



Weight Concerns in African American Youth: The Role of Gender and Sociocultural Factors

Adenique Lisse, McNair Scholar, The Pennsylvania State University

McNair Faculty Research Adviser: Susan McHale, Ph. D
Distinguished Professor of Human Development and Family Studies
Professor of Demography
Director, Social Science Research Institute
Associate Director, Penn State Clinical and Translational Science Institute
Department Human Development and Family Studies
College of Health and Human Development
The Pennsylvania State University

The larger study from which data for this paper were drawn was funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development, R01-HD32336, Susan McHale and Ann Crouter, Co-PIs. Thanks to Anna Hochgraf for her help with the analyses, the graduate and undergraduate students and staff who were involved in data collection and the participating families for their time and help.

Abstract

Weight concerns are common among adolescents, especially girls, and have been linked to a plethora of negative psychological and physical health outcomes. However, much of the research on weight concerns focuses on European American youth. Theory and prior research suggest that ethnic identity, racial socialization, and racial school composition can act as protective factors against the development of weight concerns in African American youth. Thus, the current study aimed to illuminate sociocultural factors that may have implications for the weight concerns of African American youth and examine the role of gender in these linkages. The participants were youth from 162 African American two parent, primarily working to middle class families. The sample was 47% female, and youth averaged 14.09 years of age ($SD = 2.09$) at Time 1. Youth and their parents were interviewed in their homes on two occasions spaced two years apart. Results revealed that youth and the sample had few weight concerns, although girls reported more concerns than boys, and levels of ethnic identity and racial socialization were moderate to high. Linear regressions showed that the sociocultural factors, ethnic identity, racial socialization, and school racial composition were not significant predictors of weight concerns.

Introduction

Weight concerns refer to individuals' fears of gaining weight, concerns about body weight and shape, emphasis on the importance of weight, as well as dieting behaviors (Killen et al., 1994). These concerns and related behaviors such as dieting, are most prevalent among adolescent girls. For example, in one sample of adolescent girls aged 12-18, 25% to 40% reported that they felt fat and were dieting; even among older adolescent girls, up to 60% perceived themselves as overweight even when they were of normal weight (Kaltiala-Heino, Kautiainen, Virtanen, Rimpela & Rimpela, 2003). Research shows that as women age (30+), they place less of an emphasis on their body's appearance, which results in greater acceptance of age-related body changes and is protective of their self-esteem (Tiggemann, 2004). Although girls are more likely to be affected by weight concerns, boys are also affected: One study of adolescents at 15 years old found that 34% of girls and 21% of boys reported concerns (Micali, Ploubidis, De Stavola, Simonoff, & Treasure, 2014). Beyond studying their prevalence, it is imperative to address youths' weight concerns due to their detrimental effects: Weight concerns are an important factor in the development of disordered eating and are linked to depressive symptoms, lower self-esteem, and risky behavior (Killen et al., 1996; McHale, Corneal, Crouter, & Birch, 2001; Hochgraf, McHale, & Fosco, 2018). Further, body dissatisfaction, a closely related construct that is defined as a negative subjective evaluation of the weight and shape of one's own body, is linked to bulimic symptomatology (Joseph & Shiffrar, 2011; Stice, Nemeroff, & Shaw, 1996).

In order to address youth weight concerns, a key step is to examine the role of socialization influences. Prior research highlights the roles of parents, peers and the media as contributors to the development of body dissatisfaction (Smolak, 2004). The Tripartite Influence model suggests that "environmental influences, such as family, peers and media, affect eating and weight-related behaviors" (Van Den Berg, Thompson, Obremski-Brandon, & Coover, 2002, p. 1017). Parents, for example, may explicitly socialize their daughters about body size, shape, weight and health overall. One study that followed European American youth across a 7-year period found, for example that, in years when mothers reported less acceptance of and fathers reported more conflict with their adolescents than usual, adolescents reported more weight concerns than usual, and fathers' weight concerns were linked to the adolescent's weight concerns overall (Lam & McHale, 2012). Such findings highlight that both mothers and fathers may play a role in their youths' weight concerns. Importantly, Ogle and colleagues showed through interview data that the strategies White mothers used to socialize their daughters about weight were influenced by their perceptions of (potentially damaging) sociocultural messages and by their own ideas about health (Ogle, Reddy-Best, & Park, 2017). In another study of predominantly White adolescents, girls' perceptions of their peers' desire for thinness as well as their consumption of social media that emphasized appearance predicted higher levels of body dissatisfaction and their own desire for thinness (Dohnt & Tiggemann, 2006).

