



## Psycho-social aspects of overweight and obesity among nine year old children

Mr Mark Ward (TCD), Dr Evelyn Mahon  
(TCD), Professor Richard Layte (ESRI)

[www.growingup.ie](http://www.growingup.ie)





# Introduction & Objectives

## Two questions addressed:

- 1) Does the weight status of children impact on their **self-concept**?
  - a) Is the observed effect mediated by other factors, in particular children's perception of their own weight status?
  
- 2) Is there an association between children's **temperament** and their weight status?
  - a) Might temperament impact behaviours directly implicated in increased weight?



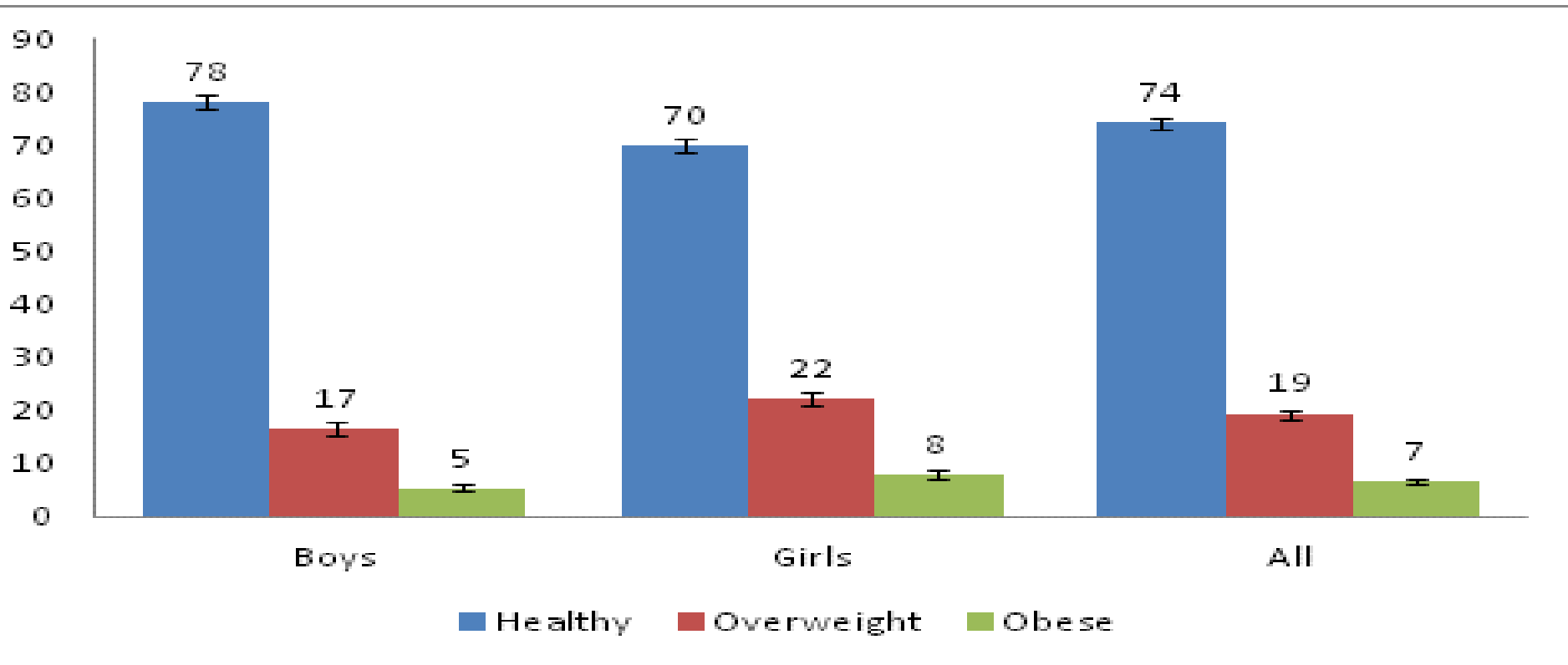
# Sample

- Nine-year-old cohort (N=8,568); 4,381 (51%) boys, 4,187 (49%) girls
- Measured height and weight for 8,089 (94%) of sample



# Sample

- Nine-year-old cohort (N=8,568); 4,381 (51%) boys, 4,187 (49%) girls
- Measured height and weight for 8,089 (94%) of sample





# Measures (Objective 1)

## **Piers-Harris Self-Concept Scale:**

➤ 60 item scale completed by the child in class.

