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## A qualitative study conducted in the USA exploring Latino fathers' beliefs, attitudes and practices related to their young children's eating, physical activity and sedentary behaviours

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**A qualitative study conducted in the U.S. exploring Latino fathers' beliefs, attitudes and practices related to their young children's eating, physical activity and sedentary behaviors**

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**Running Head:** Latino fathers beliefs and practices1 **INTRODUCTION**

2           Latinos and Hispanics (hereafter referred to as Latinos) are  
3 the largest and most rapidly growing population group in the  
4 United States<sup>1</sup> (U.S.) and children in low-income Latino families  
5 have an elevated risk of becoming overweight or obese.<sup>2</sup> Recent  
6 statistics show that almost 17% of Latino preschool children are  
7 classified as being obese compared to 11% of Black, 4% of White,  
8 and 3% of Asian children.<sup>2</sup> As a result, childhood obesity among  
9 Latinos is a pressing public health concern as childhood weight  
10 status tracks into adulthood and increases risk of other obesity-  
11 related chronic diseases.<sup>2,3</sup>

12           Establishing healthy eating and physical activity (PA)  
13 habits early in life is important for preventing obesity and related  
14 co-morbidities in childhood and beyond.<sup>4,5,6</sup> Multiple behavioral  
15 risk factors such as unhealthy eating habits (e.g., consumption of  
16 calorie-dense, nutrient-poor food), low physical activity levels and  
17 increased sedentary behaviors have been linked to disparities in  
18 childhood obesity among Latino children.<sup>2,3,6</sup> Parents are key  
19 players in determining their children's weight status through the  
20 home environment they create for eating, PA and sedentary  
21 behaviors (SB).<sup>4,7-11</sup> Furthermore, parents shape their children's  
22 eating, PA, and SB through their knowledge of nutrition; influence  
23 over food selection, meal structure and home eating patterns;  
24 modeling of eating, PA, and SB, including television-viewing and

**Running Head:** Latino fathers beliefs and practices

25 screen-time.<sup>4,8,10-12</sup> Due to parental influences on their children's  
26 eating and PA practices—and thus in preventing obesity, they  
27 should be central to collective efforts to end the childhood obesity  
28 epidemic.<sup>4,5,12</sup>

29 To date research examining parental influences on  
30 children's healthy eating, PA, and SB has primarily focused on  
31 mother-child interactions.<sup>3, 6-11,13-20</sup> This research documents the  
32 critical influence of mothers' beliefs, attitudes, parenting styles,  
33 and practices on children's eating, PA, SB, and weight  
34 status.<sup>10,11,13-20</sup> Although, in most cultures, mothers still spend  
35 more time caring for their children, fathers' involvement in  
36 childcare has increased over the past decades, especially in high-  
37 income countries.<sup>21-25</sup> This increase may be due to changes in the  
38 labor market, increased participation of women in the labor force,  
39 and changes in family roles and dynamics.<sup>23,26</sup>

40 Recent reviews point to the limited representation of fathers  
41 on parenting and childhood obesity research.<sup>27-30</sup> Despite the  
42 increasing number of studies examining fathers' food parenting  
43 practices,<sup>31-35</sup> available research assessing the influence of  
44 parenting styles and practices on children's eating among Latino  
45 fathers is limited.<sup>36-40</sup> Nonetheless, these studies underscore  
46 father's influential role on children's eating.<sup>36-40</sup> This small body of  
47 research indicates the need for further research, but also suggests that  
48 Latino fathers be included in nutrition interventions designed to reduce

**Running Head:** Latino fathers beliefs and practices

49 and prevent child obesity.<sup>36-40</sup> Similarly, a growing research literature  
50 documents the influential role of fathers on children's PA and SB,  
51 but the majority of this research has focused on Caucasian, middle-  
52 income fathers<sup>39,41</sup> with limited research examining Latino fathers'  
53 beliefs, attitudes and practices related to young children's PA and  
54 SB.<sup>39,41</sup> Results of a recent review that included 13 studies  
55 examining home environmental influences on childhood obesity  
56 among Latino children (2-17 years) revealed that Latino children  
57 spend more time using media (e.g., watching television (TV),  
58 playing video games) and have fewer limitations placed on them  
59 by their parents regarding the use of media than White or Black  
60 children and that this lack of limits was associated with increased  
61 inactivity and child weight gain.<sup>7</sup> The majority of studies included  
62 in this review were comprised primarily of Latina mothers,  
63 highlighting the need for additional studies to include Latino  
64 fathers.<sup>7</sup>

65 Identifying and understanding potentially modifiable  
66 factors associated with increased risk of child obesity among  
67 minority, low-income children, such as Latinos, is critical to  
68 collective efforts to prevent and control childhood obesity.<sup>3,6</sup> Given  
69 limited but increasing evidence of the influential role of fathers in  
70 their children's development of eating, PA, and SB, the purpose of  
71 the present study was to expand on the current existing research  
72 and examine Latino fathers' beliefs, attitudes and practices related to

**Running Head:** Latino fathers beliefs and practices

73 their young children's eating, PA and SB.

74 **METHODS**

75 **Study Design and Sample**

76 The present study was part of a community-based, mixed-  
77 methods research study designed to assess parenting styles and  
78 practices related to eating, PA, and SB associated with risk of  
79 childhood obesity that is being conducted with Latino families  
80 living in the state of Rhode Island (RI).<sup>42</sup> We used a purposive  
81 sampling method to recruit participants from Special Supplemental  
82 Nutrition Program for Women, Infants and Children (WIC) clinics  
83 and community-based programs and agencies serving  
84 predominantly Latino populations in RI. Clinics and community-  
85 based programs and agencies were contacted by a Research  
86 Coordinator who explained the purpose of the research and asked  
87 the sites to participate in recruitment efforts. Sites agreeing to  
88 participate were mailed study flyers in Spanish and English that  
89 included a phone number for interested participants to call. Flyers  
90 were posted at agencies between June and October 2016.

91 Individuals who contacted the research coordinator were screened  
92 for study eligibility. Fathers were eligible to participate if they self-  
93 identified as being of Hispanic ethnicity; were 21 years of age or  
94 older; had lived in the U.S. for at least 12 months; had at least one  
95 child between 2 and 8 years of age, **who was enrolled or eligible**  
96 **for the WIC program; and had** shared parental responsibilities for

**Running Head:** Latino fathers beliefs and practices

97 or cohabitated with said child. Initial eligibility included being a  
98 parent of at least one child between 2-5 years of age, which is the  
99 age group eligible for the WIC program. However, to recruit a  
100 sufficient number of fathers, we extended age limit to 8 years of  
101 age, given that most eligible families had children of multiple ages.

