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Family weight teasing, ethnicity and acculturation: Associations with well-being among Latinx, Hmong, and Somali Adolescents

Marla E. Eisenberg, ScD, MPH^{a,b,*}, Rebecca Puhl, PhD^c, Eunice M. Areba, PhD, RN, PHN^d, and Dianne Neumark-Sztainer, PhD, MPH, RD^b

^aUniversity of Minnesota, Department of Pediatrics, Minneapolis, MN

^bUniversity of Minnesota, Division of Epidemiology and Community Health, Minneapolis, MN

^cUniversity of Connecticut, Rudd Center for Food Policy & Obesity, Hartford, CT

^dUniversity of Minnesota, School of Nursing, Minneapolis, MN

Abstract

Objective—This study examines the prevalence of weight-based teasing by family members and associations with unhealthy weight control behaviors, body satisfaction, self-esteem, and depressive symptoms among adolescents from three immigrant communities (Latino, Hmong, and Somali).

Methods—Data come from EAT 2010, a population-based study of weight and related behaviors (N=1577, mean age=14.5). Adjusted models tested associations between weight teasing and well-being, controlling for BMI and ethnic group, effect modification by ethnic group and acculturation were also explored.

Results—Family weight-teasing was common (12.1% – 42.9% reporting this experience across gender and ethnic groups) and was associated with all four measures of well-being in the expected direction. Associations were statistically equivalent in all ethnic groups and were not modified by acculturation.

Conclusion—Youth from immigrant communities experience family weight-teasing and associated threats to well-being. Additional research is needed to further understand the cultural context of weight-related teasing and develop relevant prevention messages.

Keywords

adolescence; weight-based teasing; mental health; weight-control behavior; acculturation

*corresponding author. 717 Delaware St. SE, Minneapolis, MN, 55414. 612-624-9462. eisen012@umn.edu.

Competing Interests Statement

The authors have no competing interests to report.

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Introduction

A robust literature has demonstrated associations between weight-based teasing and emotional distress [1–4], disordered eating, and body image [2,5–10] in male and female adolescents in both cross-sectional and longitudinal studies, including the unique contribution of weight commentary by family members [6,7,11]. For example, in a 15-year longitudinal study, we found that women who had been teased about weight as adolescents had lower body satisfaction, and were more likely to binge eat and engage in eating as a coping strategy in response to affect in adulthood compared to those who were not teased during adolescence [6]. Much of the research on weight-based teasing has been conducted with predominantly White samples and has not overtly addressed race/ethnicity. However, several studies have found differences in weight-based teasing and its associations with well-being across racial and ethnic groups [12–17]. Previous findings from the EAT 2010 (Eating and Activity in Teens) study showed that rates of weight-based harassment varied significantly across racial/ethnic groups; for example, 29% of Black girls reported weight-based harassment compared to 47% of White and Asian girls [15].

Youth from immigrant communities are an important but often understudied subset of racial and ethnic minority groups in the U.S. When they are included in general samples, youth from immigrant communities may be “lost” in analysis where survey items or small numbers do not allow researchers to differentiate between groups (e.g. immigrants from African countries being considered with African Americans). Although previous research has demonstrated that youth from immigrant families are more likely than their non-immigrant peers to experience other types of victimization (e.g. due to race, religion) [18], we are not aware of any studies explicitly examining family weight-based teasing among youth from immigrant communities, so the extent to which existing findings apply to these young people is unknown. Youth from immigrant communities may differ from mainstream youth in the host community in ways that could have implications for both weight-based teasing and emotional well-being [19]. Even if youth are U.S. born or have resided in the U.S. for most of their childhood, their attitudes, beliefs, sense of self, social interactions, and well-being have been shaped by the heritage cultural community and familial experiences in which they were raised. Likewise, differences in language usage and connotations of certain words may affect the interpretation of weight-related comments. Understanding ways in which weight-based teasing and its sequelae in these populations are similar to or different from existing findings will inform prevention efforts and culturally tailored intervention activities.

Additionally, as people from immigrant communities spend more time in the host community, they may adapt – to a greater or lesser degree – to the norms and practices of the surrounding community [20], including language usage. Research has found evidence of an “immigrant paradox,” showing that when immigrant youth acculturate to the U.S., they exhibit less healthy behaviors and poorer well-being than newer immigrant youth [21–24]. This phenomenon occurs over time as well as across generations. Of relevance to the present inquiry, is how different body weights and shapes are valued in cultures around the world [25–29]; however, overweight is highly stigmatized in mainstream U.S. culture. Negative societal attitudes about weight may be internalized by youth or adults who are more

acculturated to U.S. cultural norms than those who remain deeply embedded in their heritage culture. Some research has identified an association between acculturation to Western norms and eating and weight-related attitudes and behaviors [24,30–33], but other studies have not [34,35]. Results may depend on the group(s) under study and measurement of acculturation and other factors [32].

