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Sad and lonely: body dissatisfaction among adolescent girls

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Abstract:
Purpose: To further understand the association between body dissatisfaction and sadness/loneliness among adolescent girls, we examine how this association, as reported by pre-teen and adolescent girls, is mediated or moderated by the quality of peer and family relationships.
Methods: Our data are from the Health Behavior of School-Aged Children 2009–2010, a nationally representative survey of school-aged children in the US. We analyze a sample of 5658 girls in Grades 5 through 10. We utilize ordinary least squares (OLS) regression techniques and adjust for the complex sampling design. We explore how the link between body dissatisfaction and sadness/loneliness is mediated or moderated by family and peer relationships and also include controls for age, race, media exposure, and physical health.
Results: We find that body dissatisfaction is predictive of sadness/loneliness for girls at all grade levels and that the quality of peer and family relationships mediates 27%–38% of this association, particularly among early adolescent girls. Positive peer relationships also moderate or help mitigate the association between body dissatisfaction and sadness/loneliness among pre-teens.
Conclusion: Our findings underscore the association between body dissatisfaction and sadness/loneliness among early adolescent girls. In addition, our results highlight the importance of quality peer and family relationships in terms of how girls think about their bodies and respond emotionally to them. To evaluate feelings of sadness and loneliness among early adolescent girls, health care professionals need to consider not only body dissatisfaction but also the context of peer and family relationships.

Keywords: adolescent girls, body dissatisfaction, emotional well-being, parents, peers, sadness
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Introduction

Adolescence is a period of intense physical and emotional changes. For many young women, emotional well-being is linked to body dissatisfaction and the internalization of cultural expectations of thinness. Beginning in early adolescence, girls place much of their value and emotional health on personal appearance, rather than on other more controllable domains [1]. Studies report high levels of body dissatisfaction among adolescent girls in the US [2], along with increased loneliness, sadness, and depression during adolescence generally [3]. It is the link between girls' body dissatisfaction and sadness and loneliness that we explore beginning in late childhood and early adolescence.

Adolescent girls navigate an often confusing and complicated environment as they mature both physically and emotionally. As girls develop, they are challenged by conflicting messages about femininity and physical appearance [4]. Girls identify at a young age with the thin, sexualized body ideal that is often projected in the media and reinforced through social interaction [5]. Young girls develop appearance expectations in which weight perceptions and body image shape how they respond emotionally to their developing bodies [6], [7]. The modern obsession with beauty and the body leads to low levels of body satisfaction, particularly among women [8]. With the onset of puberty, female bodies move away from the culturally thin ideal; in contrast, their male counterparts during puberty gain muscle and more closely mirror the ideal body. Given these differences, as well as the greater emphasis on women's bodies in the media, it is not surprising that girls generally have lower body images and more negative body perceptions than boys [9]. Girls are more likely to engage in "fat talk", show greater sensitivity to body issues, and use more disparaging terms to describe their physical appearance

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than boys [10]. As girls transition from childhood into early and later adolescence, body dissatisfaction only seems to intensify [11], [12], [13].

Dissatisfaction with their physical appearance can negatively influence the emotional well-being of young girls as they seek social acceptance. Negative body image and body dissatisfaction increase the risk of depressive symptoms, including sadness and loneliness, among adolescent girls [14], [15], [16], [17]. Actual weight is less important to the emotional well-being of teen girls than are perceptions of weight and body image [6]. In particular, thinking that they are heavier than their actual weight increases depressive symptoms [6], [17]. The causal direction between body dissatisfaction and sadness/loneliness may well be reciprocal. Sadness or loneliness can lead to body dissatisfaction, which can in turn increase negative emotional well-being. In previous research using longitudinal data, body dissatisfaction predicted subsequent depressive symptoms after controlling for initial symptoms [16]. Past studies have found that depressive symptoms lead to weight gain or engaging in weight control behaviors [18], [19], but do not necessarily lead to body dissatisfaction among adolescent girls [20]. Thus, the evidence suggests that body dissatisfaction is predictive of depressive symptoms, more so than the other way around [16], [20].