## **Captures information on 6 domains (sub-scales)**

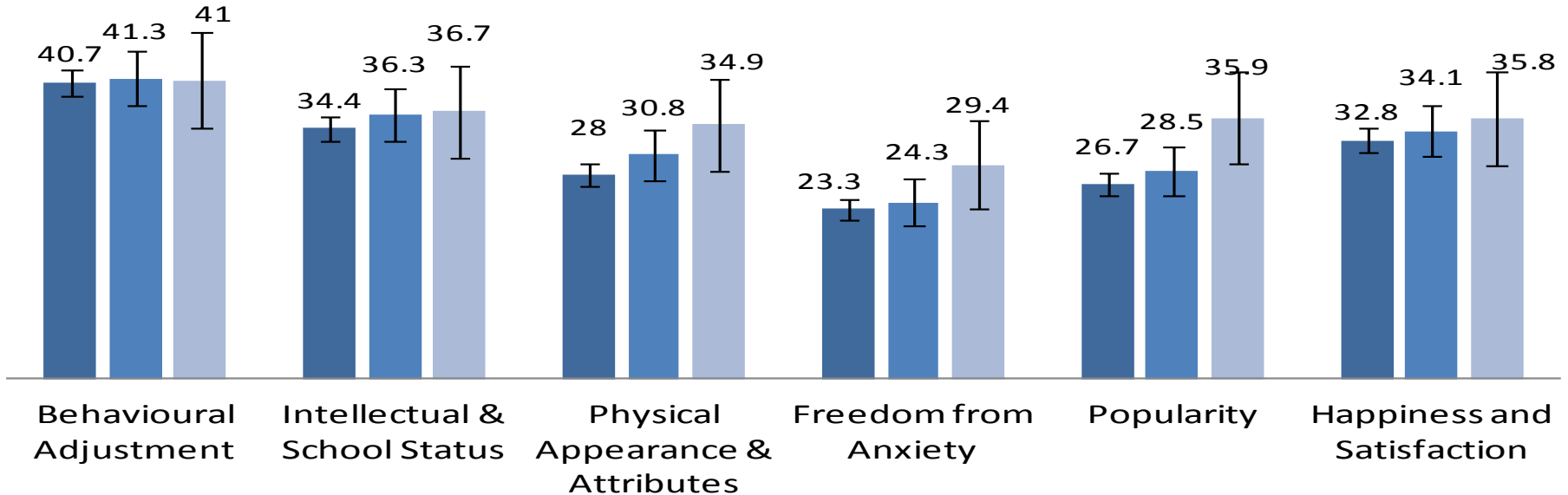
- (i) Behavioural adjustment;
- (ii) Intellectual and school status;
- (iii) Physical appearance and attributes;
- (iv) Freedom from anxiety;
- (v) Popularity;
- (vi) Happiness and satisfaction.



