into a viable behavior-
328 adherence strategy.

329

330 **DISCUSSION**

331 The purpose of this study was to engage overweight or obese, Spanish-speaking, Mexican-
332 origin males to elicit and examine diet-related beliefs and perspectives to further refine and
333 deliver a gender- and culturally-adapted weight loss intervention for overweight or obese
334 Hispanic men. In brief, our findings indicate that healthful eating habits were hindered, among
335 other factors, by lack of knowledge, sociocultural norms, and conceptualizations of masculinity.
336 However, participants also recommended viable strategies for weight management including
337 building consciousness, promotion of traditional knowledge, increasing accountability, and the
338 integration of the family in interventions.

339

340 Of the identified barriers that restricted our participants from eating a healthful diet,
341 convenience was found to be highly influential in food selection. Participants mentioned that
342 family and work demands spurred them to choose convenience and taste over healthful
343 options. This barrier is reflected in parallel research with Hispanic immigrants by Gray, Cossman

344 (13) who reported that when considering barriers to healthy eating, factors like cost of food
345 and availability are overshadowed by the detrimental influences of work and time demands.
346 Consequently, “convenience” may be more complex than simply not choosing to prioritize
347 planning, preparing, and consumption of healthy options. Convenience can be influenced by
348 the perception that making this time is impossible in the face of work and related
349 responsibilities. For example, our participants expressed that eating convenient foods was not a
350 matter of choice, but rather a matter of being able to eat something between multiple jobs and
351 long shifts or simply lacking access to more healthful options. It is imperative that these
352 perceived limitations be acknowledged, particularly when planning an intervention that is
353 centered on implementing dietary changes. Providing dietary advice without attention to a
354 participant’s socioeconomic or social context may prove futile and participants may need to be
355 furnished with additional tools to facilitate ease of access to healthy food alternatives.

356

357 As reflected by our data, cultural norms, along with perceptions of masculinity, can also have
358 persistent influences in the way men live. Participants shared that the values engrained in them
359 throughout their lives directed their diet-related behaviors. For instance, several of our
360 participants claimed that their spouses plan, shop for, and prepare all meals, without their
361 input, which they perceive to leave them with little control over what they eat. Thus, traditional
362 Hispanic gender roles of men and women in the home contribute to a perceived disconnect
363 between men and their food choices. Moreover, men can experience increased societal
364 pressures to endorse prescriptions of gender that are antithetical to hegemonic perceptions of
365 femininity (14). For example, men may not elect to show interest in the foods they consume

366 because diet plans, weight loss, and healthy figures have been primarily marketed to a feminine
367 audience and are therefore omitted from their conceptualizations of masculinity.

368

369 However, perceptions of masculinity exist on a continuum, and while men may adhere to
370 similar masculine ideals, different men may enact these ideals in distinct ways (14). For
371 example, the concept of *machismo*, as traditionally defined, typically involves ideas of
372 dominance, aggressiveness, violence, emotional disconnectedness, and domination over
373 women. However, *caballerismo*, a construct existing in duality with *machismo*, signifies a
374 positive image of a man that is centered in concepts of respect, social responsibility, and
375 highlights him as a provider who reveres and cares for his family (15). The concept of
376 *caballerismo* can be leveraged to formulate intervention strategies that consider an individual's
377 adherence to masculine ideals that may align with a more positive conceptualization of
378 masculinity. For example, intervention messaging strategies could be centered in a man's
379 responsibility to his family and his accountability to his own health to be able to do so.
380 Leveraging these concepts could motivate men to make behavior changes not for their own
381 sake, but rather the health and wellbeing of the entire family.