For girls in particular, the development of body dissatisfaction begins during pre-adolescence. At as young as 6 years of age, girls demonstrate a preference for thinness and a sexualized appearance [5], [21]. The appearance culture can also be reinforced or buffered by family and peer relationships [22], [23]. Family relationships influence not only the weight of children but also their emotional well-being [24]. Maternal self-objectification or focus on weight loss can encourage negative body image in daughters [5], [25]. In some families, mothers in particular, give feedback to daughters to lose weight and adhere to the thinness ideal [22], [26]. Thus, parent and family relationships can have a moderating role if they influence how children and teens interpret their weight and how they react to it. The more negative feedback girls receive from parents and siblings about their appearance, the more body dissatisfaction and sadness/loneliness they are likely to experience [7]. However, parental support and influence can also reduce adolescent body dissatisfaction and promote emotional well-being [7], [27]. Mothers can promote healthy body image in their daughters by modeling positive body perceptions and healthy eating behaviors [5]. Family relationships can influence the link between body dissatisfaction and emotional well-being by either reinforcing negative body image or protecting against it.

Body dissatisfaction among women is also shaped by comparisons and competition with female peers [28]. Among young girls, weight control behavior is influenced by the body sizes and behaviors of their peers in school [29]. Even being able to form friendships is contingent upon body size and stigmatization against weight among high-school girls [30]. Peer victimization or bullying can also reinforce negative perceptions teens have of themselves and their bodies [14], [31]. The quality of family and peer relationships can mediate or moderate the relationship between body dissatisfaction and sadness/loneliness in adolescent girls. Family and peer relationships can play a mediating role if they account for some of the association between body dissatisfaction and emotional well-being [32]; they can play a moderating role if peer or family relationships buffer or enhance the association between body dissatisfaction and sadness/loneliness.

Other factors predictive of adolescent emotional well-being include demographic characteristics such as age, race, and health indicators. In terms of age, depressive symptoms are stronger in early compared to later adolescence [33], and decrease over time as teens transition into young adulthood [34]. Further, the relationship between body dissatisfaction and emotional well-being is influenced by race and ethnicity. Generally, African-American girls have higher body satisfaction relative to White teens, but minorities also are more susceptible to symptoms of sadness and loneliness [19], [35]. Studies of adolescent physical activity show that good physical health reduces the risk of depressive symptoms [36], [37].

To further understand the relationship between body dissatisfaction and sadness/loneliness among adolescent girls, we analyze a nationally representative sample of school-aged girls in Grades 5 through 10. We explore how the link between body dissatisfaction and sadness/loneliness is mediated or moderated by the quality of family and peer relationships. In addition, we include controls for age, race, media exposure, and physical health. Given that body dissatisfaction and sadness/loneliness are expected to vary by developmental level, we consider three stages: pre-teens (Grades 5 and 6), early adolescents (Grades 7 and 8), and mid-adolescents (Grades 9 and 10). We hypothesize that first, the association between body dissatisfaction and sadness/loneliness will intensify across developmental levels; second, we expect that the association will be mediated in part by peer and family relationships; and third, we hypothesize that the quality of peer and family relationships will moderate the relationship between body dissatisfaction and emotional well-being. In particular, we expect quality peer and family relationships to help mitigate the association between body dissatisfaction and sadness/loneliness.

Methods

Sample

Data for this study come from the survey of Health Behavior in School-Aged Children (HBSC), 2009–2010. The HBSC was collected by the US Department of Health and Human Services in collaboration with the World Health Organization. The HBSC is a nationally representative, stratified, school-based study that gathers a wide range of data on health behaviors, as well as school, family, and peer relationships of children in Grades 5 through 10. In compliance with the Institutional Review Board, we submitted a determination of research request and received approval for our project, given that we analyze public-use data that has been stripped of identifiers and is exempt.