# Self-Concept and BMI (1)

## Boys

■ Non-overweight ■ Overweight ■ Obese

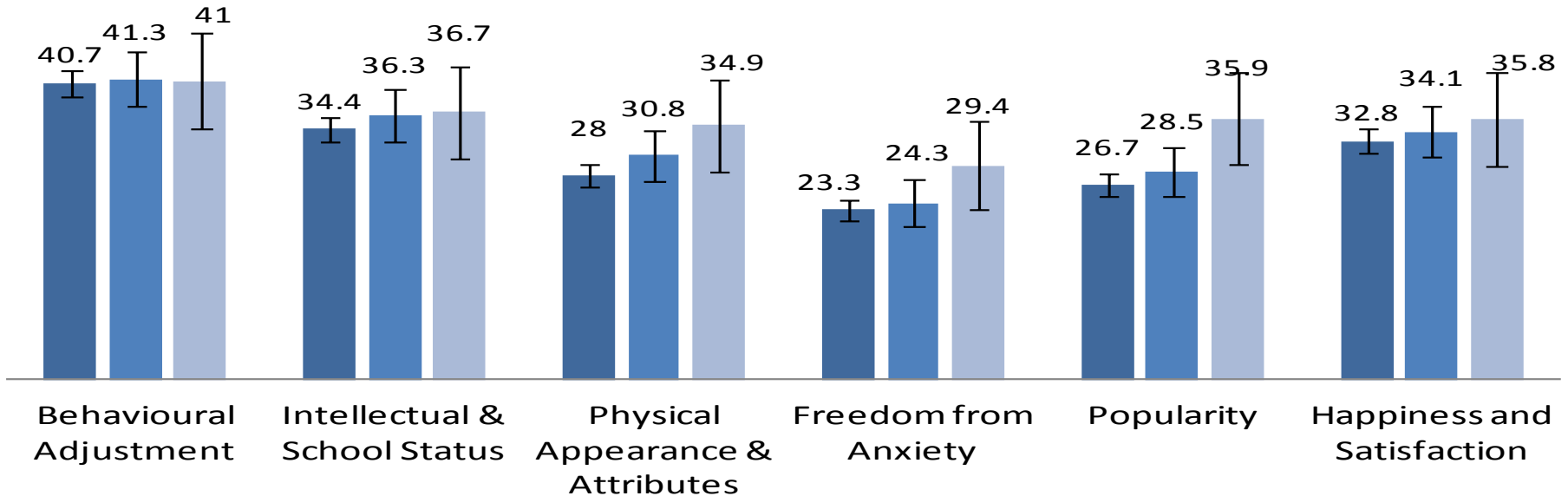




# Self-Concept and BMI (1)

## Boys

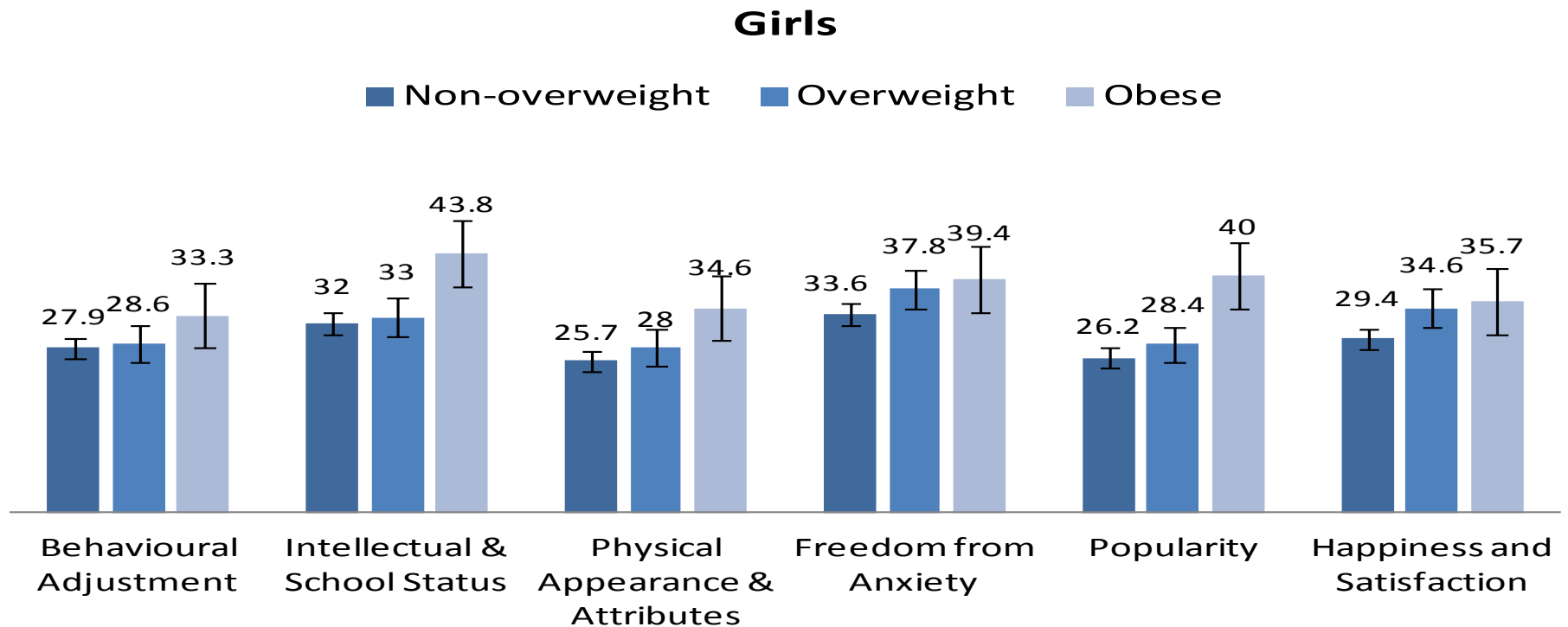
■ Non-overweight ■ Overweight ■ Obese