These findings are consistent with an ecological framework, which highlights the role of person characteristics, social processes, and the larger context in human development (Rosa & Tudge, 2013). Grounded in this framework, the current study builds on prior research on weight concerns in adolescence, which has focused primarily on European American youth, to examine weight concerns among African American youth. In general, research on youth development and adjustment does not take into account the distinctive strengths and competencies in children of color and the protective factors in their environments that may shape their experiences and outcomes (Coll et al., 1996). An ethnic homogenous design is imperative to examine variability

among African American youth and the sociocultural experiences that may explain differences within this group. Thus, this study examined sociocultural factors that may have implications for the weight concerns of African American youth. Specifically, this study addressed two questions: (1) What are the links between ethnic identity, racial socialization and school racial composition and African American youth's weight concerns? and (2) Does gender moderate these linkages? I expected to find that stronger ethnic identity, more racial socialization and attending a school with a higher proportion of Black students would be linked to fewer weight concerns. Further, I predicted that gender would moderate these associations, such that the effects of these sociocultural factors would be stronger—or more protective—for girls given that they are at higher risk of weight concerns than boys.

The Role of Ethnic Identity

Ethnic identity refers to “the part of an individual's self-concept which derives from his [sic] knowledge of his [sic] membership of a social group (or groups) together with the value and emotional significance attached to that membership,” (Phinney & Ong, 2007, p. 271). A small body of research suggests that African American young women who had stronger ethnic identities scored higher on measures of psychological well-being, including in the domains of state anxiety, depression and psychological distress (Rakhkovskaya & Warren, 2014; Williams, Chapman, Wong, & Turkheimer, 2012). Relevant to the current investigation, a cross sectional study of African American youth revealed that those with stronger ethnic identities were less likely to internalize U.S. societal ideals regarding attractiveness and beauty—including the ideal of thinness (Wood & Petrie, 2010). One cross-sectional study of African American college-aged women also showed that ethnic identity was a significant predictor of eating and weight concerns, serving as a protective factor against negative eating habits and weight concerns (Rakhkovskaya & Warren, 2014).

The Role of Racial Socialization

Research on racial socialization aims “to understand how African American parents maintain children's high self-esteem and prepare them to understand racial barriers given systems of racial stratification in the US,” (Hughes et al., 2006, p. 748). Racial socialization is multi-dimensional and includes practices pertaining to cultural socialization, preparation for bias, promotion of mistrust, and egalitarianism and silence about race (Hughes et al., 2006). In the current study, I focused on the role of cultural socialization, which refers to parents' promoting and teaching their child practices and cultural customs and pride in their cultural heritage and history (Hughes et al., 2006). Cultural socialization may be important for African American youth's weight concerns because parents' efforts to socialize their children to embrace their culture and promote their pride in being Black may lessen the effects of larger societal messages about the value of thinness. In order to foster a strong connection to culture in their children, parents may teach children about their cultural history and heritage including through stories about Black history, taking their children to Black cultural events, celebrating Black history, and providing role models as well as by financial support for clothing and hairstyling that are stereotypically Black (Hughes & Chen, 1997). In addition, prior work shows that Afrocentric cultural orientations, which refer to the “extent to which one embraces mainstream culture and his or her ethnic culture's worldview,” are protective and can promote positive social, behavioral and psychological well-being, including high self-esteem in African American youth (Grills et al., 2015, p. 345).