102 We chose to conduct focus group discussions (FGDs)  
103 because they are an important technique for conducting research in  
104 diverse cultural settings, and provide valuable information.<sup>43,44</sup>  
105 Moreover, the synergistic effects of group settings elicit ideas and  
106 discussion that may not arise in individual interviews.<sup>43,44</sup> Ethics  
107 approval was obtained from the University of Massachusetts  
108 Boston Ethics Board (IRB# 2013060).

**Data Collection**

110 We conducted seven FGDs with Latino fathers at local  
111 public libraries and community agencies between August and  
112 October 2016. Each FGD had three to five participants. All FGDs  
113 were conducted in Spanish, and moderated by a bilingual native  
114 Spanish-speaker, trained in qualitative research methods, using a  
115 semi-structured discussion guide that explored fathers': (a)  
116 definitions of healthy eating and active living; (b) beliefs and  
117 attitudes related to healthy eating, PA, and SB of young children;  
118 (c) practices related to eating, PA, and SB; and (d) perceptions of  
119 barriers to children's healthy eating and PA (Table 1). The FGD

**Running Head:** Latino fathers beliefs and practices

120 guide was piloted-tested in a FGD with Latino fathers not included  
121 in this study and refined prior to use.

122           Before each FGD, the moderator explained the study's  
123 purpose and procedures, and participants provided written,  
124 informed consent. Before beginning each FGD, the moderator  
125 asked fathers to think about their youngest child (2-8 years of age)  
126 when participating in the discussion. Each audiotaped FGD lasted  
127 between 60 and 80 minutes, and a trained, bilingual (Spanish and  
128 English) research assistant took notes during each session. The  
129 moderator and research assistant convened for approximately 15  
130 minutes after the end of each FGD to discuss new and recurring  
131 themes heard during the session, which were then added as probes  
132 to the FGD guide.

133           At the completion of FGD, participants received a \$25 gift  
134 card for participation and completed a brief, self-administered  
135 survey that assessed participants' socio-demographics (e.g.,  
136 education, marital status, country of origin, length of time living in  
137 the U.S., etc.), and level of acculturation via the Short  
138 Acculturation Scale for Hispanics (SASH).<sup>45</sup> The SASH is a 12-  
139 item measuring scale validated for use in Latino groups, such as  
140 Mexican Americans, Cuban Americans, Puerto Ricans,  
141 Dominicans, and Central and South Americans.<sup>45</sup> The SASH  
142 assesses language use, media use, and ethnic social relations. An  
143 acculturation score was computed by averaging across 12 items;



**Running Head:** Latino fathers beliefs and practices

144 measured on a scale of one to five (1=least acculturated, 5=fully  
145 acculturated).<sup>45</sup>

**146 Analysis**

147 Audio tapes were transcribed verbatim in Spanish and  
148 translated into English without identifiers. To ensure that the  
149 integrity and equivalence of the data was not lost in the process of  
150 translation, a professional transcriptionist, bilingual and native  
151 Spanish-speaker translated the transcripts using forward-backward  
152 techniques to establish semantic equivalence in translation. We  
153 analyzed transcripts using thematic analysis, an iterative process of  
154 coding the data in phases to find meaningful patterns.<sup>46,47</sup> Analytic  
155 phases included data familiarization, generation of initial codes,  
156 searching for and review of themes and patterns, and defining and  
157 naming themes. The NVivo 11 software (QSR International Pty  
158 Ltd. Version 11, 2015) was used to assist in coding, organizing and  
159 indexing of the qualitative data. All transcripts were read and  
160 reviewed by two authors who identified and generated initial  
161 codes, concepts, and themes. Next, themes were reviewed,  
162 identified, defined, and named.<sup>46,47</sup> Descriptive statistics and  
163 frequencies were calculated for the socio-demographic data and the  
164 Marin scale using Microsoft Excel 2008.

**165 RESULTS**

166 Seven FGDs with 28 Latino fathers of young children  
167 representing 28 unique families were conducted. Participants' ages

**Running Head:** Latino fathers beliefs and practices

168 ranged from 27 to 49 years old (mean=34.2, standard deviation  
169 (SD)=2.8). Participants had an average of two children (range: 1–  
170 4) per household, and 92.9% (n=26) cohabited full-time with their  
171 children. Approximately 71.4% (n=20) had a high school degree  
172 (50%, n=14) or general education diploma (GED) (21.4%; n=6),  
173 and 60.7% (n=17) reported an annual family income of  $\leq$  \$40,000.  
174 Nearly all (85.7%; n=24) were foreign-born, and had lived in the  
175 U.S. for an average of 14.3 years (SD=2.7). The majority (92.9%;  
176 n=26) reported speaking primarily Spanish at home, and their  
177 mean acculturation score was 2.32 (SD=0.36), indicating that they  
178 more closely identified with Latino culture, although they were  
179 close to “bicultural”. See Table 2 for additional information on the  
180 demographic characteristics of the fathers participating in the  
181 study.

182 Emergent themes related to fathers’ beliefs, attitudes and  
183 practices related to eating, PA, and SB of their young children are  
184 discussed below. Table 3 presents representative quotes illustrating  
185 each theme.

**I. Beliefs, Attitudes and Practices Related to Healthy Eating**

187 *Fathers’ Definitions of Healthy Eating.* Fathers defined healthy  
188 eating in a variety of ways, although most offered a definition that  
189 focused on the importance of eating a balanced diet that included  
190 adequate amounts of fruits, vegetables, and proteins. Fathers also

**Running Head:** Latino fathers beliefs and practices

191 spoke of limiting fried, “junk,” and fast foods, and several noted  
192 the importance of portion control.

193 ***Fathers Believe Healthy Eating is Important.*** Across all FGDs,  
194 **fathers agreed** about the importance of healthy eating for one’s  
195 health and quality of life, including both adults and children.  
196 Moreover, several fathers viewed healthy eating as a lifestyle, and  
197 reported that they consistently tried to eat a variety of healthy  
198 prepared foods. A few fathers noted the importance of children  
199 developing early healthy eating habits.

200 ***Fathers Do Not Always Eat Healthy, But Are Aware of the Need***  
201 ***for Improvement.*** Although there was **consensus about the**  
202 importance of healthy eating, some fathers spoke of the difficulties  
203 associated with this, especially given the availability and  
204 accessibility of unhealthy foods. Fathers also noted that a lack of  
205 time impacted their food choices and led them to select less  
206 healthy and more convenient options. In addition, a few fathers  
207 mentioned that it is “easy to give in to unhealthy food choices  
208 when feeling stressed out”.