The present study

The present study examines the prevalence of weight-based teasing by family members and its associations with unhealthy weight control behaviors, body satisfaction, self-esteem, and depressive symptoms among Latinx, Hmong and Somali adolescents. These adolescent groups represent significant immigrant communities with substantial numbers in Minnesota. The Latinx population began arriving in Minnesota in the early 1900s, with substantial increases beginning in the 1990s. Today, approximately 5% of the state's population is of Hispanic ethnicity [36]; among them over 70% are of Mexican descent [37]. Over 69,000 Hmong refugees have been resettled in Minnesota since the late 1970s, largely from Laos and other Southeast Asian countries [38]. They often live in extended family structures, within households that include multiple generations [38,39]. Finally, after the civil war broke out in Somalia in 1991, many Somalis arrived in Minnesota as refugees. As of 2017, about 69,000 Minnesotans were of Somali descent [40]. They are a homogenous, nomadic people, organized by clans and sub-clans which form the basis of their identities [41].

In addition to our primary objective of identifying weight-based teasing by family members and its health correlates among these immigrant communities of adolescents, we further test for effect modification by group, comparing to non-Hispanic White adolescents in the same schools, who reflect the most prevalent population of youth that have been studied in the context of weight-based teasing. In addition, we explore associations between markers of acculturation and each outcome for youth in these three immigrant communities, and its potential role as an effect modifier of the association between weight-based teasing and each outcome.

Methods

Study design and population

Data come from the EAT 2010 study, designed to examine multiple influences on weight and related health behaviors [42]. Participants were students at 20 public middle and high schools in the Minneapolis/St. Paul area of Minnesota, which serves racially, ethnically and economically diverse communities. Survey data were provided by 2,793 adolescents during the 2009–2010 academic year, using paper forms during 1–2 class periods. Parental consent and student assent were obtained prior to participation, and all participating students received a \$10 gift card. All study procedures were approved by the research boards of the participating school districts and the University of Minnesota's Institutional Review Board.

This analysis includes Latinx (n=471), Hmong (n=480) and Somali students (n=114). In addition, students who indicated they were White and no other race or ethnicity were included in some analyses for comparison (n=512). EAT 2010 has yielded multiple

publications regarding weight-related teasing [3,15,43], including across racial groups [15]; however, no previous research with this dataset has explicitly examined differences in weight-related teasing among youth from these immigrant communities.

Survey and measures

The EAT 2010 survey includes 235 items relevant to weight and related health behaviors. Survey development was based on previous Project EAT surveys [44] and both Social Cognitive Theory [45] and ecological models of health behavior [46]. The developing survey was pilot tested with a diverse group of 56 adolescents, reviewed by adolescent health experts, and revised based on feedback. The survey was further tested with 129 middle and high school students to examine the test-retest reliability of measures over a one-week period (reported below).

Two items were used to identify the three *ethnic groups* and White comparison group: “Do you think of yourself as... White, Black or African American, Hispanic or Latino, Asian American, Native Hawaiian or other Pacific Islander, American Indian or Native American or other” (98–100% test-retest agreement) and “Is your background any of the following? a) Hmong, b) Cambodian, c) Vietnamese, d) Laotian, e) Somali, f) Ethiopian, g) Other and h) None of the above” (92% test-retest agreement). Those who indicated Hispanic or Latino, Hmong or Somali backgrounds were included in the present study (one student who marked both Hispanic and Somali was dropped from analysis). Students who marked White and did not indicate any other race or ethnicity were included as the comparison group. The EAT 2010 sample did not have enough youth from other immigrant communities to include for analysis.

One item was used to measure lifetime experience of *family weight-based teasing*: “Have you ever been teased or made fun of by family members because of your weight?” (Yes/no; 96% test-retest agreement).

Four dependent variables were used in this analysis. *Unhealthy weight control behaviors* included endorsement of any of the following behaviors in the past year in order to lose weight or keep from gaining weight: fasted, ate very little food, took diet pills, made myself vomit (throw up), used laxatives, used diuretics (water pills), used food substitute (powder/special drink), skipped meals, or smoked more cigarettes (test-retest agreement for doing at least one behavior = 86%) [5–7]. *Body satisfaction* was assessed as satisfaction with 13 different body parts and attributes (height, weight, body shape, waist, hips, thighs, stomach, face, body build, shoulders, muscles, chest, overall body fat), modified from an existing scale [47]. Five response options ranged from “very dissatisfied” to “very satisfied,” and responses were summed to create a single scale score (range: 13–65; Cronbach’s $\alpha = 0.95$; test-retest $r = 0.65$). *Self-esteem* was assessed with six items from the Rosenberg Self-Esteem Inventory, such as “on the whole, I am satisfied with myself” [48]. Items were rated on a four-point scale from 1=“strongly disagree” to 4=“strongly agree”, and responses were summed across items (reverse-scored as appropriate). Higher scores indicate higher self-esteem (range: 6–24; Cronbach’s $\alpha = 0.73$; test-retest $r = 0.71$). *Depressive symptoms* were assessed with the Depressive Mood Scale, which asks how much six issues had bothered or troubled them during the past year (e.g. “feeling too tired to do things”) [49]. Each item had

three responses (“not at all,” “somewhat,” “very much”) which were summed, with higher scores indicating higher levels of depressive symptoms (range: 6–18; Cronbach’s $\alpha = 0.85$; test-retest correlation = 0.79).