➤ A gradient for all domains (except behavioural adjustment) with overweight and obese boys fairsing worst.

➤ However, with the exception of popularity the observed differences were not significant at the 0.05 level.

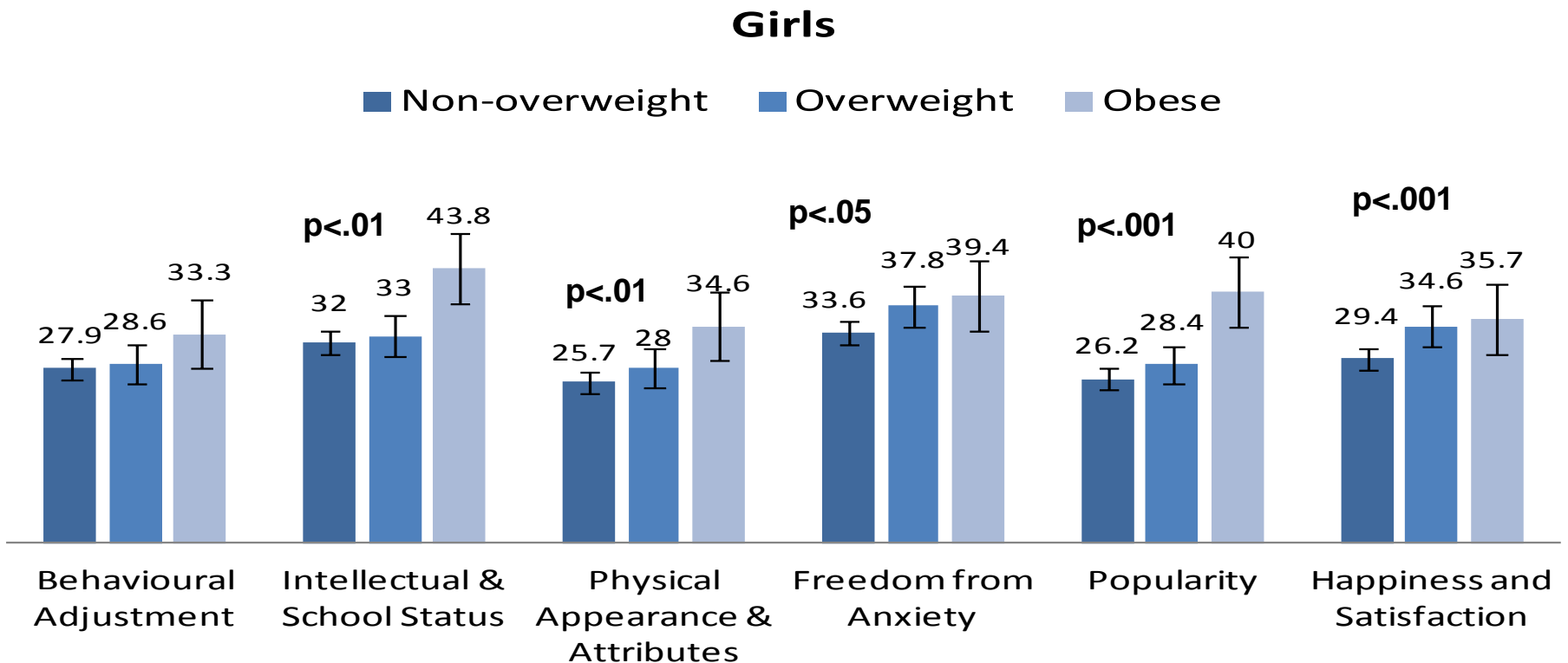
# Self-Concept and BMI (2)