209 ***Fathers’ Food Parenting Practices***  
210 ***Continued Effort.*** A few fathers spoke of their continued efforts to  
211 promote and support their children’s healthy eating. Fathers  
212 explained that the food available outside of their home is a  
213 constant “temptation”, and impacts what types of foods their

**Running Head:** Latino fathers beliefs and practices

214 children want to eat, and “threatens” their children’s healthy eating  
215 habits.

216 *It is Okay to Indulge and Eat Unhealthy Once in a While.* A few  
217 fathers reported that it is inevitable that their children will eat  
218 foods that are unhealthy, but that they tried to keep it to a  
219 minimum and mostly to the weekends. In addition, a couple of  
220 fathers suggested allowing “unhealthy” food choices as “once-in-a-  
221 while” reward.

222 *Eating Out.* Some fathers noted that they rarely eat out, while  
223 others reported that they eat out frequently. Fathers most often  
224 went out to eat with their families on the weekends. When asked  
225 about the types of restaurants they frequent and foods ordered,  
226 fathers reported going to large chain restaurants, ethnic restaurants  
227 (e.g., Chinese, Hispanic) or out for pizza. Several fathers spoke of  
228 eating at fast-food restaurants, as it can be hard to eat out with  
229 young children.

**230 *Fathers’ Involvement with and Responsibilities for Child*****231 *Feeding***

232 *Fathers Have a Traditional View of Motherhood.* Most fathers who  
233 lived full-time with their children reported that their child’s mother  
234 most often decided what their children and families ate, as well as  
235 how meals were prepared. A few fathers did note that it was a joint  
236 decision about the foods served to their families. The two fathers  
237 who did not co-reside with their children reported that they

**Running Head:** Latino fathers beliefs and practices

238 followed the lead of the mother regarding meals and child feeding.  
239 Some fathers explained that they preferred to let the mother make  
240 the decisions about child feeding as they felt mothers know how to  
241 best teach and instill healthy habits. A few fathers were more  
242 directly involved in decisions about child feeding due to the  
243 mothers' work schedule.

***Fathers' Perceived Barriers to Children's Healthy Eating.***

244 Fathers noted several barriers to their children's healthy eating,  
245 including parents having limited time for cooking homemade  
246 meals due to mothers **working long hours** and conflicting family  
247 schedules. Additionally, some fathers spoke of children being  
248 "picky eaters", and preferring foods such as chicken nuggets to  
249 more healthy options. Some fathers noted that easy access to and  
250 availability of inexpensive unhealthy foods that appealed to  
251 children's taste was a main influence in their children's eating  
252 habits.  
253

***Fathers Would like their Children's Eating Habits to Change.***

254 When asked about goals for their children, several fathers noted  
255 that they wanted their child to eat more healthfully and eat less  
256 "junk" and "sugary" foods, such as candy and soda. Nonetheless, a  
257 couple of fathers did not think this was feasible because their  
258 children are exposed to and prefer these sorts of foods. **Several**  
259 fathers **noted that although** their children were good eaters, they  
260 would like their children to eat a greater variety of foods, including  
261

**Running Head:** Latino fathers beliefs and practices

262 more fruits and vegetables, and less processed foods. A few fathers  
263 expressed concerns for their children's current weight status, and  
264 alluded to wanting their children to lose weight.

265 ***Fathers Would Like to Change Their Eating Habits.*** A few  
266 fathers explained that along with their children they also should eat  
267 more healthfully. **Several fathers stated that they needed to pay**  
268 **attention to portion sizes and increase their fruit and vegetable**  
269 **intake.** Furthermore, several fathers noted that they would like to  
270 lose weight and spoke of doing this by increasing their physical  
271 activity and watching what they eat.

**272 II. Beliefs, Attitudes and Practices Related to PA and SB**

273 ***Fathers' Definition of Active Living.*** When queried as to what  
274 active living means, about half of the participants provided a  
275 definition that focused on PA, while most others provided a  
276 broader definition that focused on being actively engaged in life,  
277 being mentally active, participating in family activities, being  
278 autonomous, and/or working. A few fathers provided a hybrid  
279 definition that encompassed both being physically active and being  
280 engaged in life. **A couple of fathers provided slightly different**  
281 **definitions of active living for children and parents,** by defining  
282 active living for children as including interactions with friends as  
283 well as opportunities for intellectual growth.

284 ***Fathers' Believe PA is Important.*** Across all FGDs, fathers  
285 explained that they believed that PA is important for health and for

**Running Head:** Latino fathers beliefs and practices

286 maintaining a healthy weight. Several fathers also mentioned the  
287 importance of PA for overall quality of life and mental health.

288 ***Joint Decisions About Family Activities.*** Most fathers, but not all  
289 reported that decisions regarding family activities were made by  
290 the family, with children, if old enough, being part of the decision-  
291 making process. **Some fathers** explained that they were more  
292 physically active than the mothers, who were more involved with  
293 household chores and keeping a family schedule. A few fathers  
294 noted that family activities sometimes unfold without planning and  
295 may be based on what the children feel like doing. A couple of  
296 fathers explained that they are usually active with their sons and  
297 their wives with their daughters.

298 ***Fathers' Parenting Styles and PA Parenting Practices***

299 ***Fathers Are Permissive of Sedentary Activities for their Children***  
300 ***and Struggle to Set Limits.*** Several fathers acknowledged engaging  
301 in sedentary behaviors with their children and being permissive of  
302 children's screen-time behaviors. A few fathers noted that setting  
303 limits on screen-time can be difficult, especially, during the cold  
304 winter months, when children are more likely to spend more time  
305 inside. Some fathers described **being permissive and allowing their**  
306 **children to have unlimited screen-time.** Furthermore, some fathers  
307 explained that playing video games, etc., is an acceptable part of  
308 children's lives nowadays and difficult to limit. A number of  
309 fathers noted that their children, especially their sons, enjoyed

**Running Head:** Latino fathers beliefs and practices

310 playing video games, using their electronic devices, and watching  
311 TV and that they often spent time with their children watching  
312 soccer matches on TV and playing video games. Fathers also  
313 spoke of other sedentary activities that their daughters enjoyed,  
314 such as playing with dolls and coloring.

315 *Fathers Report Being Involved and Engaged in Their Children's*  
316 *PA.* Overall, fathers felt that they were more involved and engaged  
317 in their children's PA than with feeding their children.