Three brief survey items commonly used as proxy measures of *acculturation* [33,50–54] were summed to create a composite score (0–6). Each item was recoded (0–2). Students were asked: if they were born in the U.S. (2) or elsewhere (0); how long they have lived in the U.S. (< 10 years or always = 2, 1<5 years or 5<10 years = 1, <1 year = 0) [33]; and the language usually spoken in their home [53] (English only = 2, English plus another language = 1, or a language other than English = 0). These items had 93%–99% test-retest agreement during survey development.

Body mass index (BMI) was used as a covariate in analyses. Values were calculated using anthropometric data assessed by study staff. Height was measured without shoes (to the nearest .1 cm) and weight was measured without heavy outerwear or shoes (to the nearest .5 pound). Measured height and weight were missing for 1.7% of the sample (n=46); self-reported values from the student survey were used in these cases to retain participants in analysis.

Data analysis

All key variables were examined across four ethnic groups, with Analysis of Variance (ANOVA) and post-hoc tests used to determine significant differences ($\alpha = .05$). General linear modeling was used to test hypotheses, with weight-based teasing as the primary independent variable and each dependent variable modeled separately, adjusting for ethnic group and BMI. Least square means generated by linear modeling are interpreted as predicted prevalence for unhealthy weight control behaviors [55] and as predicted means for body satisfaction, self-esteem, and depressive symptoms for those who had experienced family weight-based teasing overall and for four ethnic groups. Interaction terms of weight-based teasing by ethnic group were added to each model to test whether associations between teasing and dependent variables differed significantly across the four ethnic groups. A separate set of general linear models further adjusted for markers of acculturation, and was restricted to Latinx, Hmong and Somali adolescents. The interaction of weight-based teasing by acculturation score was added to these models to test for effect modification. In addition, we tested for effect modification of weight-based teasing by gender; these interactions were non-significant. However, we elected to stratify final models by gender based on existing findings from our own and others’ work showing effect modification by gender [3,5,6,8,9], and to enhance comparability with most previous work in this area.

Results

Characteristics of the sample are shown in Table 1. Approximately one-quarter of the boys and 30.1% of the girls reported being teased about their weight by family members. Unhealthy weight control behaviors were common, with 40% of boys and 53% of girls reporting any of these behaviors. Average body satisfaction scores were 43.3 for boys and 40.7 for girls (range=13–65), and average self-esteem and depressive symptom scores were

on the healthier side of each scale for both boys and girls. Mean acculturation scores were 3.8 (not including white students).

Significant differences were evident in family weight-based teasing, all four measures of well-being, acculturation score, and BMI across ethnic groups for both boys and girls (with the exception of depressive symptoms for girls; see Table 2). Hmong adolescents were most likely to report weight-based teasing; for example, 35.6% of boys reported this experience, which was significantly higher than 17.7% of Latino, 12.1% of Somali, and 16.0% of White boys ($F=12.1$, $p<.001$). Hmong youth also had the highest average acculturation scores among the three ethnic groups, and the lowest body satisfaction and self-esteem scores. Additional differences across groups are shown in Table 2.

As depicted in Table 3, weight-based teasing was associated with poorer health, for both boys and girls, as expected. Predicted prevalences and means of each measure of well-being differed significantly across the four ethnic groups (with the exception of depressive symptoms for girls, $p=.099$), mirroring bivariate findings above. However, interaction terms were not statistically significant, indicating that associations between weight-based teasing and well-being were similar across all four ethnic groups. For example, among girls who were teased about their weight, 70.2% reported one or more unhealthy weight control behavior compared to 50.4% of girls who were not teased about their weight ($p<.001$), after adjusting for BMI. This difference of almost 20 percentage points was similar in all four ethnic groups (differences in estimate prevalence range from 13.9 to 24.5 percentage points across groups).

In models testing the role of our markers of acculturation across three ethnic groups of youth, acculturation score was only significantly associated with dependent variables in one model (see Supplemental Table). Specifically, each unit of the acculturation score was inversely associated with 3.6 percentage points in the predicted prevalence of unhealthy weight control behaviors among girls. No significant interactions were noted between weight-based teasing and acculturation score in association with dependent variables.

Discussion

This study offers initial insights on the understudied topic of family weight-based teasing among youth from immigrant communities. Key findings include significant differences in family weight-based teasing and a range of weight-related and emotional health outcomes across youth from three groups. Compared to others, Hmong youth endorsed particularly high rates of weight-based teasing and lower body satisfaction and self-esteem (which may stem in part from higher average BMI among Hmong boys). As documented previously in general samples [6,7], in the current study, family weight-based teasing was associated with poor outcomes across all three immigrant groups. Of note, markers of acculturation in the three immigrant groups were not associated with well-being and did not moderate observed associations between weight-based teasing and well-being. Collectively, these findings do not suggest an “immigrant advantage” in the area of weight-based teasing or associations with psychosocial outcomes, and instead provide evidence that youth from these immigrant communities are vulnerable to weight-based teasing and its consequences.