Only female students were included in the analytic sample. There was between 4% and 8% of item-level missing data for the variables in the model. These missing data were addressed using three different methods. We estimated our models using listwise deletion, mean substitution, and multiple imputation. Given that the coefficients were very similar regardless of the method used, we present the listwise deletion results. The final sample includes 5658 girls. To examine differences among pre-teens, early adolescents, and mid-adolescents, we analyze data by grade level: pre-teens (Grades 5 and 6, n = 1591), early adolescents (Grades 7 and 8, n = 2170), and mid-adolescents (Grades 9 and 10, n = 1897). The sampling design, including weight, stratification, and clustering variables, was incorporated into all analyses making the results generalizable to school-aged females in the US in Grades 5 through 10.

Measures

Our dependent variable is an indicator of sadness/loneliness. Students were asked in separate questions: *Thinking about last week . . . have you felt sad?* And *have you felt lonely?* Response options were 1 = never, 2 = seldom, 3 = quite often, 4 = very often, and 5 = always. Student responses were averaged across the two questions to form a sadness/loneliness measure ranging from 1 = never to 5 = always (Cronbach's alpha = 0.751).

Body dissatisfaction is our primary independent variable and is based on agreement with the following six statements: *I am frustrated with my physical appearance, I am satisfied with my appearance, I hate my body, I feel comfortable with my body, I feel anger toward my body*, and *I like my appearance in spite of its imperfections.* Positive statements were reverse-coded and responses were averaged to create a body dissatisfaction measure ranging from 1 = strongly disagree to 5 = strongly agree (Cronbach's alpha = 0.876). High numbers represent greater body dissatisfaction.

The HBSC measures only the quantity of media exposure in terms of video games, computer use, and television viewing. The average daily hours usually spent playing video games, using the computer, and watching TV (ranging from 0 to 7 or more hours a day) were asked separately. Responses to these questions were totaled across the three media types to create a media exposure measure indicating average hours per day watching TV, playing video games, and computer use; it should be noted that in some cases, teens may have been using types of media simultaneously. This measure ranges from 0 to 21 hours.

Other individual characteristics include age, race and ethnicity, as well as physical health. Age is measured in years, and race and ethnicity includes categories for non-Hispanic White, non-Hispanic Black, Hispanic, and other race. Students were asked to rate their overall health status, and this variable was reverse-coded so that it ranges from 1 = poor to 4 = excellent. In initial analyses, we also considered more detailed measures of socioeconomic status, family structure, and puberty, but none of these measures were significant in any of our analyses.

With HBSC data, we are only able to consider the quality of family and parental relationships generally as they relate to adolescent emotional well-being and body dissatisfaction. We include three measures of family interaction. The first is a measure of how easy the respondent said it is to talk to her father (or stepfather) about things that really bother her, and the second is a similar measure about talking to her mother (or stepmother). These items were reverse-coded so that higher values indicate more ease in talking with parents. These measures range from 1 = very difficult to 4 = very easy. To account for students that did not have a mother or father at home, we imputed the mean of non-missing responses and included a dichotomous variable indicating the parent's absence (i.e. 1 = not at home and 0 = at home). It has been shown that this is an appropriate method of addressing missing values when the values do not exist [38]. An overall measure asked students to rank on a scale from 0 = *we have very BAD relationships in our family* to 10 = *we have very GOOD relationships in our family* how satisfied they are with family relationships.

Peer data in the HBSC include the number of close friends respondents report, the time they spend with peers after school, as well as the quality of their relationships with peers in school. The quantity of peer re-

lationships is measured by the number of close female friends students reported having (0–3 or more). We include female friends because appearance comparisons are with same-sex peers. To measure the amount of time spent with friends, we include a variable indicating how many days a week they usually spend with friends after school (ranging from 0 to 7 days a week). The quality of peer relationships is measured by an indicator of bullying and peer acceptance at school. Students were asked how often they were bullied at school in the past couple of months; responses ranged from 1 = *I haven't been bullied at school in the past couple of months* to 5 = *Several times a week*. Peer acceptance is based on agreement with the following statements: *The students in my class(es) enjoy being together; Most of the students in my classes are kind and helpful;* and *Other students accept me as I am.* Responses were reverse-coded and ranged from 1 = strongly disagree to 5 = strongly agree. Across the three statements, responses were averaged to create a composite measure of peer relationships, with higher numbers indicating better peer associations (Cronbach's alpha = 0.751).

