

## SHORT REPORT

## Gender differences in weight related concerns in early to late adolescence

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Among adults, women are more likely than men to perceive themselves as too heavy for their height, the gender discrepancy being greatest among those within a "normal" weight range.<sup>1,2</sup> This finding has been explained in terms of the equation of female beauty with extreme thinness.<sup>2</sup> As the physical changes of puberty are differentiated by gender, with males experiencing increased skeletal and muscle mass but females a gain in fat, this life stage has been seen as key for the development of female body dissatisfaction and associated problems such as lowered self esteem and eating disorders.<sup>3</sup> In this analysis we compare changes in worries about putting on weight and dieting with actual body mass index at ages 11, 13, and 15.

## METHODS

Data are from the *West of Scotland 11 to 16 Study: Teenage Health*, a longitudinal school based survey of health and health behaviours in a cohort resident in and around Glasgow.<sup>4</sup> Respondents were recruited in 1994-5 during their final year of primary schooling (aged 11, n=2586, a response rate of 93% of the issued sample). They were re-surveyed after the transition to secondary school (aged 13, n=2371, 92% of the baseline sample) and again during the final year of statutory education (aged 15, n=2196, 85% of baseline).

Each survey took place in the school setting, normally under examination type conditions. Self completion health and lifestyle questionnaires included the items "Are you worried about putting on weight?" and "Are you on a slimming diet to lose weight?" at each age. Nurses helped with questionnaire completion if necessary, conducted a short interview and recorded physical measurements including height and weight, used in the calculation of body mass index (kg/m<sup>2</sup>). A recent study, based on international data, has identified centile curves for 2-18 year olds which, at age 18 cross the widely used cut off point of 25 kg/m<sup>2</sup> for adult overweight.<sup>5</sup> These age specific and gender specific cut off points were used to define "overweight" respondents at each age. Overall, the prevalence rates of "overweight" at the ages of 11, 13, and 15 were 16.2%, 16.5%, and 17.0% (see table 1 for separate male and female rates). Those with BMIs below the 20th centile (by age and gender) were identified as representing "lower" weight individuals.

## RESULTS

As expected, average BMIs rose with age, and were consistently higher for females, the gender gap increasing between the ages of 11 and 15 (mean BMIs: age 11 =18.1 (males), 18.6 (females); age 15 =20.7 (males), 21.6 (females)). The slope for mean BMI between those in the bottom