Extensive evidence indicates that family characteristics and connectedness can be critical to protecting young people from poor health behaviors and adverse outcomes, including youth from immigrant communities [56–59]. Family experiences around weight and food, such as family meals and feeding practices [60,61], weight talk [62,63], encouragement to diet [64,65], and weight-based teasing and labeling [6,7,11] have been associated with weight-related outcomes and emotional health, consistent with present findings. However, to the best of our knowledge, little of this work has focused specifically on youth from various immigrant communities [66,67]. The current study underscores that these groups are not immune to weight-based teasing and its adverse impact on health; these communities should be a focus of increased research attention, as important questions remain. There may be other important characteristics of immigrant communities that can provide additional insights about experiences of weight-based teasing for these youth. For example, some research suggests that norms and practices around weight and eating behaviors may differ for new immigrants in contrast to young people born in the U.S. In particular, Romo and Mireles-Rios found that maternal weight-based teasing was associated with communicating messages that enhance body image among Latina youth [67], contrasting with most findings on this topic. Thus, more research is needed to understand what types of comments or behaviors encompass “teasing” from family members, and the cultural values which may influence how young people interpret weight-related comments from their families. Cross-cultural examination in a variety of immigrant communities will inform relevant, tailored prevention messages.

Furthermore, youth from immigrant communities face several stressors specific to their identity, potentially stemming from their personal experience as immigrants and/or refugees (e.g. trauma in their country of origin and acculturative stress during resettlement), but also from identifying with a minority ethnic community even if they were born in the U.S. (e.g. peer harassment based on race or religion [18] and general anti-immigrant sentiment [68]). Family members may share these stressors and therefore be a source of support for those experiences, but weight-based teasing may single out an individual family member, thereby increasing his or her experience of stigma and associated health burdens. Further research examining the ways in which different and multiple stigmatized identities interact in immigrant youth is warranted, as are studies to identify effective strategies to reduce weight-based teasing in family-based interventions.

The absence of significant findings regarding markers of acculturation and well-being in this sample adds to a mixed literature on this topic [24,30–35]. In addition to different measures of acculturation and different ethnic groups in each study, null findings may reflect ongoing exposure to Western body-related ideals (through globalized media) and adoption of these values in other cultures. If members of immigrant communities in the U.S. have already internalized Western norms around weight in their heritage cultural communities, acculturation (as measured here) would not be a distinguishing factor for young people’s well-being.

Limitations and strengths

Several features of this research strengthen its contribution to the literature. First, this study used a large, school-based sample that has greater generalizability to youth in community settings than studies focused on convenience samples recruited through organizations or other channels. Second, the diverse student sample included adequate numbers of participants from three separate immigrant communities in the same study, which allowed for comparisons not available in most existing research. Third, the EAT 2010 survey included multiple valid and reliable measures of adolescent well-being. However, certain limitations must also be considered. Several additional measures relevant to our research questions were not available in EAT 2010, such as immigration and/or refugee experiences and community cultural values around weight. The acculturation items available in this survey are widely used proxy measures, but not a comprehensive scale which could have provided greater insight into behaviors and preferences relevant to weight status. Likewise, our key independent variables (family weight-based teasing) was assessed with a single item. It is possible that weight-based comments may carry different meanings across cultures (they could, for example, be a form of endearment within the family [69]); these nuances were not assessed in the current study and may be relevant in future work. In addition, in spite of the large sample overall, some groups were relatively small and some behaviors were rare, possibly resulting in underpowered analyses (e.g. Somali boys reporting unhealthy weight control behaviors). Finally, all participants came from a single state and may therefore not be generalizable to youth from immigrant communities in other parts of the country.

Conclusions

Youth from immigrant communities face weight-based teasing by family members and experience associated disordered eating and poor emotional health similar to general samples previously studied. Prevention activities that use culturally relevant messages to address weight-based teasing in immigrant families may curb unhealthy weight control practices and poor emotional health among youth in these communities.

Additional research is also needed to extend our understanding of weight-related teasing in immigrant communities, including the ways in which weight-related stigma may interact with other stressors and stigmatizing experiences in immigrant communities, and the reasons underlying the differences and similarities found here (e.g. why weight-based teasing seems to be particularly prevalent among Hmong youth). Qualitative research may be especially valuable to delve beyond these findings into potential mechanisms and opportunities to support healthier weight-related conversation among families from immigrant communities.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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References