382

383 While conceptualizations of masculinity may influence dietary-related behaviors, overarching
384 cultural norms may also have a pervasive effect on dietary behaviors. Literature on Mexican-
385 origin immigrant populations shows that caloric quality decreases with duration of residence in
386 the U.S. The consumption of fruits and vegetables decreases in exchange of increased
387 consumption of processed foods and refined carbohydrates and sugars (16, 17). This was

388 reflected in our data as some participants spoke about the drastic dietary changes they
389 experienced upon their arrival to the U.S. and instances where participants recalled the
390 differences between their diets and those of their parents and grandparents back in Mexico. It
391 is imperative that position on the acculturation spectrum, English language proficiency, and
392 sociocultural beliefs be considered when developing intervention strategies. For instance,
393 interventionists should ensure that dietary change recommendations be responsive to the
394 cultural and acculturative heterogeneity that exists in the Hispanic population. Rather than
395 suggesting dietary changes based on a generalized understanding of Hispanic cultural food
396 norms, interventionists could make recommendations on a tailored, case by case basis, taking
397 into account differing levels of acculturation.

398
399 There are a variety of cultural considerations that can be used to build a viable intervention
400 program with this population. Culturally-responsive communication approaches, recommended
401 behavior changes, and the positionality of the interventionists can greatly influence the success
402 of a program. For example, when considering recommended strategies for change, dietary
403 recommendations can be culturally-adapted to better fit the norms of the participating
404 population. Culturally-adapted weight loss interventions with predominantly Mexican-origin
405 samples have found success in the inclusion of culturally-bound dietary norms. Corsino, Rocha-
406 Goldberg (18), for example, included foods and recipes traditional to the country of Mexican-
407 origin and other Hispanics into a 20-week group based intervention and observed statistically
408 significant changes in weight and BMI (mean loss of 5.1 lbs.). However, the sample of that study
409 was only 16% male and outcome differences between males and females were not presented.

410 Nevertheless, regardless of cultural responsiveness, making information available may not be
411 sufficient for change, given time and work demands appear to be the primary influences on
412 food choice (13).

413

414 Interventions should be formulated to emphasize ways nutrition habits can be improved while
415 taking into consideration the work and priorities of Hispanic men. Because a large segment of
416 this population spends such a great deal of their time at work (13), interventions should
417 consider work-related parameters and ensure that food recommendations take into account
418 strenuous work demands and time limitations. For example, our participants were largely part
419 of the construction labor force, which can create chaotic and unpredictable environments that
420 do not support a strict eating schedule, and often do not provide time or space to eat. In this
421 case, choices are limited to foods that can be carried in a lunch pail, quickly eaten out of the
422 back of a work truck, and perceived to provide enough energy for the completion of a
423 strenuous workday. Providing healthy options to replace what is currently considered
424 convenient and filling may be important for these situations.

425

426 Further, the racial/ethnic and gender identity as well as the ability of interventionists to speak
427 Spanish has been found to be impactful with this population. English language proficiency has
428 been explored as a contributing factor to lack of access and adequacy of preventive services for
429 Hispanics. Hispanics who are not native English speakers have been shown to be harder to
430 reach because of language barriers and low trust in information provided to them in English
431 (10). Our data demonstrates that it may be important to adequately bridge language and

432 cultural gaps to better communicate with our target population. Notably, Lujan, Ostwald (19)
433 used lay health workers to deliver a diabetes self-management education in a culturally-
434 sensitive manner by speaking Spanish at an appropriate register, using relevant food items, and
435 recommending self-control and making appropriate food choices. The positionality of
436 interventionists may be centered in the depth of social relationships between interventionist
437 and participant and the levels of accountability to the interventionist that these relationships
438 create. Lujan, Ostwald (19), for example, attributed the success of their work to the interactions
439 between *promotoras* (lay community health workers) and participants explaining that
440 promotoras knew each of the participant's names and frequently inquired about the
441 participant's family members. Our participants noted that there are wide reaching beliefs of
442 respect to authority in Hispanic culture that could be strategically used to increase participant
443 engagement. The respect and value placed on the authority of a health care provider can be
444 leveraged in this way, particularly if language and cultural gaps are bridged by ensuring the
445 adequate positionality of the interventionist.