In turn, high self-esteem may be protective against developing a negative body image and corresponding weight concerns. Although empirical research on the links between racial socialization and weight concerns is very limited, one study showed that family racial socialization and higher prevalence of African Americans in the neighborhood appeared to reduce some of the negative psychological effects of being overweight (Granberg, Simons, & Simons, 2009).

The Role of School Composition

Perpetuation theory directs attention to “analysis of experiences in racial contexts during youth which leads people into similar racial contexts across institutions...” (Goldsmith, 2016, p. 3). In one study, perpetuation theory was applied to explain findings that girls who attended the same school had similar levels of physical activity regardless of race/ethnicity, whereas black and Hispanic girls who attended more racially segregated schools exhibited lower levels of physical activity (Richmond, Hayward, Gahagan, Field, & Heisler, 2006). In this study, I applied perpetuation theory in the context of weight concerns, testing whether the weight concerns of Black youth are higher when they attend schools with higher proportions of White relative to Black students.

The latter hypothesis, that African American youth will report more weight concerns when they attend schools with more White students, also is consistent with social learning theory, which holds that individuals model behaviors they observe in their social contexts (Grusec, 1992). Clark and Tiggemann (2006), for example, found that adolescents were influenced by their peers when it came to weight loss behaviors and body dissatisfaction. To the extent that White youth generally experience more weight concerns than Black youth, from a social learning perspective, I also expected that African American youth who attended schools with proportionally more White students would be more likely to internalize a standard of beauty consistent with a Eurocentric norm. In contrast, those in schools with proportionally more Black students would be protected from norms that stress thinness as central to beauty and thus report fewer weight concerns. In this way, the school context, specifically school racial composition, may shape the extent of African American youth’s weight concerns.

The Role of Gender

Research on weight concerns has commonly found gender differences, with girls and boys showing different levels and patterns of change in weight concerns. In one study of a White sample, girls’ weight concerns increased from early to late adolescence and then leveled off; while boys’ weight concerns were fewer and remained relatively unchanged (Lam & McHale, 2012). Using the same sample, another study showed that, although weight concerns predicted self-esteem for both boys and girls aged 11-18, boys’ weight concerns were significantly lower and boys’ self-esteem was higher compared to girls. (Hochgraf, McHale, & Fosco, 2018). Finally, in a study of majority White adolescents aged 13-19, females reported having more pressures from family, friends and media to lose weight, while males reported having more pressures to gain weight. This pattern resulted in males being more concerned with increasing upper body size and females being more concerned with decreasing overall body size (Ata, Ludden, & Lally, 2007). Thus, in the study I expected to find that girls would have more weight concerns than boys, and given that girls are more at risk than boys, that sociocultural factors would be more protective for girls than for boys.

Method

Participants

The data came from parents and youth in 162 two-parent families who self-identified as Black/African American; each family included fathers, mothers, and at least two adolescent-aged offspring, who participated in a short-term longitudinal study of gender socialization and development (McHale, Crouter, Kim, Burton, Davis, Dotterer, & Swanson, 2006). In this study, I focused on older siblings, from whom weight concern data were collected.

The sample for the study was generated from two mid-Atlantic urban centers that had dense African American populations; within the recruitment area, 38% of the households included married African American parents with at least one child between the ages of 6 and 17 years. Two recruitment strategies were used. First, African Americans who lived in the targeted communities were hired to recruit families by posting flyers in local businesses, providing information on the study to local churches and other organizations, and distributing flyers at youth activities. Families who wanted to be a part of the study then contacted the recruiters and their names were passed on to the project office. Approximately half of the sample was recruited through this process. A second method of recruitment was through purchasing a marketing firm list that included names and addresses of African American students in grades 4-7 who lived in the recruitment area. Letters were sent to families describing the study and including a number to call and a postcard to return to the project office if the family fit the study criteria and wanted to participate.