318 Nevertheless, fathers reported that their children participated in  
319 both active and sedentary activities. They reported that their  
320 children liked playing soccer, swimming, and playing outside. A  
321 few fathers noted that school had a positive impact on their  
322 children's physical activity levels by providing opportunities for  
323 active play.

324 *Fathers View Themselves as Physical Activity Role Models.* Some  
325 fathers recognized the importance of modeling PA, but noted that  
326 they were not always as physically active as they should  
327 Nevertheless, a few fathers reported seeking out and being  
328 involved in adult sports programs in their communities.

329 Furthermore, a couple of fathers noted involving their children in  
330 household chores (e.g., yard work) that required their children to  
331 be active.

332 *Fathers Perceptions of Barriers to Child Being Physically Active.*  
333 Not all fathers felt that there were barriers that prevented their



**Running Head:** Latino fathers beliefs and practices

334 children from being physically active. For example, several fathers  
335 reported that they lived in safe neighborhoods that allowed their  
336 children to play freely in their yards and in the neighborhood (e.g.,  
337 access to parks). However, others noted barriers to PA including  
338 accessibility, cost of activities/programs, and cold weather.

339 Additional noted barriers included having to schedule activities  
340 and having to work long hours.

341 *Fathers' Desire to Be More Physically Active.* A few fathers  
342 reported that they should be more physically active and spoke of  
343 being more active in the past. They noted that their reduced PA  
344 had contributed to their gaining weight. Only a limited number of  
345 fathers reported wanting their children to be more physical active.

**DISCUSSION**

347 The current literature examining Latinos' parenting and  
348 their children's health-related behaviors has primarily focused on  
349 Latina mothers' beliefs, attitudes and practices related to their  
350 young children's eating, PA, and SB.<sup>8,11,14-20,48-53</sup> To date, there is a  
351 paucity of information on these topics among Latino fathers. To  
352 address this gap, the present qualitative study explored Latino  
353 fathers' beliefs, attitudes and practices related to healthy eating,  
354 PA, and SB of their young children among a predominantly  
355 immigrant sample.

356 Although we purposively invited fathers with young  
357 children (2-8 years) to participate in the study and developed the

**Running Head:** Latino fathers beliefs and practices

358 FGD guide to focus on **food parenting practices** and eating and PA  
359 habits of young children, it is worth noting that several fathers  
360 discussed these topics within the context of the whole family,  
361 including older and younger children. This is consistent with  
362 previous qualitative research and indicates the importance of the  
363 family within Latino communities.<sup>7,13,17,52,53</sup> It also suggests that  
364 the family should be considered the unit of change, as prevention  
365 of child overweight and obesity will not be successful without  
366 considering parents and children as a complete unit.<sup>7,13,17,52,53</sup>

367 **Recent trends suggest an increase in overall father**  
368 **involvement in child care, with a few differences across racial and**  
369 **ethnic groups of fathers.**<sup>21,23,25,26</sup> Research on cultural models of  
370 parenting practices suggests that Latinos value of *familism* (e.g.,  
371 family obligations, family reciprocity) is associated with behaviors  
372 that encourage fulfilling familial roles, such as taking care of  
373 children, which may lead to fathers being highly engaged in  
374 parenting.<sup>26,55-58</sup> Studies conducted with Latino fathers in the U.S.  
375 suggest that they spend more time with their children in shared  
376 caregiving activities than White fathers.<sup>54-58</sup> A recent study with  
377 Latino parents and their 3-12 years old children found that Latino  
378 fathers spent more time in caregiving activities than fathers from  
379 other ethnic groups.<sup>58</sup>

380 Latino fathers participating in this study believed in the  
381 importance of healthy eating for their children, themselves, and

**Running Head:** Latino fathers beliefs and practices

382 their families. Nevertheless, the majority reported a number of  
383 familial practices including eating out, getting take out, etc., that  
384 have been linked to unhealthy eating habits and increased risk of  
385 overweight and obesity among children.<sup>37,38</sup> Moreover, several  
386 fathers reported a number of unhealthy personal eating habits  
387 (ignoring portion size, making unhealthy food choices, etc.) that  
388 may influence their children's eating behaviors, which most fathers  
389 wished would change. This finding is congruent with studies  
390 involving Latina mothers, and underscores the importance of  
391 childhood obesity prevention interventions to address parents' own  
392 eating behaviors.<sup>11,13,14,16,17</sup> Given the importance of parental  
393 modeling in the development of children's eating behaviors,  
394 parenting interventions should incorporate opportunities to engage  
395 fathers and promote changes in fathers' own eating habits and food  
396 behaviors.<sup>17,59-66</sup>

397 Contrary to recent studies conducted with Caucasian,  
398 middle-income fathers, most Latino fathers participating in our  
399 study reported that they had limited responsibilities for organizing  
400 child's meals and deciding what foods to feed the child.<sup>59-65</sup>  
401 Our study found that Latino fathers appeared to allow their child's  
402 mother to make most decisions regarding their child's healthy  
403 eating and that they were more actively involved in their children's  
404 PA behaviors. This finding may reflect traditional parenting roles,  
405 with mothers bearing most responsibilities for child feeding.

**Running Head:** Latino fathers beliefs and practices

406 Nevertheless, a few fathers reported that they shared some **child**  
407 **feeding** responsibilities with the mother, especially when the  
408 mother worked long hours.<sup>37</sup>

409         **Although more research is needed, our findings suggest**  
410 **that Latino fathers may be more interested in participating in**  
411 **interventions to promote PA and be less enticed to participate in**  
412 **interventions that focus solely on healthy eating. This should be**  
413 **taken into consideration when designing obesity prevention**  
414 **interventions involving Latino fathers.** Future studies should  
415 continue to explore Latino fathers' roles and responsibilities for  
416 child feeding, and associations with children's eating habits and  
417 weight status. **This information will be important for the design of**  
418 **obesity prevention interventions targeting Latino families that**  
419 **include fathers.**

420         Consistent with previous research,<sup>67,68</sup> a few fathers in the  
421 current study expressed concerns for their children's weight status,  
422 and alluded to the fact that they like their children to **lose** weight.  
423 **Appropriate assessment of a child's weight, followed by**  
424 **appropriate weight management strategies is important for the**  
425 **prevention of obesity during childhood, as parents who**  
426 **misperceive their children's weight status are less likely to engage**  
427 **in interventions to reduce risk of pediatric obesity.**<sup>67,68</sup> Previous  
428 studies with Latino mothers and fathers indicate that both parents  
429 are likely to misperceive their children's weight status, mostly