- An even clearer gradient on all domains.
- All significant except for behavioural adjustment



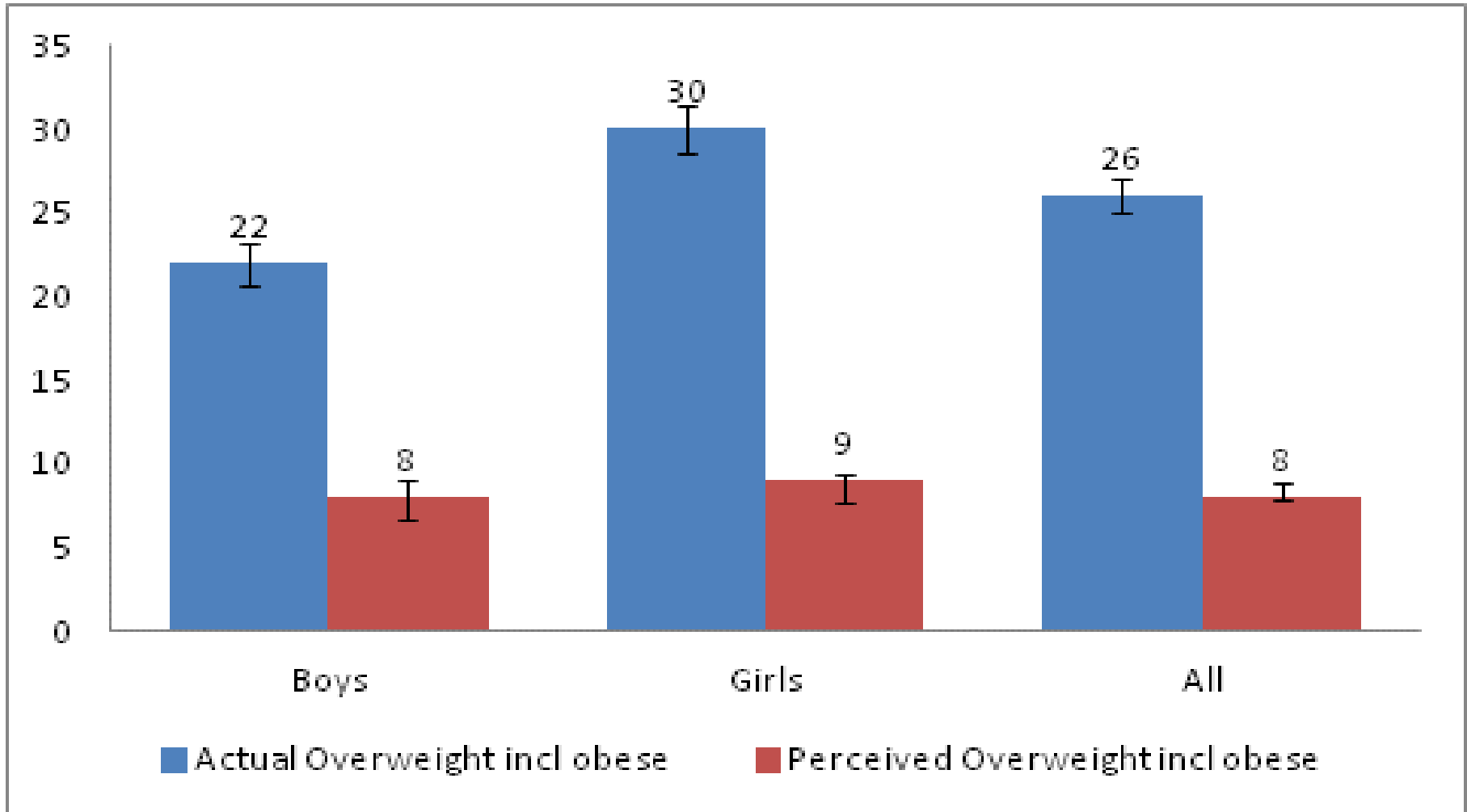
# Self-Concept and BMI (2)