Procedure

All analyses were performed in Stata 14.1 using the survey commands (*svy*) (StataCorp. College Station, TX, USA) to incorporate the complex sampling design [39]. We first present weighted means for all measures for the entire sample by grade level in Table 1. To examine the relationship between body dissatisfaction and sadness/loneliness, we use ordinary least squares (OLS) regression. To estimate the mediating influence of peer and family relationships, we present two models for each grade category. The first estimates the total relationship between body dissatisfaction and sadness/loneliness with controls included. The second includes variables representing peer and family relationships (see Table 2). The test of mediation consists of testing whether the coefficient for body dissatisfaction is significantly different in the two models, with a significant test being evidence for mediation. This test was an adjusted Wald test facilitated by Stata's seemingly unrelated regression command (*suest*). Although there are more sophisticated methods for testing mediation [40], these approaches do not allow analyses to incorporate the complex sampling features of the HBSC. Finally, we estimated a series of models to test for the moderating influence of peer and family relationships. In each model, we included interactions between body dissatisfaction and a single measure of peer or family relationships. We expect good peer and family relationships to reduce or buffer the association between body dissatisfaction and sadness/loneliness.

Table 1: Means (and proportions), minimum, and maximum of study variables for full sample and by grade level.

	Full sample	Pre-teens 5th and 6th	Early adolescents 7th and 8th	Mid-adolescents 9th and 10th	Minimum	Maximum
Sadness/loneliness	3.68	2.16	2.29[b]	2.48	1	5
Body dissatisfaction	2.32	2.13	2.34[b]	2.44	1	5
Controls						
Age, years	12.96	10.83	12.78[b]	14.90	10	17
Race						
White	0.54	0.53	0.51	0.58	0	1
Black	0.15	0.17	0.15	0.14	0	1
Hispanic	0.12	0.10	0.14	0.13	0	1
Other	0.18	0.20	0.20	0.14	0	1
Media use, h/week	5.51	4.85[a]	5.79	5.81	0	21
Health	2.97	3.13	2.95[b]	2.85	1	4
Peers and school relationships						
Close friends	2.75	2.83	2.77	2.67[a]	0	3
Time with friends, days/week	2.51	2.53	2.50	2.51	0	6
Bullied	1.49	1.60	1.51[b]	1.38	1	5
Peer relationships	3.66	3.80	3.70[b]	3.52	1	5
Family relationships						

Can talk to father	2.46	2.73	2.40[b]	2.29	1	4
No father	0.09	0.09	0.09	0.09	0	1
Can talk to mother	3.06	3.34	3.03[b]	2.86	1	4
No mother	0.04	0.05	0.05	0.03	0	1
Family relationships	7.66	8.53	7.60[b]	7.00	0	10
n (unweighted)	5658	1591	2170	1897		

Source: Health Behavior in School-Aged Children (HBSC), 2009–2010. Means and proportions account for complex sampling design of HBSC. [a]Mean different from other two grade levels at $p < 0.001$. [b]Means for all three grade levels differ from each other at $p < 0.001$.

Table 2: Predicting sadness/loneliness among adolescent girls by grade level: unstandardized coefficients from OLS regression.