**Running Head:** Latino fathers beliefs and practices

430 underestimating their weight status.<sup>37,67,68</sup> Future research should  
431 further explore Latino fathers' perceptions of their children's  
432 weight status and how their perceptions and attitudes towards their  
433 child's weight impact their food parenting practices and children's  
434 weight status. This information is important as evidence suggests  
435 parents who report more concerns about their child becoming  
436 overweight or obese also report more controlling food parenting  
437 practices (what and how much their child eats) that may have  
438 unintentional negative impacts (e.g., overly restricting food  
439 access).<sup>10,32,48,60,62</sup>

440         Although our findings revealed that Latino fathers appeared  
441 to be more involved and engaged in children's PA than eating and  
442 feeding, we also found that fathers engaged in sedentary activities  
443 with their children, appeared permissive of children's SB, and  
444 struggled to set limits on children's screen-time. These findings are  
445 important given evidence of the influence of paternal parenting  
446 styles and practices on children's PA and screen-viewing  
447 behaviors.<sup>69-72</sup> Previous research suggests that parental attitudes  
448 towards and use of screen time including parents' own screen-  
449 viewing habits, using screen-viewing as a form of childcare (or  
450 babysitter), viewing screen-time as a source of education and as a  
451 means of child relaxation result in permissive styles toward their  
452 children screen-viewing.<sup>69-82</sup> Furthermore, our findings indicate  
453 that Latino fathers' ability to model healthy physical activity

**Running Head:** Latino fathers beliefs and practices

454 behaviors for their children may be limited by their lack of self-  
455 efficacy to participate in these behaviors themselves and indicate  
456 that interventions should focus not only on fathers' styles and  
457 practices, but also on helping fathers increase their self-efficacy for  
458 these behaviors. Existing research evidence combined with  
459 finding from this current study indicate the need for future research  
460 to further examine fathers' attitudes and personal behaviors, as  
461 well as the influence of Latino fathers' parenting styles and  
462 practices on their children's PA and SB. This information will be  
463 critical for designing interventions to decrease Latino children's  
464 screen-time and sedentary behaviors.

465 **Moreover**, study findings also suggest possible gender  
466 differences in fathers' report of their daughters and sons' PA and  
467 SB, as well as their involvement and engagement in activities with  
468 their sons, and daughters. Despite the small number of fathers who  
469 reported such differences, this is worth exploring further in future  
470 qualitative and quantitative research.

471 **In conclusion, although** the role of fathers in the promotion  
472 of their children's eating, PA, and SB is a growing area of  
473 research, there is still limited information available on the role of  
474 minority fathers including Latinos.<sup>17,36-40</sup> **This current study**  
475 **provides insights into the role of Latino fathers in promoting their**  
476 **children's eating, PA, and SB behaviors within the family**  
477 **environment and contributes information that allow for a more**

**Running Head:** Latino fathers beliefs and practices

478 complete picture of how Latino parents view eating and PA  
479 environments for their children. Given the central role of the  
480 family in the Latino culture, effective interventions targeting the  
481 promotion of healthy eating, PA, SB and ultimately the prevention  
482 of child obesity and related chronic diseases, should take into  
483 account the role of fathers.<sup>13,17,36-39</sup>

484 Existing research suggests obesity prevention interventions  
485 designed for Latino children and families should target multiple  
486 behaviors (eating, PA, SB, sleep), be family-focused and involve  
487 both parents.<sup>83-89</sup> Research also suggests the importance of the  
488 intervention context (particularly, family constraints, ethnicity and  
489 parental motivation) in changing behaviors Furthermore,  
490 interventions need to consider adapting program content to  
491 consider cultural preferences.<sup>83-89</sup> In the case of Latinos, the use of  
492 culturally appropriate lay leaders (*promotoras*) to deliver  
493 interventions has shown to be efficacious. The present study adds  
494 to the existing literature and can inform the design of future  
495 research and the development of parenting and family-based  
496 interventions targeting Latino families.<sup>80,81</sup>

497 Study findings should be considered in light of some  
498 limitations. Findings are based on a nonrandom, purposeful, and  
499 relatively small sample of low-income, Latino fathers recruited  
500 from community-based organizations located in a few cities in RI.  
501 Selection bias may have resulted in fathers having a heightened

**Running Head:** Latino fathers beliefs and practices

502 interest and awareness about eating, PA, and SB. Furthermore,  
503 given that our recruitment strategy included recruiting participants  
504 from the WIC clinics, it is possible that fathers might have been  
505 more inclined to believe that mothers were more knowledgeable of  
506 nutrition because of their participation in the WIC program. Future  
507 research should utilize both qualitative and quantitative methods  
508 that address these study limitations by using different recruiting  
509 methods, and exploring Latino fathers' beliefs, attitudes and  
510 practices related to eating, PA, and SB from other communities  
511 across the U.S. Nevertheless, this qualitative study provided deep  
512 insight into primarily immigrant, Latino fathers' personal beliefs,  
513 attitudes, and practices related to child eating, PA, and SB and  
514 contributes new information to the current scant literature on  
515 Latino fathers and prevention of childhood obesity.

**516 CONCLUSIONS**

517 The present study provides new information on the beliefs  
518 and child feeding and PA practices of Latino fathers, most of  
519 whom were immigrants. The results may provide important targets  
520 for interventions aimed at promoting children's healthy eating and  
521 PA practices involving Latino fathers. Given the importance of the  
522 family in Latino culture, and indication from the literature of the  
523 importance of the family context in the development of early  
524 healthy eating and PA habits, future research should further  
525 explore the role of fathers' parenting styles and practices in the



**Running Head:** Latino fathers beliefs and practices

526 development and support of children's early eating and PA habits.  
527 This information is needed to identify risk factors amenable to  
528 interventions and to design culturally appropriate parenting and  
529 family-based interventions targeting the home environment of  
530 Latino children and designed to meet the specific needs of this  
531 ethnic group.

532

**533 Abbreviations**

534 US: United States; PA: physical activity; SB: sedentary behaviors; RI:  
535 Rhode Island; TV: television; WIC: Special Supplemental Nutrition  
536 Program for Women, Infants and Children; FGD: focus group  
537 discussions; SASH: Short Acculturation Scale for Hispanics; GED:  
538 General Educational Diploma.

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**Running Head:** Latino fathers beliefs and practices555 **REFERENCES**

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**Running Head:** Latino fathers beliefs and practices

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**Running Head:** Latino fathers beliefs and practices

Table 1: Questions from the focus group discussion guide on Latino fathers' beliefs, attitudes and practices related to their young children's eating, physical activity and sedentary behaviors.