- An even clearer gradient on all domains.
- All significant except for behavioural adjustment

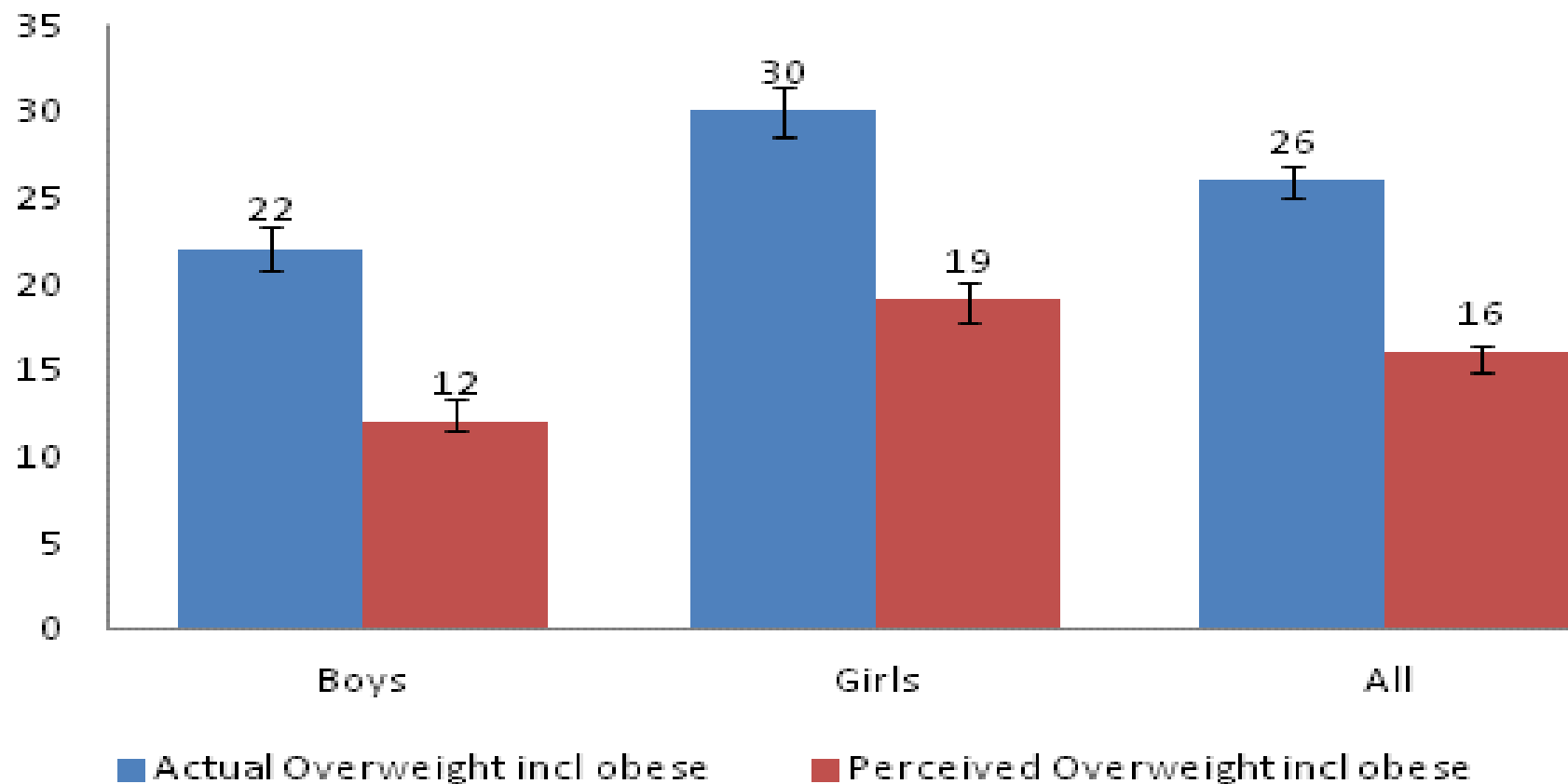


# Study Child's Perception of child weight status vs. actual





# Caregiver's Perception of child