	Pre-teens 5th and 6th		Early adolescents 7th and 8th		Mid-adolescents 9th and 10th	
	Base	**Full**	**Base**	**Full**	**Base**	**Full**
Body dissatisfaction	0.34[c]	0.24[c]	0.42[c]	0.26[c]	0.44[c]	0.32[c]
Controls						
Age, years	−0.03	−0.04	0.07	0.03	0.08[a]	0.09[a]
Race						
White	0.00	0.00	0.00	0.00	0.00	0.00
Black	0.27[b]	0.28[c]	0.13	0.16[a]	0.25[b]	0.26[b]
Hispanic	0.06	0.06	0.02	0.08	0.27[c]	0.24[c]
Other	0.12	0.11	0.09	0.09	0.14	0.09
Media use, h/week	0.02	0.01	0.04[c]	0.03[c]	0.02[b]	0.01
Health	−0.22[c]	−0.10	−0.22[c]	−0.11[a]	−0.13[c]	−0.06
Peer relationships						
Close friends		−0.02		−0.16[b]		−0.07
Time with friends, days/week		−0.02		−0.00		−0.02
Bullied		0.12[b]		0.14[c]		0.15[c]
Peer relationships		−0.12[a]		−0.07[a]		−0.09[a]
Family relationships						
Can talk to father		−0.06		−0.09[b]		−0.03
No father		−0.09		−0.07		−0.09
Can talk to mother		0.00		−0.02		−0.08[a]
No mother		0.16		−0.01		−0.06
Family relationships		−0.13[c]		−0.12[c]		−0.08[c]
Constant	2.34[c]	3.85[c]	0.83	3.03[c]	0.30	1.55[b]
R^2	0.15	0.26	0.25	0.37	0.21	0.30
n (unweighted)		1591		2170		1897

Source: Health Behavior in School-Aged Children (HBSC), 2009–2010. Results account for complex sampling design of HBSC. [a]$p < 0.05$. [b]$p < 0.01$. [c]$p < 0.001$.

Results

Descriptive statistics are presented in Table 1. Pre-teens are 11 years old, early adolescents are aged 13, and mid-adolescents are about 15 years old on average. Means for sadness/loneliness increase by grade level from pre-teen to mid-adolescence, as does body dissatisfaction. In addition, reports of physical health decline across grade levels. Media exposure is lowest among pre-teens. The number of close female friends is lower among older girls, but there are no differences in terms of days spent with friends after school by grade level. Across grade levels, girls report less bullying in higher grades compared to lower grades, but they also report feeling less accepted by their school peers in higher grades. Thus, older girls report fewer close friends, less acceptance by peers, but report less bullying. In terms of family relationships, on average, girls report that it is easier to talk to their mother than their father, but with both parents, talking about problems becomes more difficult at each grade level. In addition, average family relationship ratings are lower among girls in higher grades compared to those in lower grades.

Table 2 presents unstandardized coefficients for models predicting sadness/loneliness by grade level. Columns 1, 3, and 5 give the association between body dissatisfaction and sadness/loneliness, including control measures for pre-teens, early adolescents, and mid-adolescents. At each level, body dissatisfaction is positively associated with sadness/loneliness. The mediating influence of peer and family relationships is shown in columns 2, 4, and 6. Among girls transitioning to high school (Grades 9 and 10), the inclusion of family and peer relationship measures reduced the coefficient linking body dissatisfaction and sadness/loneliness by 27% [1 − (0.32/0.44)] [adjusted Wald test $F(1, 305) = 29.55$; $p < 0.001$]. The largest mediating role was among early adolescent girls where the coefficient was reduced by 38% [1 − (0.26/0.42)] [adjusted Wald test $F(1, 305) = 57.55$; $p < 0.001$]. Among pre-teens, family and peer relationships reduced the coefficient linking body dissatisfaction and sadness/loneliness by 29% [1 − (0.24/0.34)] [adjusted Wald test $F(1, 305) = 32.11$; $p < 0.001$]. Thus, the quality of peer and family relationships accounts for part (27%–38%) of the association between body dissatisfaction and sadness/loneliness among adolescent girls.