- [1]. Eisenberg ME, Neumark-Sztainer D, Haines J, et al. Weight-teasing and emotional wellbeing in adolescents: longitudinal findings from Project EAT. *J Adolesc Health* 2006;38:675–83. [PubMed: 16730595]
- [2]. Puhl RM, Latner JD. Stigma, obesity, and the health of the nation's children. *Psychol Bull* 2007;133:557–80. [PubMed: 17592956]
- [3]. Bucchianeri MM, Eisenberg ME, Wall MM, et al. Multiple types of harassment: associations with emotional well-being and unhealthy behaviors in adolescents. *J Adolesc Health* 2014;54:724–9. [PubMed: 24411820]
- [4]. Warkentin T, Borghese MM, Janssen I. Associations between weight-related teasing and psychosomatic symptoms by weight status among school-aged youth. *Obes Sci Pract* 2017;3:44–50. [PubMed: 28392931]
- [5]. Haines J, Neumark-Sztainer D, Eisenberg ME, et al. Weight teasing and disordered eating behaviors in adolescents: longitudinal findings from Project EAT (Eating Among Teens). *Pediatrics* 2006;117:e209–15. [PubMed: 16452330]
- [6]. Puhl RM, Wall MM, Chen C, et al. Experiences of weight teasing in adolescence and weight-related outcomes in adulthood: A 15-year longitudinal study. *Prev Med (Baltim)* 2017;100.
- [7]. Eisenberg ME, Berge JM, Fulkerson JA, et al. Associations between hurtful weight-related comments by family and significant other and the development of disordered eating behaviors in young adults. *J Behav Med* 2012;35:500–8. [PubMed: 21898148]
- [8]. Rojo-Moreno L, Rubio T, Plumed J, et al. Teasing and Disordered Eating Behaviors in Spanish Adolescents. *Eat Disord* 2013;21:53–69. [PubMed: 23241090]
- [9]. Menzel JE, Schaefer LM, Burke NL, et al. Appearance-related teasing, body dissatisfaction, and disordered eating: A meta-analysis. *Body Image* 2010;7:261–70. [PubMed: 20655287]
- [10]. Puhl R, Suh Y. Health Consequences of Weight Stigma: Implications for Obesity Prevention and Treatment. *Curr Obes Rep* 2015;4:182–90. [PubMed: 26627213]
- [11]. Hunger JM, Tomiyama AJ. Weight Labeling and Disordered Eating Among Adolescent Girls: Longitudinal Evidence From the National Heart, Lung, and Blood Institute Growth and Health Study. *J Adolesc Heal* 2018;63:360–2.
- [12]. Van Den Berg P, Neumark-Sztainer D, Eisenberg ME, et al. Racial/ethnic differences in weight-related teasing in adolescents. *Obesity* 2008;16.
- [13]. Porter JS, Stern M, Mazzeo SE, et al. Relations Among Teasing, Body Satisfaction, Self-Esteem, and Depression in Treatment-Seeking Obese African American Adolescents. *J Black Psychol* 2012;39:375–95.
- [14]. Bucchianeri MM, Gower AL, McMorris BJ, et al. Youth experiences with multiple types of prejudice-based harassment. *J Adolesc* 2016;51.
- [15]. Bucchianeri MM, Eisenberg ME, Neumark-Sztainer D. Weightism, racism, classism, and sexism: shared forms of harassment in adolescents. *J Adolesc Health* 2013;53:47–53. [PubMed: 23566562]
- [16]. Himmelstein MS, Puhl RM, Quinn DM. Intersectionality: An Understudied Framework for Addressing Weight Stigma. *Am J Prev Med* 2018;53:421–31.
- [17]. Olvera N, Dempsey A, Gonzalez E, et al. Eating Behaviors Weight-related teasing, emotional eating, and weight control behaviors in Hispanic and African American girls. *Eat Behav* 2013;14:513–7. [PubMed: 24183147]
- [18]. Sulkowski ML, Bauman S, Wright S, et al. Peer victimization in youth from immigrant and non-immigrant US families. *Sch Psychol Int* 2014;35:649–69.
- [19]. Schwartz S, Unger JB, Zamboanga B, et al. Rethinking the Concept of Acculturation. *Am Psychol* 2010;65:237–51. [PubMed: 20455618]