weight status vs. actual



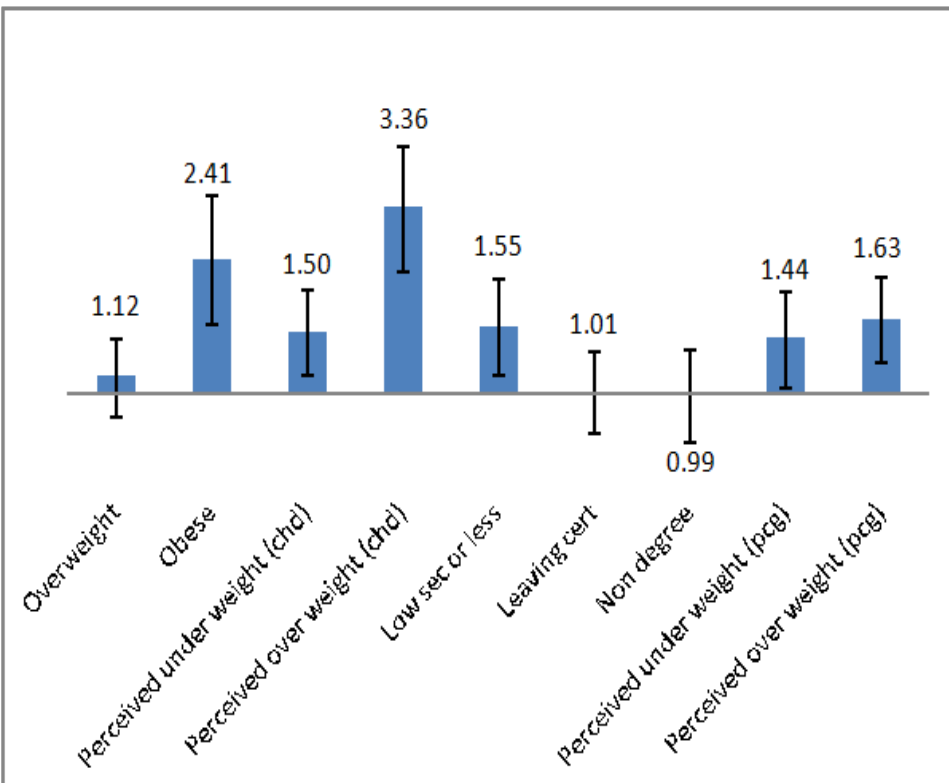


# Popularity sub-scale and BMI (Girls only)

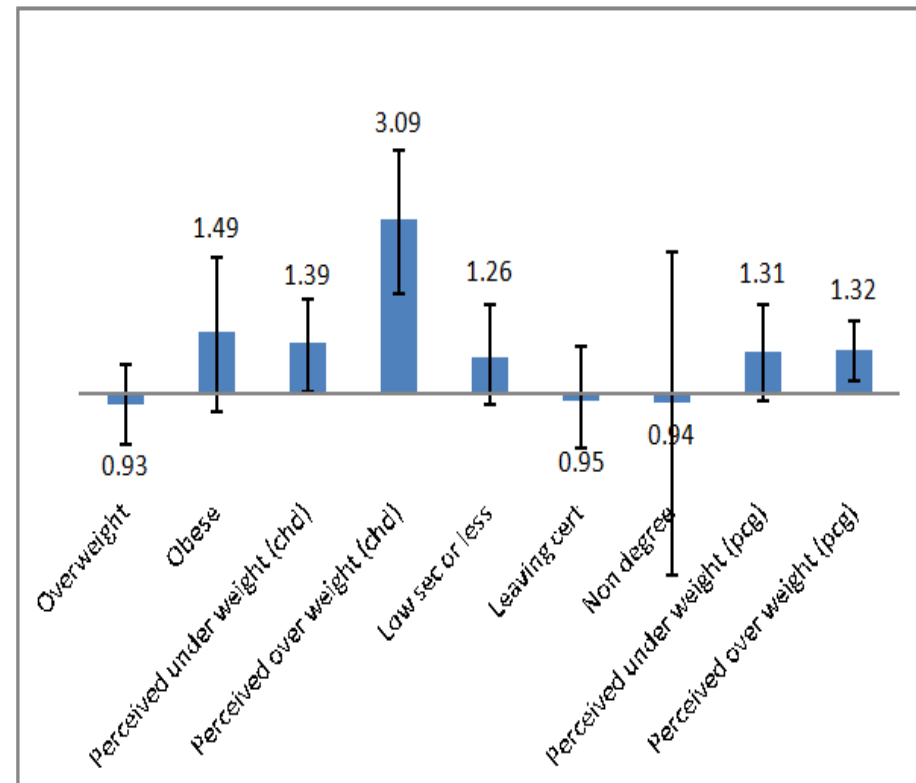
Likelihood of low average or below popularity self-concept score.