Standardized coefficients for the same models are presented in Table 3 and allow comparisons across variables. Among all adolescent girls, body dissatisfaction is the largest predictor of sadness/loneliness in our analyses. Race also has a large predictive association as minority teens, especially African Americans, report higher sadness/loneliness than White teens. The number of close girlfriends is associated with reduced sadness/loneliness particularly among early adolescents, whereas bullying increases sadness/loneliness for all teens. Being able to talk with their father is associated with reduced sadness/loneliness among early adolescent girls, whereas ease of talking to mothers is linked to reduced sadness/loneliness among mid-adolescents. Overall, body dissatisfaction is predictive of increased sadness/loneliness among adolescent girls, whereas positive family and peer relationships are associated with emotional well-being.

Table 3: Predicting sadness/loneliness among adolescent girls by grade level: standardized coefficients from OLS regression.

	Pre-teens 5th and 6th	Early adolescents 7th and 8th	Mid-adolescents 9th and 10th
Body dissatisfaction	0.24[c]	0.23[c]	0.27[c]
Controls			
Age, years	−0.03	0.04	0.09[b]
Race			
White	0.00	0.00	0.00
Black	0.19[b]	0.20[b]	0.15[a]
Hispanic	0.12	0.12[a]	0.06
Other	0.10	0.13[a]	−0.06
Media use, h/week	0.01	0.03[c]	0.01[a]
Health	−0.10[b]	−0.09[b]	−0.08[a]
Peer relationships			
Close friends	−0.04	−0.12[b]	−0.08[a]
Time with friends, days/week	0.00	−0.01	−0.03[b]
Bullied	0.10[c]	0.15[c]	0.16[c]
Peer relationships	−0.07[a]	−0.06[a]	−0.10[b]
Family relationships			
Can talk to father	−0.06[a]	−0.12[c]	−0.04
No father	−0.08	−0.08	0.04
Can talk to mother	−0.04	−0.02	−0.07[b]

No mother	0.17	0.10	−0.08
Good family relationships	−0.11[c]	−0.10[c]	−0.08[c]
Constant	2.39[c]	3.20[c]	4.06[c]
R^2	0.26	0.37	0.30
n (unweighted)	1591	2170	1897

Source: Health Behavior in School-Aged Children (HBSC), 2009–2010. Results account for complex sampling design of HBSC. [a]p < 0.05. [b]p < 0.01. [c]p < 0.001.

To consider the moderating role of family and peers on the relationship between body dissatisfaction and sadness/loneliness, we examined interactions between body dissatisfaction and peer relationships, as well as interactions with the overall rating of family relationships. Only the interaction with peers among pre-teens was significant; thus, peers play an important role moderating the link between body dissatisfaction and sadness/loneliness among 5th and 6th grade girls. To visually explore this interaction, we graphed the interaction between peer relationships and body dissatisfaction among pre-teens (Figure 1). Among these girls, being accepted by peers in school buffers or reduces the association between body dissatisfaction and sadness/loneliness relative to pre-teens with poor peer relationships.