Topic	Discussion Guide Questions
<b>Father's beliefs, attitudes and practices related to child eating and feeding</b>	
<b>Beliefs and attitudes related to healthy eating</b>	<b>What does healthy eating mean to you?</b> <i>Probes:</i> How would you describe a "healthy meal"? How do you decide if a food is good for health? What foods do you think are good for health?
<b>Perceptions of child's eating and feeding experiences</b>	<p><b>In general, how satisfied are you with the types and amount of food your child eats?</b> <i>Probes:</i> Why? Is it the same as what the rest of family eats? Is it culturally appropriate? Is it healthy?</p> <p><b>What are some foods that you wish your child would eat more of or more often?</b> <i>Probes:</i> Why?</p> <p><b>What food do you wish your child would eat less often?</b> <i>Probes:</i> Why?</p> <p><b>What are your biggest concerns about how your child eats?</b> <i>Probes:</i> Do you ever worry your child does not eat enough? Do you ever worry that your child eats too much? Do you ever worry about not having enough food to provide to your child?</p>
<b>Practices related to child's eating and feeding at home</b>	<p><b>Describe a typical mealtime routine at your home.</b> <i>Probes:</i> Who regularly prepares the meal? Who is present at the meal? Regularity of mealtime: Do you usually sit together as a family to eat? Does your child eat separately from the rest of the family? Does your child eat the same type of food as the rest of the family? Is the TV usually on during mealtimes?</p> <p><b>How are decisions made about what foods to feed your child?</b> <i>Probes:</i> Healthy foods; Cost/convenience; Cultural values and traditions; According to advice or direction from another person? If yes, probe further: What is that person's role or relationship to you/your child?</p> <p><b>Describe any limits to eating that you set for your child during meals.</b> <i>Probes:</i> How about snacks? Any particular types of foods and/or drinks not allowed?</p>
<b>Fathers' personal healthy eating practices and desire for personal changes</b>	<b>In general, how satisfied are you with the types and amount of food you eat?</b> <i>Probes:</i> Why? Is it the same as what the rest of family eats? Is it culturally appropriate? Is it healthy?
<b>Father's beliefs, perceptions and practices related to child physical activity</b>	
<b>Beliefs and perceptions of children's physical activity at home</b>	<p><b>How important do you think it is for children to be physically active?</b> <i>Probes:</i> Do you think it is a problem for kids to spend too much time being sedentary or not being physically active?</p> <p><b>How much physical activity do you think children need?</b> <i>Probes:</i> Why?</p> <p><b>How physically active is your child at home?</b> <i>Probes:</i> Plays actively outside? Plays actively inside? Does not play actively when at home?</p> <p><b>In general, how satisfied are you with the amount of physical activity your child engages in?</b> <i>Probes:</i> Why? Do you wish he or she would be more active? Do you wish he or she had more outdoor playtime?</p> <p><b>What are some types of physical activity or active play your child engages in while at home?</b> <i>Probes:</i> Riding his or her bike? Playing in nearby playground or park?</p> <p><b>What are your biggest concerns about how physically active your child is?</b> <i>Probes:</i> Do you ever worry your child does not engage in enough physical activity? Do you ever worry that your child is too sedentary?</p> <p><b>What types of things would you like to change about how physically active your child is at home?</b> <i>Probes:</i> Amount? Types of activity?</p>

**Running Head:** Latino fathers beliefs and practices

<b>Practices related to screen time at home</b>	<p><b>Do you have any rule at home for your child regarding TV and/or video time or playtime with electronics?</b> <i>Probes:</i> Time limit on TV and electronics? Not allowing electronics in home?</p> <p><b>What kinds of rules or practices do you have at home regarding your child watching TV and/or videos or playing with electronics?</b> <i>Probes:</i> Time limit on TV and electronics? Not allowing the TV on during meals? Not allowing TV during the week?</p> <p><b>Does your child own his or her own TV, computer, or portable video game equipment?</b> <i>Probes:</i> Do you let your child keep these electronics at all times?</p>
<b>Fathers' personal physical activity and sedentary behaviors and desire for personal changes</b>	<p><b>In general, how satisfied are you with the amount of physical activity you engage in?</b> <i>Probes:</i> Why? Do you wish you would be more active? If desire changes, what would you change in your physical activity behaviors?</p>
<b>Father's Perceptions of Barriers Related to Child's Healthy Eating, Physical Activity and Sedentary Behaviors</b>	
<b>Barriers faced by fathers and families in structuring a home environment conducive to healthy eating and physical activity</b>	<p><b>What types of barriers, if any, do you face in making sure that your child eats or drinks what you think is "good" for him or her at home?</b> <i>Probes:</i> Time? Cost? Knowledge of what and how much to feed your child? Influence of other people in the household (e.g., older siblings, grandparents, father, mother)</p> <p><b>What types of barriers do you face in making sure that your child is physically active when at home?</b> <i>Probes:</i> Space? Time? Household obligations? Neighborhood safety? Knowledge of how physically active your child should be? Influence of other people in the household (e.g., older siblings, grandparents, father, mother)</p> <p><b>What types of barriers do you face in making sure that your child does not spend too much time sedentary time such as watching TV and/or videos or playing videogames at home?</b> <i>Probes:</i> Lack of household rules? Space? Time? Other obligations that keep you from having time to take your child out to play?</p>
<b>Final remarks</b>	<p>Is there anything else you would like to share with us related to your children's eating and physical activity experiences at home or at the family childcare home?</p>

**Running Head:** Latino fathers beliefs and practices**Table 2:** Socio-demographic and acculturation characteristics of study participants (n = 28).

	Mean + SD	n (%)
Age	34.2 ± 2.8	
<b>US-born</b>		
Yes		4 (14.3)
No		24 (85.7)
<b>Country/Territory of Origin</b>		
Colombia		9 (32.2)
Dominican Republic		6 (21.4)
Puerto Rico		4 (14.3)
Ecuador		2 (7.1)
El Salvador		2 (7.1)
Mexico		2 (7.1)
Guatemala		1 (3.6)
Venezuela		1 (3.6)
Honduras		1 (3.6)
<b>Years in the United States*</b>	14.3 ± 2.7	
<b>Predominant language spoken at home</b>		
Spanish		26 (92.9)
English		2 (7.1)
<b>Marin scale acculturation score</b>	2.32 ± 0.36	
<b>Marital status</b>		
Married		26 (92.9)
Divorced		2 (7.1)
<b>Education level</b>		
Less than high school		8 (28.6)
High school degree		14 (50.0)
General Education Development (GED)		6 (21.4)
<b>Household annual income</b>		
> \$40K/year and ≤ \$50,000		11 (39.3)
≤ \$40K/year		17 (60.7)
<b>Currently Employed</b>		
Yes		26 (92.9%)
No		2 (7.1%)

Note: \*only includes fathers not born in US states.