The background characteristics of the participants in the sample can be found in Table 1. The families were typically working and middle class based on the family's income and parents' education. In the sample, 47% of the youth were female and the average child was age 14.09 ($SD= 2.09$). Most parents were employed (98% of both mothers and fathers), with mothers working an average of 33.48 hrs/week ($SD= 17.46$) and fathers working on average 44.22 hrs ($SD= 18.00$). Although the average family income in the sample was almost \$90,000 ($SD = 55,880$), incomes ranged from \$3,500 - \$525,000. School data from the sample highlighted the diverse school composition of the schools that youth attended, which ranged 0.01-1.0; the average youth in the sample attended a school in which about 55% of the students were African American.

Procedures

For the current study, the participants- mothers, fathers, and youth- were interviewed at home at annual intervals by two interviewers, almost all of whom were African American. In this study I used data from Phases 1 and 3 (hereafter referred to as Times 1 and 2) when data on weight concerns were collected.

The participants were given a brief description of the study and a review of informed consent procedures at the start of the visit. Then, the family members were interviewed individually. A variety of procedures including card sorts, response cards, and questionnaires were implemented in order to maintain interests in the study; for youth under the age of 13 and family members with reading difficulties, all questions were presented orally. Interviews lasted about two hours for parents and about one hour for youth. For almost all measures of the study, family members reported on their experiences during the past year. After all interviews were completed, family members received a \$200 honorarium. The study was approved by the Institutional Review Board of the university.

Although families previously self-identified as Black or African American in the recruitment process, they were again asked whether they preferred to refer to themselves as Black or African American during the beginning of the interview. Their response during the interview, determined the way in which their race/ethnicity would be referred to during the remainder of the interview. Youth who did not living with two biological parents were also asked to state how they wished to refer to their parent figure(s), and this response also determined the way they would be referred to for the remainder of the interview.

Measures

Weight concerns was assessed with a 6-item measure, the Stanford Weight Concerns Scale, developed by Killen et al. (1996), which assessed adolescents' worries about body dissatisfaction, body shape and weight. Example items are, "How afraid are you of gaining three pounds?" and "When was the last time you went on a diet to lose weight?" Responses for each item were rescaled to a 6-point scale and summed, with higher scores meaning higher levels of weight concerns. Killen and colleagues reported a high level of cross-time stability ($r = 0.75, p < 0.01$). For this sample, the standardized Cronbach's alpha for older girls was 0.77 and 0.78 for older boys.

Youth ethnic identity was assessed using the Multigroup ethnic Identity Measure (Phinney, 1992). Example items are, "I feel a strong attachment towards my ethnic group," "I have a lot of pride in my ethnic group," and "In order to learn more about my ethnic background, I have often talked to other people about my ethnic group." For each of the 10 items, youth used a 4-point scale, with 1 being *strongly disagree* and 4 being *strongly agree*, to rate how well the item described them over the past year. This measure has shown good internal reliability, with a standardized Cronbach alpha for the sample of 0.82

Racial socialization was assessed using the cultural socialization subscale from a measure developed by Hughes and Chen (1997). An example item is, "I've read or provided Black history books to my child." For each of 5-items, mothers and fathers separately reported on their behavior using a 6-point rating scale that ranged from 1 = *never* to 6 = *very often*. Standardized Cronbach's alpha was 0.81 for mother reports and 0.86 for father reports.

School composition was obtained from the National Center for Education Statistics (Skinner, McHale, Wood, & Telfer, 2018) for the years during which youth attended the school. As noted, the proportion of students in the youths' schools who were African American ranged from 0.01-1.00 ($M = 0.55, SD = 0.35$).

Covariates. The variables youth age, family income, parent level of education, and youth gender were reported by parents. Youth gender was coded with 1= female and 2= male. Parent education level was coded with 12= high-school graduate/high-school equivalent (GED), 13= high-school plus vocational, technical, or job training, 14= some college, but no degree, 15= associate degree, 16= college degree, 17= some post college, but no advanced degree, 18= master's degree, 19= professional degree, and 20= Ph.D./doctorate.