- [20]. Berry JW. Immigration, Acculturation, and Adaptation. *Appl Psychol* 1997;46:5–68.
- [21]. Marks AK, Ejesi K, Garcia Coll C. Understanding the U. S. Immigrant Paradox in Childhood and Adolescence. *Child Dev Perspect* 2014;8:59–64.
- [22]. Harris K The health status and risk behavior of adolescents in immigrant families In: Hernandez D, editor. *Child. immigrants Heal. Adjust. public Assist*, Washington DC: National Academies Press; 1999, p. 286–347.
- [23]. Popkin BBM, Udry J. Adolescent obesity increases significantly in second and third generation US immigrants: the National Longitudinal Study of Adolescent Health. *J Nutr* 1998;701–6. [PubMed: 9521631]
- [24]. Akbulut-Yuksel M, Kugler A. Intergenerational persistence of health: Do immigrants get healthier as they remain in the U.S. for more generations? *Econ Hum Biol* 2016;23:136–48. [PubMed: 27644070]
- [25]. Appiah CA, Otoo GE, Steiner-Asiedu M. Preferred body size in urban Ghanaian women: implication on the overweight/obesity problem. *PanAfrican Med J* 2016;23:1–9.
- [26]. Swami V, Tovee MJ. Male physical attractiveness in Britain and Malaysia: A cross-cultural study. *Body Image* 2005;2:383–93. [PubMed: 18089203]
- [27]. Swami V, Tovee MJ. Female physical attractiveness in Britain and Malaysia: A cross-cultural study. *Body Image* 2005;2:115–28. [PubMed: 18089180]
- [28]. Treloar C, Porteous J, Hassan F, et al. The cross cultural context of obesity: an INCLEN multicentre collaborative study. *Health Place* 1999;5:279–86. [PubMed: 10984582]
- [29]. Swami V, Neto F, Tovee MJ, et al. Preferences for Female Body Weight and Shape in Three European Countries. *Eur Psychol* 2007;12:220–8.
- [30]. Ball K, Kenardy J. Body weight, body image, and eating behaviours: Relationships with ethnicity and acculturation in a community sample of young Australian women. *Eat Behav* 2002;3:205–16. [PubMed: 15000999]
- [31]. Rodrigues M Do Hispanic Girls Develop Eating Disorders? A Critical Review of the Literature. *Hisp Heal Care Int* 2017;15:189–96.
- [32]. Shekrladze DE, Javakhishvili N, Jones R, et al. Is cultural change associated with eating disorders? A systematic review of the literature. *Eat Weight Disord* 2015;20:149–60. [PubMed: 25894606]
- [33]. Gordon-Larsen P, Harris K, Ward D, et al. Acculturation and overweight-related behaviors among Hispanic immigrants to the US: The National Longitudinal Study of Adolescent Health. *Soc Sci Med* 2003;57:2023–34. [PubMed: 14512234]
- [34]. Reddy SD, Crowther JH. Teasing, Acculturation, and Cultural Conflict: Psychosocial Correlates of Body Image and Eating Attitudes Among South Asian Women. *Cult Divers Ethn Minor Psychol* 2007;13:45–53.
- [35]. Gordon K, Castro Y, Sitnikov L, et al. Cultural body shape ideals and eating disorder symptoms among White, Latina, and Black college women. *Cultur Divers Ethnic Minor Psychol* 2010;16:135–43. [PubMed: 20438151]
- [36]. Minnesota State Demographic Center. Age, Race, & Ethnicity. Available at: <https://mn.gov/admin/demography/data-by-topic/age-race-ethnicity/>. Accessed March 6, 2018.
- [37]. American Fact Finder. Available at: <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>. Accessed November 15, 2018.
- [38]. Minnesota Historical Society. Hmong in Minnesota. Available at: <http://www.mnhs.org/hmong>. Accessed November 15, 2018.
- [39]. Ngo G, Lee S. Complicating the Image of Model Minority Success: A Review of Southeast Asian American Education. *Rev Educ Res* 2007;77:415–53.
- [40]. American Fact Finder. Selected Population Profile in the United States. Available at: https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_1YR_S0201&prodType=table. Accessed December 12, 2018.
- [41]. Putman B, Noor C. The Somalis: Their History and Culture. CAL Refugee Fact Sheet Series Washington DC: 1993.