**Table 1** Gender differences in worries about putting on weight and dieting at ages 11, 13, and 15

	Overall	Within "lower", "middle" and "overweight" BMIs for gender			BMI category by gender interaction* (sig)
		Lower	Middle	Overweight†	
<i>Worried - putting on weight - % (95% CI)</i>					
Age 11 -	M 29.8 (27.4 to 32.3)	13.8 (10.1 to 18.5)	27.5 (24.6 to 30.5)	61.1 (54.1 to 67.7)	Wald = 0.8 (0.685)
	F 44.4 (41.7 to 47.2)	20.5 (16.1 to 25.9)	43.4 (39.9 to 46.9)	75.6 (69.5 to 80.7)	
Ratio F : M	1.5	1.5	1.6	1.2	
Age 13 -	M 27.7 (25.3 to 30.3)	7.3 (4.7 to 11.2)	24.9 (22.0 to 28.1)	65.8 (58.8 to 72.2)	Wald = 6.1 (0.048)
	F 58.7 (56.0 to 61.7)	28.5 (23.0 to 34.7)	61.6 (58.0 to 65.1)	83.0 (77.2 to 87.6)	
Ratio F : M	2.1	3.9	2.5	1.3	
Age 15 -	M 22.9 (20.5 to 25.4)	4.5 (2.5 to 8.1)	21.5 (18.6 to 24.7)	52.3 (44.9 to 59.6)	Wald = 4.2 (0.120)
	F 70.5 (67.7 to 73.2)	41.2 (34.8 to 48.0)	75.2 (71.7 to 78.4)	87.7 (82.2 to 91.7)	
Ratio F : M	3.1	9.1	3.5	1.7	
<i>Slimming diet - % (95% CI)</i>					
Age 11 -	M 7.6 (6.3 to 9.1)	1.9 (0.8 to 4.4)	4.2 (3.1 to 5.8)	30.2 (24.2 to 37.0)	Wald = 9.4 (0.009)
	F 10.8 (9.2 to 12.7)	0.4 (0.1 to 2.2)	8.5 (6.7 to 10.7)	30.2 (24.6 to 36.5)	
Ratio F : M	1.4	0.2	2.0	1.0	
Age 13 -	M 5.3 (4.1 to 6.7)	0.0 (0.0 to 1.5)	3.0 (2.0 to 4.4)	21.5 (16.2 to 27.8)	Wald = 6.6 (0.038)
	F 15.8 (13.8 to 18.0)	1.3 (0.4 to 3.8)	13.9 (11.6 to 16.7)	38.9 (32.4 to 45.8)	
Ratio F : M	3.0	N/A	4.6	1.8	
Age 15 -	M 4.7 (3.6 to 6.1)	0.5 (0.1 to 2.5)	3.3 (2.2 to 4.9)	16.0 (11.3 to 22.2)	Wald = 5.3 (0.070)
	F 26.1 (23.6 to 28.8)	8.1 (5.1 to 12.6)	25.8 (22.6 to 29.3)	48.4 (41.3 to 55.5)	
Ratio F : M	5.5	16.2	7.8	3.0	

\*Calculated via logistic regression. † "overweight": age 11 =14.5% (M), 18.1% (F)— sig of sex difference =0.014; age 13 =15.7% (M), 17.5% (F)—sig =0.243; age 15 =16.0% (M), 18.0% (F)—sig =0.220.

and top quintiles was consistently steeper for females (mean BMIs for "lower" and "overweight" weight individuals: age 11 = 15.3 and 22.8 (males), 15.3 and 23.8 (females); age 15 = 17.2 and 26.2 (males), 17.9 and 27.8 (females)). All these differences were significant at the 0.001 level or better (details available from first author).

Table 1 shows that worries about putting on weight and dieting were strongly associated with BMI for both genders. However, overall rates differed markedly, being much higher for females. In addition, the gender gap in weight related concerns was greatest among those of "lower" and "middle" weights, the BMI by gender interaction reaching a significant level for worries about putting on weight at 13 and for dieting at 11 and 13 (approaching significance for dieting at age 15).

While there were falls with age in the overall proportion of males worried about putting on weight (30% at 11, 23% at 15) and dieting (8% falling to 5%), the equivalent proportions of females increased steeply (44% rising to 70% worried about putting on weight; 11% rising to 26% dieting). The reduction in male, but increase in female concerns about weight with age, tended to occur regardless of BMI. Thus 30% of "overweight" males at age 11 reported they were dieting, compared with 16% at 15, the equivalent rates for females being 30% at 11 and 48% at 15 years. Finally, focusing on dieting at age 15, while under 3% of the combined "middle" and "lower" weight groups of males (BMI below 23.8) were dieting, this compares with 26% of "middle" (BMI range 19.0–24.1), and 8% of "lower" (BMI below 19.0) weight females.

## DISCUSSION

Older males, even those categorised as "overweight", seem more comfortable with their weight than those at earlier stages of puberty. In contrast, the proportion of females worried about putting on weight and reporting that they have actually translated this into dieting behaviour, increases during this life stage. Gender differences in weight related worries, while significant at age 11, are huge by mid-adolescence. The paradox of current concerns about the diet of young people coupled with evidence for increasing BMIs,

occurring within a culture that values thinness, has received comment in both academic literature and the media.<sup>1</sup> Against this background, our findings show the rapidity of the impact that the physical changes of puberty have on female body image and highlight the fine line that both media and health promotion messages about an appropriate weight for height need to tread among this particularly vulnerable age group.

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