Analyses

A series of linear regression models was conducted to address the study aims. Predictors were entered in steps. First, control variables (i.e., Time 1 weight concerns, youth age, family income, parent level of education, and gender) were entered into a model predicting Time 2 weight concerns. Control variables that were not statistically significant at this step were dropped to improve model parsimony.

Next, to test Hypothesis 1, separate main effects models were run for ethnic identity, racial socialization, and school composition, controlling for key covariates identified in Step 1. Finally, to test Hypothesis 2, two-way interactions with gender were added to main effects models. All analyses were completed in SAS version 9.4.

Results

Beginning with descriptive data (see Table 2), weight concerns were low on average and scores for ethnic identity and racial socialization were moderate to high. School composition was highly variable. In terms of the correlations between variables (see Table 3), weight concerns were highly stable over time, but other variables were generally uncorrelated. Beyond the correlation between Time 1 and Time 2 weight concerns, youth ethnic identity was correlated with mothers' racial socialization, mothers' racial socialization was correlated with fathers' racial socialization, school composition was correlated with mothers' racial socialization, youth age at Time 2 was correlated with ethnic identity, and family income was correlated with both mothers' and fathers' racial socialization.

Turning to the regression analyses (Table 4), in the first step (test of the control variables), gender was significant, with girls reporting more weight concerns than boys, consistent with prior research. Further, as noted, weight concerns at Time 1 was a strong predictor of weight concerns at Time 2. Neither age nor family income were significant control variables, however, so these were removed. In the second step, the tests of Hypothesis 1, results revealed that the variables, ethnic identity, racial socialization and school composition were not significant predictors of weight concerns in this sample. Finally, in step 3, the tests of gender moderation, no significant interactions emerged.

Discussion

Weight concerns are prevalent in adolescence but we know little about those of African American youth. The aims of this study were to assess the longitudinal associations between the sociocultural factors, ethnic identity, racial socialization, and school racial composition, and the weight concerns of African American youth and to test gender as a moderation of these linkages. I predicted that ethnic identity, racial socialization and school racial composition would be protective against African American youth developing weight concerns and that gender would moderate these effects such that the sociocultural factors would be more protective for girls than boys given that girls are at higher risk of developing weight concerns. The sociocultural factors were not significant predictors of weight concerns in this African American youth sample. However, as expected, adolescent girls did have slightly stronger weight concerns than boys.

The lack of significant results in the study may be explained by the low levels of weight concerns in the sample. The average for weight concerns at Time 1 was only 13.19 and at Time 2 was 12.74 on a scale with a possible range of 6.00 to 36.00, suggesting that most youth reported no or minimal weight concerns. The youth in this current study also had moderately high levels of the hypothesized protective factors, ethnic identity and racial socialization (i.e., above the midpoints of these scales). These low levels of weight concerns in this sample are consistent with the idea that African American youth may be protected from developing weight concerns. However, the low levels of weight concerns and relatively high levels of protective factors in combination with high stability of weight concerns over time, meant that there was limited variability remaining to explain differences among these youth's weight concerns.

Limitations of this study include the relatively small and homogeneous sample of African American youth, which may have limited variability in the measures of interest. Future research should include larger samples of youth, including youth from a broader range of ages. In addition, analyses did not take into account youth's actual weight, which may have been a factor in explaining variability in weight concerns. Additional future research directions include examining family factors, such as parent-youth relationships, to determine whether they have implications for African American youth's weight concerns.

Table 1
Background Statistics (N= 162 African American Families)

Variable	Mean	SD	Range
Family Income	\$87,483	\$55,880	\$3,000-\$525,000
Youth Gender¹	1.53	0.50	1.0-2.0
Age (Time 1)	14.09	2.09	9.89-22.48
Age (Time 2)	16.31	2.14	11.92-24.71
Mothers' Education²	14.56	1.84	9.0-19.0
Fathers' Education²	14.21	2.36	5.0-19.0

Note: ¹1 = female; 2 = male

²12= High-school graduate/High-school equivalent (GED); 13= High-school plus vocational, technical, or job training;

14= Some college, but no degree; 15= Associate Degree; 16= College degree; 17= Some post college, but no advanced degree