- [42]. Neumark-Sztainer D, Wall MM, Larson N, et al. Secular trends in weight status and weight-related attitudes and behaviors in adolescents from 1999 to 2010. *Prev Med (Baltim)* 2012;54:77–81.
- [43]. Lampard AM, Maclehose RF, Eisenberg ME, et al. Weight-Related Teasing in the School Environment: Associations with Psychosocial Health and Weight Control Practices Among Adolescent Boys and Girls. *J Youth Adolesc* 2014.
- [44]. Neumark-Sztainer D, Story M, Perry C, et al. Factors influencing food choices of adolescents: findings from focus-group discussions with adolescents. *J Am Diet Assoc* 1999;99:929–37. [PubMed: 10450307]
- [45]. Bandura A *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall; 1986.
- [46]. Sallis JF, Owen N, Fisher E. Ecological models of health behavior In: Glanz K, Rimer B, Viswanath K, editors. *Heal. Behav. Heal. Educ. Theory, Res. Pract* 4th ed., San Francisco, CA: Josey-Bass; 2008, p. 465–85.
- [47]. Pingitore R, Spring B, Garfield D. Gender differences in body satisfaction. *Obes Res* 1997;5:402–9. [PubMed: 9385613]
- [48]. Rosenberg M *Society and the Adolescent Self Image*. Princeton, NJ: Princeton University Press; 1965.
- [49]. Kandel D, Davies M. Epidemiology of depressive mood in adolescents. *Arch Gen Psychiatry* 1982;39:1205–12. [PubMed: 7125850]
- [50]. Harris K, CT H, Whitsel J, et al. The National Longitudinal Study of Adolescent to Adult Health: Research Design. Available at: www.cpc.unc.edu/projects/addhealth/design.
- [51]. Lee S, Neill AHO, Ihara ES, et al. Change in Self-Reported Health Status among Immigrants in the United States: Associations with Measures of Acculturation. *PLoS One* 2013;8.
- [52]. Bharmal N, Hays RD, McCarthy WJ. Validity of Temporal Measures as Proxies for Measuring Acculturation in Asian Indian Survey Respondents. *J Immigr Minor Heal* 2014;16:889–97.
- [53]. Yu SM, Huang Z, Schwalberg R, et al. Association of Language Spoken at Home with Health and School Issues Among Asian American Adolescents. *J Sch Health* 2002;72:192–8. [PubMed: 12109174]
- [54]. Wallace PM, Pomery EA, Latimer AE, et al. A Review of Acculturation Measures and Their Utility in Studies Promoting Latino Health. *Hisp J Behav Sci* 2010;32:37–54. [PubMed: 20582238]
- [55]. Lumley T, Diehrs P, Emerson S, et al. The importance of normality assumption in large public health data sets. *Annu Rev Public Heal* 2002;23.
- [56]. Resnick MD, Bearman PS, Blum RW, et al. Protecting Adolescents from Harm: Findings from the National Longitudinal Study on Adolescent Health. *JAMA* 1997;278:823–32. [PubMed: 9293990]
- [57]. Kast NR, Eisenberg ME, Sieving RE. The Role of Parent Communication and Connectedness in Dating Violence Victimization among Latino Adolescents. *J Interpers Violence* 2015;31.
- [58]. Sieving RE, McRee A, McMorris BJ, et al. Youth-adult connectedness: A key protective factor for adolescent health. *Am J Prev Med* 2017;52:S275–8. [PubMed: 28215380]
- [59]. Wilhelm AK, McRee AL, Bonilla ZE, et al. Mental health in Somali youth in the United States: the role of protective factors in preventing depressive symptoms, suicidality, and self-injury. *Ethn Heal* 2018;1–24.
- [60]. Neumark-Sztainer D, Larson NI, Fulkerson JA, et al. Family meals and adolescents: What have we learned from Project EAT (Eating Among Teens)? *Public Health Nutr* 2010;13.
- [61]. Loth KA, Fulkerson JA, Neumark-Sztainer D. Food-related parenting practices and child and adolescent weight and weight-related behaviors. *Clin Pract* 2014;11:207–20.
- [62]. Neumark-Sztainer D, Bauer KW, Friend S, et al. Family weight talk and dieting: How much do they matter for body dissatisfaction and disordered eating behaviors in adolescent girls? *J Adolesc Heal* 2010;47:270–6.
- [63]. Berge JM, MacLehose R, Loth KA, et al. Parent conversations about healthful eating and weight associations with adolescent disordered eating behaviors. *JAMA Pediatr* 2013;167.

- [64]. Eisenberg ME, Berge JM, Neumark-Sztainer D. Dieting and encouragement to diet by significant others: Associations with disordered eating in young adults. *Am J Heal Promot* 2013;27.
- [65]. Fulkerson JA, McGuire MT, Neumark-Sztainer D, et al. Weight-related attitudes and behaviors of adolescent boys and girls who are encouraged to diet by their mothers. *Int J Obes Relat Metab Disord* 2002;26:1579–87. [PubMed: 12461674]
- [66]. Trofholz AC, Thao MS, Donley M, et al. Family meals then and now: A qualitative investigation of intergenerational transmission of family meal practices in a racially/ethnically diverse and immigrant population. *Appetite* 2018;121:163–72. [PubMed: 29128396]
- [67]. Romo LF, Mireles-Rios R. Latina immigrant mother–daughter communication about their body self-esteem and weight dissatisfaction: An exploratory video-observational study. *J Lat Psychol* 2016;4:18–31.
- [68]. Lopez MH, Gonzalez-Barrera A Krogstad J More Latinos Have Serious Concerns About Their Place in America Under Trump. 2018.
- [69]. Knierim SD, Rahm AK, Haemer M, et al. Latino Parents ' Perceptions of Weight Terminology Used in Pediatric Weight Counseling. *Acad Pediatr* 2015;15:210–7. [PubMed: 25536907]

Highlights

- Family weight-teasing was common among Latino, Hmong and Somali adolescents
- Teasing was associated with poorer well-being among youth from all ethnic groups
- Associations were similar in all ethnic groups, suggesting no immigrant advantage

Table 1:

Characteristics of the sample, N=1577

	Total		Boys		Girls	
	n	%	N	%	n	%
Group						
Latinx	471	29.9	216	28.2	255	31.4
Hmong	480	30.4	218	28.5	262	32.3
Somali	114	7.2	60	7.8	54	6.7
White	512	32.5	272	35.5	240	29.6
Ever teased about weight by family						
No	1148	74.0	587	78.2	561	70.0
Yes	404	26.0	164	21.8	240	30.0
Unhealthy weight control behaviors	733	46.7	305	40.0	428	53.0
	Mean	SD	Mean	SD	Mean	SD
Body satisfaction (13–65)	42.0	12.7	43.3	12.7	40.7	12.6
Self esteem (6–24)	17.4	3.5	18.0	3.3	16.9	3.5
Depressive symptoms (10–30)	17.3	5.0	16.0	4.6	18.4	5.1
Acculturation score (0–6)*	3.8	1.8	3.8	1.8	3.8	1.8
BMI (13.6–44.9)	23.6	5.5	23.7	5.5	23.4	5.4