446

447 *Strengths and Limitations*

448 A principal strength of this study centered in the study population, which suffers
449 disproportionately from obesity and is currently understudied in the weight loss literature. The
450 addition of this highly valuable weight management insight to the emerging weight loss
451 literature, particularly with the Hispanic male population, holds critical potential. Our findings
452 also add to the knowledge of viable engagement and intervention delivery strategies for the
453 future development of effective gender-responsive and culturally-tailored weight management

454 programs with this population. Lastly, the meticulous analysis of data that was used to extract
455 the richness in our dialogues with these men provides added strength to our work. However,
456 our work is not without its limitations. Our study was completed with Hispanic males, primarily
457 of Mexican origin, all living in one geographic area, which limits the generalizability of our
458 findings to Hispanics in other regions of the U.S. Further, while purposive, our study sample is
459 relatively small. However, because we conducted in depth individual interviews that lasted and
460 average of 60 minutes, the data extracted from these interviews was very rich.

461

462 *Conclusion*

463 Our work furthers the discussion of the factors that create barriers and impede weight
464 management related behaviors in Hispanic men. However, our findings yield valuable insight
465 that can be used to formulate effective tailored intervention strategies to improve the quality
466 of weight management programs for this population as well. Future research should explore
467 the feasibility and effectiveness of recruiting and engaging Hispanic males in culturally- and
468 gender-tailored interventions that aim to improve weight management in a manner that
469 adequately accounts for sociocultural and systemic factors that generate barriers for this
470 vulnerable population.

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Table 1. Semi structured Interview Guide

Domain and questions

General health beliefs

- What disease or illness do you think is the leading cause of death for Hispanic males in the United States?

Weight management and health outcomes

- What role do you think weight management plays in the likelihood of getting chronic illness such as type 2 diabetes or heart disease?
- What health actions or steps can men take to reduce their likelihood of getting chronic illness?
- Would you be interested in participating in weight management programs targeting diet and exercise behaviors? *Why or why not?*

Diet/nutrition and health

- What role do you think diet/nutrition plays in weight management and protecting one against developing chronic illnesses such as type 2 diabetes or heart disease?
- What foods might prevent someone or protect someone against developing chronic illness?
- Which traditional foods do you consider to be “healthy”?
- On average, Hispanic men eat less than the recommended amount of fruits and vegetables. The media, doctors, and health professionals have explanations for this but we are interested in your thoughts. Why do you think Hispanic men do not eat more fresh fruits and vegetables?
- In general, what influences your food choices?

Barriers of weight management

- What gets in the way of making healthy food choices for Hispanic men?
- What gets in the way of exercise for Hispanic men?

Motivators of weight management

- What makes Hispanic men want to exercise?
- What makes Hispanic men want to eat healthy?
- What would help you make healthier food choices?

Tailoring programs

- How do you think Hispanic males should be recruited for weight management programs?
 - Should diet/nutrition information be related to cultural norms of Hispanic males? *Why of why not?*
 - If you were in a weight management program, would you be willing to record the foods you eat every day? *Why or why not?*
-

Table 2. Participant Characteristics (n=14)

Characteristics	n/mean	%/SD (range)
<i>Age (years)</i>	46	9.8 (24-64)
<i>Weight (kg)</i>	100	21.5 (74.8-145.2)
<i>BMI (kg/m²)</i>	34.2	6.5 (27.6-47.3)
<i>Foreign Born</i>	14	100
<i>Years in the US</i>	14.7	9.2 (3-35)
<i>Currently Married or live with Domestic Partner</i>	13	92.9
<i>Employed</i>	13	92.9
Income		
<i><\$29,999</i>	8	61.5
<i>\$30,000-59,999</i>	4	30.8
<i>>\$60,000</i>	1	3.7
Primary Language		
<i>English</i>	-	-
<i>Spanish</i>	12	85.7
<i>Bilingual</i>	2	14.3
Educational Attainment		
<i>Some High School</i>	2	14.3
<i>High School Graduate</i>	7	50.0
<i>Some College</i>	3	21.4
<i>Bachelor's Degree</i>	1	7.1
<i>Graduate Degree +</i>	1	7.1
Weekly Physical Activity		
<i>Less than 150 min/week</i>	9	64.3
<i>Diabetes</i>	1	7.1%
<i>Hypertension</i>	2	14.3%
ARSMA-II Acculturation Level*		
<i>Level I</i>	11	84.6%
<i>Level II</i>	2	15.4%

*There were no participants with a calculated ARSMA level of 3-5.