**Running Head:** Latino fathers beliefs and practices

**Table 3:** Focus group themes and supporting quotes from Latino fathers (n=28) regarding their beliefs, attitudes and practices related eating, physical activity and sedentary behaviors of their children aged 2 to 8 years.

Themes	Representative quotes
<b>Healthy Eating and Food Parenting Practices</b>	
<b>Definition</b>	
Fathers’ definitions of healthy eating	<p><i>“The diet should be healthy, should include vegetables and fruits, but necessarily everything. Healthy eating should include equilibrium”</i></p> <p><i>“I say it’s no fast-foods, not eating any fast food meals...”</i></p> <p><i>“For me it’s a balanced diet. It doesn’t matter what you eat, it’s about the portion.”</i></p> <p><i>“Healthy eating to me is a lifestyle, it’s a way of life. It comes with so much more than just food. It’s a big part of it, but healthy, it’s just about knowing how to prepare the right meal and serving the right portion and at the right time.”</i></p>
<b>Importance</b>	
Fathers believe healthy eating is important	<p><i>“Healthy eating is one of the most important things for one’s health, and living healthy...umm, it affects one’s quality of life”</i></p> <p><i>“I think it’s important that the kids learn to eat healthy, healthy foods when there are young...it has an impact on their growth and health ...”</i></p>
<b>Personal Practices</b>	
Fathers do not always eat healthy, but are aware of the need to improve their eating habits	<p><i>“I think it’s important to try [eat healthy], but sometimes you can’t help it... there’s just so much food out there, everywhere you go, fast-food, quick and cheap, and one makes bad choices...”</i></p> <p><i>“...Many times I have to eat whatever is quickly available, fast and on-the-go...so, the fastest and convenient is not healthiest...pizza, tacos, hamburgers...”</i></p>
<b>Fathers’ Food Parenting Practices</b>	
Continued effort	<p><i>“It’s a constant effort... you need to keep trying to teach them [children] to eat healthy ...all of us [adults included]”</i></p> <p><i>“I would like to change her [daughter] temptation. When we are driving she always wants to go to a fast food place. I know that a lot of places now offer healthier choices in their menus... salads, yogurts, fruits...[fast-food restaurants] now got things that are more natural, but still it’s a temptation...”</i></p>
It is Okay to Indulge and Eat Unhealthy Once in a While	<p><i>“You can’t expect that children are going to eat healthy all the time. Every now and then they have some food that’s not good [healthy] ... some fries, some candy and ice cream... they are kids...”</i></p> <p><i>“I wish that my son would eat healthier, but he likes to eat some foods that are unhealthy, just like most kid...”</i></p>
Eating out	<p><i>“During the week we eat at home and during the weekends we go out...”</i></p> <p><i>“Chinese buffets, I love it. I love the shrimp. Sometimes we go to American restaurants, pizza, McDonalds once in a while, Burger King, those types of things. Sometimes we have had enough [home cooking] at home, so to vary we visit those places...”</i></p> <p><i>“If we got out, Wendy’s or McDonalds. She [daughter] always goes out for pizza...”</i></p> <p><i>“When we go out to eat, it’s usually a place where we can get some pizza, sometimes we take the kids to Applebee [chain restaurant] or stuff like that. Places that we know typically where they [children] like to eat...”</i></p> <p><i>“We try to go out to restaurants, but [with children] it’s hard to have a sit down meal. We get fast-food, pizza...always Wendy’s for fast-food...”</i></p>

**Running Head:** Latino fathers beliefs and practices

<b>Fathers' Involvement with and Responsibilities for Child Feeding</b>	
Fathers Have a Traditional View of Motherhood	<p><i>"She [mother] is most direct contact when she is buying the food and when she chooses what we eat."</i></p> <p><i>"Yeah, usually is my wife. But we both help each other in that. But usually she makes the decision. "Latino moms usually are the ones who do that..."</i></p> <p><i>"I like to follow the mother's lead...it's just easier that way."</i></p>
<b>Fathers' Perceived Barriers to Children's Healthy Eating</b>	
Time constraints	<p><i>"Sometimes during the week it's hard to find the time to prepare a meal. If my wife does not plan everything during the weekend, sometime we just need to eat something on the go..."</i></p> <p><i>"My wife likes to plan in advance, she does the shopping during the week and prepare some of the foods that take longer...during the week our working hours can be long. My mother-in-law helps, but sometimes if we don't have things planned it's hard to cook a family meal"</i></p>
Conflicting schedules	<p><i>"My wife does a lot, it's crazy with the schedule at work, and sometimes it changes the last minute...if I am not home it's hard..."</i></p> <p><i>"My wife has a more set schedule and she gets home at around 4 PM and tries to get things started so that when I get home with the kids we can have a meal, but it can be hard"</i></p>
Convenience	<p><i>"Sometimes you need to get something quick after a long day of work...the kids come home from school, my wife is still at work...so, we just get some take out..."</i></p> <p><i>"Every now and again, we just get something to eat before coming home - my wife, myself, and the kids. Sometimes if I need to work late, my wife and the kids grab something...some days she just can't do everything. I say, that's fine, no one is going to die because you are not cooking today..."</i></p>
Easy access and availability of unhealthy food choices	<p><i>"It's hard to resist sometimes...nowadays it's so easy for kids [and adults] to eat fast food... When I was growing up, bad food was fried food at home ..."</i></p> <p><i>"You know, everywhere you go there is food, junk food, and it doesn't cost much...sometimes you don't even think about it ...when you see the kids have eaten 2-3 junk food already, a donut, a hamburger and fries and soda...just like that...it's everywhere"</i></p>
<b>Desire for Changes</b>	
Fathers Would like their Children's Eating Habits to Change	<p><i>"I'd like to see some changes... I would like my daughter to stop eating candy, and eat food. I also would like [daughter] to drink water and not soda."</i></p> <p><i>"You know, that little cookie here and candy there is not good, so probably that is one of the things I would like to change. Cut down on the sugar."</i></p> <p><i>"Have some lower intake in sugar, that is my wish...but that is probably unrealistic..."</i></p> <p><i>"I guess my goal would be for them to eat more vegetables. More of a balanced diet, umm, you know, like we've touched upon throughout this talk ... a more balanced diet, and cutting down on the processed foods..."</i></p> <p><i>"I just want mine [child] to umm... be in a balanced weight or at a healthy weight. With healthy, umm...with healthy traditions and just I want them to eat right. I want them to grow up to be healthy adults. That they [children] are educated and have the knowledge of what is good for you, what's not good for you...that's what I wish for them [children]"</i></p>