* excluding white students

Table 2:

Bivariate associations between ethnic group and family teasing, and well-being

	Boys					Girls				
	Latino	Hmong	Somali	White		Latina	Hmong	Somali	White	
	%	%	%	%		%	%	%	%	
Teased about weight by family	17.7 ^b	35.6 ^a	12.1 ^b	16.0 ^b	F=12.1, p<.001	28.1 ^b	42.9 ^a	28.6 ^{bc}	18.3 ^c	F=12.7, p<.001
Unhealthy weight control behaviors	40.0 ^b	51.4 ^a	59.3 ^a	26.6 ^c	F=14.5, p<.001	47.6 ^b	66.4 ^a	64.2 ^a	41.4 ^b	F=13.0, p<.001
	Mean	Mean	Mean	Mean		Mean	Mean	Mean	Mean	
Body satisfaction (13–65)	43.1 ^b	38.1 ^a	46.0 ^{bc}	47.0 ^c	F=22.1, p<.001	41.0 ^b	37.9 ^a	43.2 ^b	43.0 ^b	F=7.9, p<.001
Self esteem (6–24)	18.3 ^b	16.3 ^a	18.1 ^b	19.0 ^c	F=30.3, p<.001	17.3 ^b	15.9 ^a	18.6 ^c	17.2 ^b	F=12.7, p<.001
Depressive symptoms (10–30)	16.0 ^a	16.5 ^a	14.4 ^b	16.0 ^a	F=3.2, p=.024	18.2 ^{ab}	18.8 ^a	16.7 ^b	18.5 ^a	F=2.4, p=.066
Acculturation score (0–6)	3.6 ^b	4.5 ^a	2.0 ^c	--	F=56.0, p<.001	3.6 ^b	4.3 ^a	2.3 ^c	--	F=35.1, p<.001
BMI (13.6–44.9)	24.6 ^a	24.9 ^a	21.8 ^b	22.5 ^b	12.6, p<.001	24.4 ^b	22.9 ^a	23.6 ^{ab}	22.9 ^a	4.6, p=.003

^a: within gender and outcomes, cells that share a superscript do not differ at p<.05.^b: within gender and outcomes, cells that share a superscript do not differ at p<.05.^c: within gender and outcomes, cells that share a superscript do not differ at p<.05.

Table 3:

Adjusted predicted prevalence of unhealthy weight control behaviors and least square means of emotional well-being by teasing by family among adolescents in four ethnic groups (adjusted for BMI)

Unhealthy weight control behaviors (%)								
	Boys				Girls			
	No	Yes	Difference *	p- value [^]	No	Yes	Difference *	p- value [^]
Teased about weight by family	39.7%	62.0%	22.3	<.001	50.4%	70.2%	19.8	<.001
Ethnic groups				.008				<.001
Latinx	32.3%	60.1%	27.9		40.1%	57.9%	17.7	
Hmong	38.9%	67.7%	28.8		61.2%	75.2%	13.9	
Somali	63.7%	64.9%	1.3		61.9%	85.0%	23.1	
White	23.9%	55.1%	31.2		38.3%	62.8%	24.5	
Body satisfaction (mean)								
	Boys				Girls			
	No	Yes	Difference *	p- value [^]	No	Yes	Difference *	p- value [^]
Teased about weight by family	44.4	39.6	-4.8	<.001	42.1	38.3	-3.8	.001
Ethnic groups				<.001				.001
Latinx	44.4	41.3	-3.1		42.8	39.5	-3.3	
Hmong	40.4	36.0	-4.4		38.7	36.0	-2.7	
Somali	46.1	38.1	-8.1		43.3	41.5	-1.8	
White	46.8	42.9	-3.9		43.5	38.0	-5.5	
Self esteem (mean)								
	Boys				Girls			
	No	Yes	Difference *	p- value [^]	No	Yes	Difference *	p- value [^]
Teased about weight by family	18.2	16.7	-1.5	<.001	17.8	15.9	-1.9	<.001
Ethnic groups				<.001				<.001
Latinx	18.6	17.5	-1.1		17.7	16.4	-1.2	
Hmong	16.8	15.6	-1.3		16.5	15.1	-1.5	
Somali	18.1	16.8	-1.4		19.3	16.9	-2.4	
White	19.2	17.2	-2.0		17.6	15.3	-2.3	
Depressive symptoms (mean)								
	Boys				Girls			
	No	Yes	Difference *	p- value [^]	No	Yes	Difference *	p- value [^]
Teased about weight by family	15.4	17.2	1.8	<.001	17.1	20.4	3.2	<.001
Ethnic groups				.031				.099
Latinx	15.6	17.1	1.5		17.3	20.3	3.0	
Hmong	15.5	18.1	2.5		17.9	20.0	2.1	
Somali	14.7	14.6	-0.1		15.4	20.0	4.6	

White	15.6	19.1	3.5	18.0	21.4	3.5
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* prevalence difference between those who have and have not been teased about weight by family

^ p-value for main effect

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