18= Master's Degree; 19= Professional degree; 20= Ph.D./Doctorate

Table 2
Descriptive Results for Study Measures (N= 162 African American Families)

Variable	Mean	SD	Range
Weight Concerns Time 1	13.19	6.34	6.0-31.87
Weight Concerns Time 2	12.74	6.46	6.0-34.75
Ethnic Identity	3.11	0.42	1.76-4.0
Mothers' Racial Socialization	21.19	5.44	5.0-30.0
Fathers' Racial Socialization	17.27	6.36	5.0-30.0

Table 3

Correlations between Study Variables (N=162 African American Families)

Variables	1	2	3	4	5	6	7	8	9	10
1. Weight concerns Time 1										
2. Weight Concerns Time 2	.54***									
3. Ethnic identity	.07	-.02								
4. Mother racial soc.	-.07	-.01	.23***							
5. Father racial soc.	-.07	-.09	.08	.30***						
6. School Comp.	-.02	-.08	-.09	-.18*	-.15					
7. Gender	-.18**	-.23***	.02	-.01	.01	.08				
8. Age 1	.04	.00	-.11	.04	-.03	-.20*	.03			
9. Age 2	.03	.02	-.11*	.03	-.05	-.19*	.04	.99***		
10. Family Income	.06	.03	-.09	.18**	.21**	-.24**	-.06	.05	.04	

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 4

Coefficients (β) and Standard Errors (SE) from Regression Analyses Predicting Youth Weight Concerns

	Step 1		Step 2		Step 3	
	β	SE	β	SE	β	SE
Intercept	7.75*	3.39	14.24***	4.19		
Weight concerns 1	0.50***	0.07	0.40***	0.08		
Youth Gender	-2.31**	0.87	-3.42***	1.02		
Youth Age	-0.05	0.22				
Family Income	0.00	0.00				
Ethnic Identity			-1.40	1.22		
Mothers' racial soc.			0.08	0.10		
Fathers' racial soc.			-0.12	0.08		
School composition			-0.96	1.40		
Ethnic Identity X Gender					-0.46	2.51
Mothers' Cultural Socialization X Gender					-0.02	0.20
Fathers' Cultural Socialization X Gender					0.15	0.16
School Composition X Gender					2.08	2.78