**Running Head:** Latino fathers beliefs and practices

<p>Fathers Would Like to Change Their Eating Habits</p>	<p><i>“I am trying to change because before I could eat whatever I never worried about gaining weight. Since I’m not running as much and stuff like that, I’m noticing that I’m getting a little heavier.”</i></p> <p><i>“I am not satisfied, because I think that relatively speaking, I am in the worst shape in my life. So, I think that from that point of reference ... how I used to be, I’m not there. So, currently, you know, I would like to change...lose weight. I know I’m not going to go back to when I was eighteen, but definitely be in better shape, be you know, in shape.”</i></p> <p><i>“I’m very interested in changing what I eat. I know I eat very unhealthy and that is something I’ve been trying to change actually. So, definitely want to change.”</i></p>
<p><b>Physical Activity and Sedentary Behaviors</b></p>	
<p><b>Definition</b></p>	
<p>Fathers definitions of active living</p>	<p><i>“Active living to me would be somebody who goes outside, sees how beautiful life is, goes on a walk, exercise, doing activities with friends, family, just living life in a positive way, which doesn’t involve just standing still. A body in motion will stay in motion. Just, moving around and trying to enjoy it.”</i></p> <p><i>“Daily exercise, have a life that is not always siting near the television, do exercise for your whole body – walk, run, and play sports. Now, I currently don’t run, but walk in the morning.”</i></p> <p><i>“Active living for me is staying active. Not necessarily doing exercise, but something like just walking. Even just going to the mall and just walking.”</i></p>
<p><b>Importance</b></p>	
<p>Fathers believe physical activity is important</p>	<p><i>“Being active is very important. You need to get your body moving to keep healthy and it really helps you mentally too...”</i></p> <p><i>“For the kids especially, I think they need to be moving, get themselves more alert, more engaged...I think that the kids cannot spend a lot of time just sitting in front of the computer or playing video games...they need to be active for their health”</i></p> <p><i>“Our body was made to be active! So, believe that being active is necessary to keep healthy!”</i></p>
<p><b>Responsibility</b></p>	
<p>Joint decisions about family activities</p>	<p><i>“I mean, we both decide in many ways. He is with her [mother] more than he is with me, but at the same time we have the same philosophy.”</i></p> <p><i>“We try to always do things together as a family. We go to the zoo, we go together, we go to the museum, we go together, so that is more shared decision...when we are at home, then my wife is more in charge...”</i></p>
<p><b>Parenting Styles and Practices</b></p>	
<p><b>Permissive Style and Limit Setting</b></p>	
<p><b>Fathers Are Permissive of Sedentary Activities for their Children and Struggle to Set Limits</b></p>	<p><i>“You know with my daughter it’s difficult...she kind of like to play with dolls, do her coloring...I am not going to interfere with that...I just let her do what she wants and like. I just like to live in harmony...why fight, right?”</i></p> <p><i>“It’s kind of hard because you want them to be active and play, but every kid is doing it and nowadays it’s just part of their lives, so it’s kind of hard to be always telling them no this no that ...”</i></p> <p><i>My son, he is very much video games, if he can play video games and stay indoors, that would be it, heaven for him! So, I constantly have to tell him, “get outside”, go out and play. Or, I have another rule with him. My son is twelve. You can play video games, but every time you win, or every time you get a next level, you have to do then push-ups. If you don’t do, you don’t play. It’s a battle with everything...”</i></p> <p><i>“ Well the kids nowadays, they love their video games and stuff like that. So, we try to set some limits, but they still do it...it’s kind of inevitable to keep them off line...”</i></p>

**Running Head:** Latino fathers beliefs and practices

<b>Involvement and Engagement</b>	
Fathers Report Being Involved and Engaged in Their Children's Physical Activity	<p><i>"It is usually me when it comes to doing stuff with them...usually mom comes home and she's kind like to keep everything in order kind of thing. Usually, the kids come and the house is...you house is in order and everything"</i></p> <p><i>"You know my wife wants to do more things with my daughter and I do with my son. I'll go hike with son and all those type of stuff."</i></p> <p><i>"You know I kind of like to get my kids involved in some sports and play...my son plays karate, soccer, I really enjoy taking him to the activities, and that's also good because it gives my wife a break to do her things around the house..."</i></p>
<b>Role Modeling</b>	
Fathers View Themselves as <b>Physical Activity</b> Role Models	<p><i>"I know it's important for my kids to see we are active, you know, if they see you just sitting around and watching TV, they will want to do that...so, I try to take them out whenever I can, just get outside and play..."</i></p> <p><i>"My son loves soccer, and that's great because I grew up playing soccer, so he and I play together, you know I like show him how to play..."</i></p> <p><i>"We do some work yard together. I make my older and younger son cut the grass. My two little ones help me out with the gardening stuff. Just working on the yard..."</i></p>
<b>Barriers to PA</b>	
Fathers' perceptions of barriers to children being physically active	<p><i>"It's pretty much coordinating the schedule with her mom and myself. Sometimes it's just hard to get everything going including get the kids out with all that needs to get done"</i></p> <p><i>"You know living in New England the weather is always a factor. When the weather changes you cannot go outside and be as active as you like, then you just wait, stay more inside until the weather changes again."</i></p> <p><i>"Honestly, the factor is that it is a financial issue. I have four them [children] and I want them to try everything and try every class in the world, but honestly I can't afford it. That is my issue...I wish I could put them in every sport and give them every outlet to find out what their talent is and what they are going to best at. But financially I can't do it."</i></p> <p><i>"I think if you have access to different sports in terms of the city or the state because sometimes you have to find the cheaper sport in your neighborhood and it's not the best for your child. I think every school, if you have more access, it would be better. "</i></p>
<b>Desire for Change</b>	
Fathers desire changes in their own physical activity habits	<p><i>"The physical activity that I am doing right now is none. I would like to return to soccer, but I have a problem with my foot...I don't know, I just like to go back to being active again..."</i></p> <p><i>"I am not satisfied because I think that relatively speaking, I am in the worst shape in my life. So, currently, you know, I would like to be in better shape. I used to be more active than I am now."</i></p> <p><i>"I think I can still walk more. I would like to change that. I don't think I've been doing that much lately and also maybe from home, if the weather doesn't allow me to walk, have some treadmill, have something I can still be active even if I didn't get out of my house"</i></p>

**Running Head:** Latino fathers beliefs and practices

For Peer Review