Table 3. Select Quotes Regarding Perceived Barriers to Positive Dietary Behaviors

Lack of knowledge

- “Porque el hombre hispano no sabe cómo prevenir y por eso cae en esas enfermedades”
(Because the Hispanic man does not know how to prevent and that’s why he falls to those illnesses.)
-

Convenience is key

- “En veces ando ocupado y no puedo elaborar comidas buenas. Creo que es la falta de tiempo por el trabajo.”
(Sometimes I’m busy and I cannot make good foods. I think it’s a lack of time because of work)
-

Adapting to a New Food Environment

- “Cuando llegas [a Estados Unidos] cambia todo. [En Mexico] yo comía de todo pero casi nada de carne y ahora que vivo aquí pues hay carne en todas partes y es casi todo lo que como. La gente se adapta a sus circunstancias.”
(When you come [to the US] everything changes. [In Mexico] I used to eat everything but almost no meat and now that I live here and there is meat everywhere it’s almost all that I eat. People adapt to their circumstances.)
-

The Creation of Personal Norms and Beliefs

- “Pues yo creo que es en la manera en que te has criado. Si nunca viste a tu mama o papa hacer ejercicio o comer saludable pues no lo vas hacer de grande porque tendemos a imitar lo que vemos.”
(Well, I think it’s the way you were raised. If you never witnessed your mom or dad exercise or eat healthy well you’re not going to do it when you’re grown because we tend to imitate what we see.)
-

Masculinity and Dietary Norms

- “Sabes que en México el machismo predomina y estas casado tu esposa influye mucho en ti dependiendo de cuanto la dejas. Estamos hablando de consejos y cosas así. El hombre en México si quiere fumar marihuana pues fuma y si la mujer lo ve pues el dice que el es hombre y el hace lo que quiere y lo mismo con el comer.”
(You know that in Mexico machismo dominates and if you are married your wife can have an influence on you only as much as you let her. We are talking about advice and things like that. A man in Mexico, if he wants to smoke marijuana, well then he smokes and if the woman sees him, he will tell her that he’s a man and he can do what he wants. It’s the same with eating.)
-

Perceived Differences Driven by SES

- “Estoy convencido que las personas que tienen un mejor estatus [economico] se preocupan mas por su salud porque ya no tienen que preocuparse por sobrevivir.”
(I am convinced that people that have a better [economic] status worry about their health because they do not have to worry about surviving.)
-

Table 4. Select Quotes Regarding Facilitators of Positive Dietary Behaviors

Consciousness building

- “[Para] cambiar la mentalidad de la gente, el habito de comer. Muchos no sé si les gusta o por necesidad o por cultura pero concientizar a la gente para que sepan y que haiga publicidad para la gente acerca de lo malo de las hamburguesas. Concientizar a la gente.”
([To] change people’s mentality, their eating habits. Many people I do not know if they like it or cause of culture but we need to build consciousness in people so they know and there needs to be publicity for people so they can see the bad side of hamburgers. We need to build consciousness in people.)
-

Resurgence of traditional culture

- “Ahora ya no hay nopales. ¿A dónde vas a encontrar nopales? Recuerdo que antes ibas afuera a juntar los nopales pero ahora creo que es contada la gente que tiene nopales en sus casas.”
(There are no longer prickly pear pads. Where can you find prickly pear pads? I remember before you would go outside to harvest prickly pear pads but today the people that have prickly pear cacti in their house are few and far between.)
-

Accountability

- “Es que si a mí checa una doctor y me dice que tengo sobre peso y me die que si sigo así solamente me queda un año. Entonces eso me tiene que motivar a hacer cambio porque yo si quiero vivir más tiempo entonces ni modo voy a tener que hacer los cambios.”
(If a doctor checks me and tells me that I am overweight and that I have only one year to live. Then that will have to motivate me to make changes because if I want to live longer then I have no choice but to make those changes.)
-

Integration of the Family

- “Por ejemplo yo estoy casado y mi esposa tiene mucha influencia en mi vida.”
(For example, I am married and my wife has a lot of influence in my life.)
-