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

References

- Ata, R.N., Ludden, A.B., & Lally, M.M. (2007). The effects of gender and family, friend, and media influences on eating behaviors and body image during adolescence. *Journal of Youth and Adolescence*, 36(8), 1024-1037. <https://doi.org/10.1007/s10964-006-9159-x>.
- Clark, L., & Tiggemann, M. (2006). Appearance culture in nine to 12-year-old girls: Media and peer influences on body dissatisfaction. *Social Development*, 15(4), 628-643. <https://doi.org/10.1111/j.1467-9507.2006.00361.x>.
- Coll, C.G., Crnic, K., Lamberty, G., Wasik, B.H., Jenkins, R., Garcia, H.V., & McAdoo, H.P. (1996). An integrative model for the study of developmental competencies in minority children. *Child Development*, 67(5), 1891-1914. <https://doi.org/10.1111/j.1467-8624.1996.tb01834.x>.
- Dohnt, H. & Tiggemann, M. (2006). The contribution of peer and media influences to the development of body satisfaction and self-esteem in young girls: A prospective study. *Developmental Psychology*, 42(5), 929-936. <https://doi.org/10.1037/0012-1649.42.5.929>.
- Goldsmith, P.R. (2016). Perpetuation theory and the racial segregation of young adults. *Social Science Research*, 56, 1-15. <https://doi.org/10.1016/j.ssresearch.2015.11.004>.
- Granberg, E.M., Simons, L.G., & Simons, R.L. (2009). Body size and social self-image among adolescent African American girls: The moderating influence of family racial socialization. *Youth and Society*, 41(2), 256-277. <https://doi.org/10.1177/0044118X09338505>.
- Grills, C., Cooke, D., Douglas, J., Subica, A., Villanueva, S., & Hudson, B. (2015). Cultural, racial socialization, and positive African American youth development. *Journal of Black Psychology*, 42(4), 343-373. <https://doi.org/10.1177/0095798415578004>.
- Grusec, J.E. (1992). Social learning theory and developmental psychology: The legacies of Robert Sears and Albert Bandura. *Developmental Psychology*, 28(5), 776-786. <https://doi.org/10.1037/0012-1649.28.5.776>.
- Hochgraf, A.K., McHale, S.M., & Fosco, G.M. (2018). Parent responsiveness and gender moderate bidirectional links between self-esteem and weight concerns during adolescence. *Journal of Family Psychology*, 32(6), 828-834. <https://doi.org/10.1037/fam0000434>.
- Hughes, D., & Chen, L. (1997). When and what parents tell children about race: An examination of race-related socialization among African American families. *Applied Developmental Science*, 1(4), 200-214. https://doi.org/10.1207/s1532480xads0104_4.
- Hughes, D., Rodriguez, J., Smith, E.P., Johnson, D.J., Stevenson, H.C., & Spicer, P. (2006). Parents' ethnic-racial socialization practices: A review of research and directions for future study. *Developmental Psychology*, 42(5), 747-770. <https://doi.org/10.1037/0012-1649.42.5.747>.
- Joseph, C. & Shiffrar, M (2011). Do observers' negative self-evaluations of their own bodies mediate their visual attention towards other bodies? <http://nwkpsych.rutgers.edu/roar/EatingDisorders.html>
- Kaltiala-Heino, R., Kautianinen, S., Virtanen, S.M., Rimpela, A., & Rimpela, M. (2003). Has the adolescents' weight concern increased over 20 years? *European Journal of Public Health*, 13(1), 4-10. <https://doi-org.ezaccess.libraries.psu.edu/10.1093/eurpub/13.1.4>.
- Killen, J.D. et al. (1994). Pursuit of thinness and onset of eating disorder symptoms in a community sample of adolescent girls: A three-year prospective analysis. *International Journal of Eating Disorders*, 16(3), 227-238. [https://doi.org/10.1002/1098-108X\(199411\)16:3<227::AID-EAT2260160303>3.0.CO;2-L](https://doi.org/10.1002/1098-108X(199411)16:3<227::AID-EAT2260160303>3.0.CO;2-L).