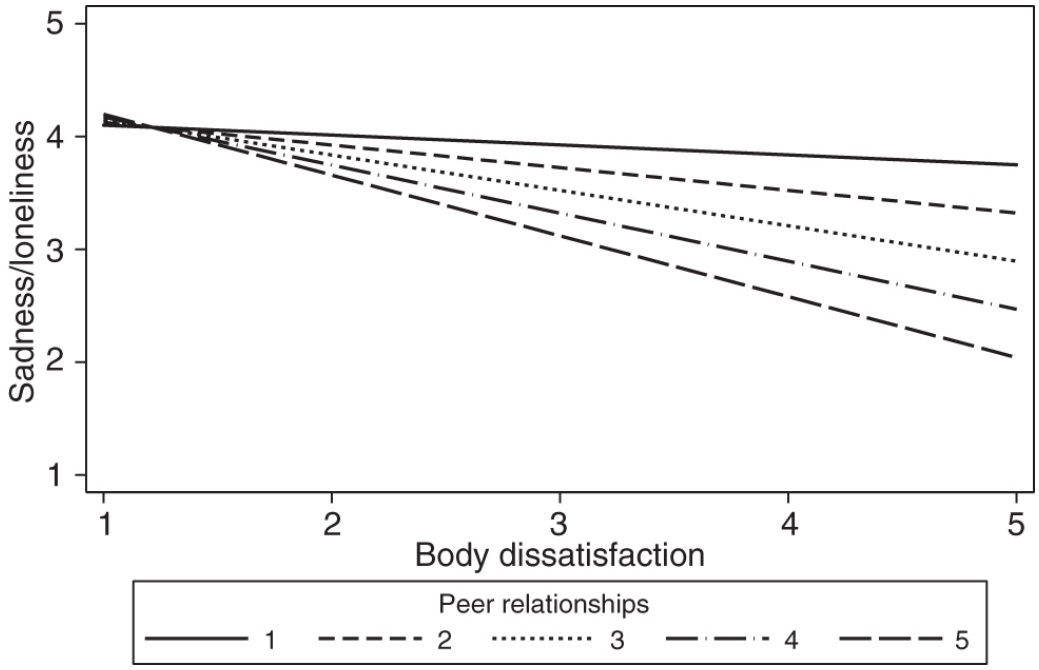

Figure 1: Relationship between sadness/loneliness and body dissatisfaction by peer relationships, 5th and 6th grades. Source: Health Behavior in School-Aged Children (HBSC), 2009–2010.

Discussion

As girls mature both physically and emotionally, they develop appearance expectations which shape how they think about and respond to their bodies. The cultural obsession with thinness and the portrayal of women's bodies in the media underscore body dissatisfaction among adolescent girls [1], [7]. As with past studies, we found body dissatisfaction among girls at very young ages, starting in the 5th and 6th grades [5], [21], and we found that these negative feelings increased at each grade level from pre-teens to mid-adolescence [11], [12], [13].

The developmental stage of late elementary school is a period of intense physical and emotional changes for girls. Most enter puberty during this time, and social expectations and peer interactions expand. Early adolescence is a critical intervention point for health practitioners, educators, and parents to reduce the risk of sadness and loneliness among girls, particularly related to body dissatisfaction. We expect that these critical ages are where social comparisons produce body dissatisfaction that is reinforced by peers [30]. We conclude that positive peer and family relationships can reduce feelings of loneliness and sadness among early teens and that peer and family relationships account for a fourth to a third of the association between body dissatisfaction and sadness/loneliness across developmental levels. In addition, the moderating influence of positive peer relationships is critical during the pre-teen years as young girls develop physically and respond emotionally to

body changes. Positive peer relationships during late elementary school can buffer or mitigate the association between body dissatisfaction and sadness/loneliness among pre-teens.

Although the HBSC survey contains detailed health information, there are limitations. Our measures of peer and family relationships focus on the quality of relationships, not the body image messages reinforced by these interactions. Past research based on small samples indicates that appearance messages are associated with depressive symptoms among adolescent girls [7]; further research is needed to explore the importance of both the quality of peer and family relationships and the appearance messages reinforced – particularly in nationally representative samples. In the same way, HBSC does not include data on media messages, but only the hours of exposure to media use; thus, our measure of media exposure is limited. Finally, without longitudinal data, we cannot confirm the causal relationship between body dissatisfaction and sadness/loneliness. However, even with these limitations, our findings concur with past research documenting the association between body dissatisfaction and emotional well-being among adolescent girls and underscore the influence of peers and family members on how girls think about their bodies and react emotionally to them. To address feelings of sadness and loneliness among pre-teen and early adolescent girls, health care professionals and educators need to consider not only body dissatisfaction, but also the context of peer and family relationships.

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Implications and contributions: Using a representative sample of adolescent girls in the US, we model the association between body dissatisfaction and sadness/loneliness, and examine the mediating and moderating influence of peer and family relationships. To address adolescent sadness/loneliness, body dissatisfaction and the context of peer and family relationships should be considered.

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