- Killen, J.D. et al. (1996). Weight concerns influence the development of eating disorders: A 4-year prospective study. *Journal of Consulting and Clinical Psychology, 64*(5), 936-940. <https://dx.doi.org/10.1037/0022-006x.64.5.936>.
- Lam, C.B., & McHale, S.M. (2012). Developmental patterns and family predictors of adolescent weight concerns: A replication and extension. *International Journal of Eating Disorders, 45*(4), 524-530. <https://doi-org.ezaccess.libraries.psu.edu/10.1002/eat.20974>.
- McHale, S.M., Corneal, D.A., Crouter, A.C., & Birch, L.L. (2001). Gender and weight concerns in early and middle adolescence: Links with well-being and family characteristics. *Journal of Clinical Child Psychology, 30*(3), 338-348. https://doi.org/10.1207/s15374424jccp3003_6
- McHale, S.M., Crouter, A.C., Kim, J., Burton, L.M., Davis, K.D., Dotterer, A.M., & Swanson, D.P. (2006). Mothers' and fathers' racial socialization in African American families: Implications for youth. *Child Development, 77*(5), 1387-1402. <https://doi.org/10.1111/j.1467-8624.2006.00942.x>.
- Micali, N., Ploubidid, G., De Stavola, B., Siminoff, E., & Treasure, J. (2014). Frequency and patterns of eating disorder symptoms in early adolescence. *Journal of Adolescent Health, 54*, 574-581. <https://dx.doi.org/10.1016/j.jadohealth.2013.10.200>.
- Miller, B., & Morris, R.G. (2014). Virtual peer effects in social learning theory. *Crime and Delinquency, 62*(12), 1543-1569. <https://doi.org/10.1177/0011128714526499>.
- Ogle, J.P., Reddy-Best, K., & Park, J. (2017). Socializing girls whose bodies may not align with contemporary ideals of thinness: An interpretive study of us mothers' accounts. *Body Image, 23*, 13-27. <https://doi.org/10.1016/j.bodyim.2017.07.006>.
- Phinney, J.S., & Ong, A.D. (2007). Conceptualization and measurement of ethnic identity: Current status and future directions. *Journal of Counseling Psychology, 54*(3), 271-281. <https://doi.org/10.1037/0022-0167.54.3.271>.
- Rakhkovskaya, L.M. & Warren, C.S. (2014). Ethnic identity, thin-ideal internalization, and eating pathology in ethnically diverse college women. *Body Image, 11*(4), 438-445. <https://doi.org/10.1016/j.bodyim.2014.07.003>.
- Richmond, T.K., Hayward, R.A., Gahagan, S., Field, A.E., & Heisler, M. (2006). Can school income and racial/ethnic composition explain the racial/ethnic disparity in adolescent physical activity participation? *Pediatrics, 117*(6), 2158-2166. <https://doi.org/10.1542/peds.2005-1920>.
- Rosa, E.M., & Tudge, J. (2013). Urie Bronfenbrenner's theory of human development: Its evolution from ecology to bioecology. *Journal of Family Theory and Review, 243-258*. <https://doi.org/10.1111/jftr.12022>.
- Skinner, O.D., McHale, S.M., Wood, D., & Telfer, N.A. (2018). Gender-typed personality qualities and African American youth's school functioning. *Journal of Youth and Adolescence, 48*(4), 680-691. <https://doi.org/10.1007/s10964-018-0919-1>.
- Smolak, L. (2004). Body image in children and adolescents: Where do we go from here? *Body Image, 1*(1), 15-28. [https://doi.org/10.1016/s1740-1445\(03\)00008-1](https://doi.org/10.1016/s1740-1445(03)00008-1).
- Stice, E., Nemeroff, C., & Shaw, H.E. (1996). Test of the dual pathway model of bulimia nervosa: Evidence for dietary restraint and affect regulation mechanisms. *Journal of Social and Clinical Psychology, 15*(3), 340-363. <https://dx.doi.org/10.1521/jscp.15.3.340>.
- Thogersen-Ntoumani, C., Yin Ng, J.Y., Ntoumanis, N., Chatzisarantis, N., Vlachopoulos, S., Katartzi, E.S., & Nikitaras, N. (2016). Mum's the word: Predictors and outcomes of weight concerns in pre-adolescent and early adolescent girls. *Body Image, 16*, 107-112. <https://doi.org/10.1016/j.bodyim.2015.12.004>.

- Tiggemann, M. (2004). Body image across the adult life span: stability and change. *Body Image, 1*(1), 29-41. [https://doi.org/10.1016/S1740-1445\(03\)00002-0](https://doi.org/10.1016/S1740-1445(03)00002-0).
- Van Den Berg, P., Thompson, K.J., Obremski-Brandon, K., & Coovert, M. (2002). The tripartite influence model of body image and eating disturbances: A covariance structure modeling investigation testing the mediational role of appearance comparison. *Journal of Psychosomatic Research, 53*(5), 1007-1020. [https://doi.org/10.1016/S0022-3999\(02\)00499-3](https://doi.org/10.1016/S0022-3999(02)00499-3).
- Williams, M.T., Chapman, L.K., Wong, J., & Turkheimer, E. (2012). The role of ethnic identity in symptoms of anxiety and depression in African Americans. *Psychiatry Research, 199*(1), 31-36. <https://doi.org/10.1016/j.psychres.2012.03.049>.
- Wood, N.A.R., & Petrie, T.A. (2010). Body dissatisfaction, ethnic identity, and disordered eating among African American women. *Journal of Counseling Psychology, 57*(2), 141-153. <https://doi.org/10.1037/a0018922>