Reference categories are healthy measured weight; perceived normal weight (chd); degree level education; perceived normal weight (PCG).

Un-adjusted



Adjusted



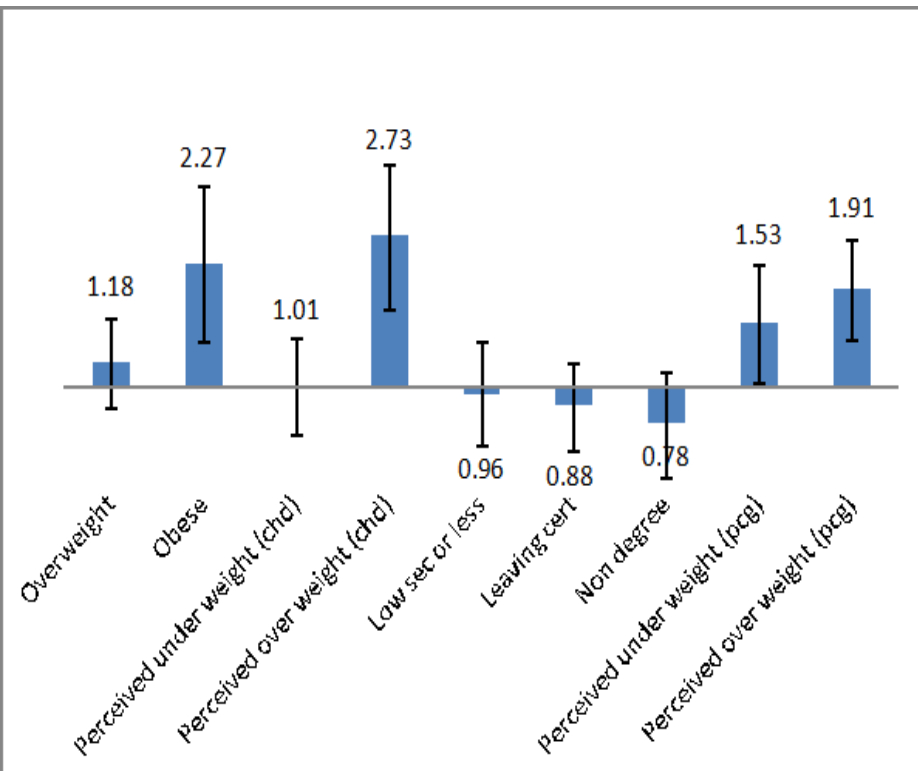
# Physical sub-scale and BMI

(Girls only)

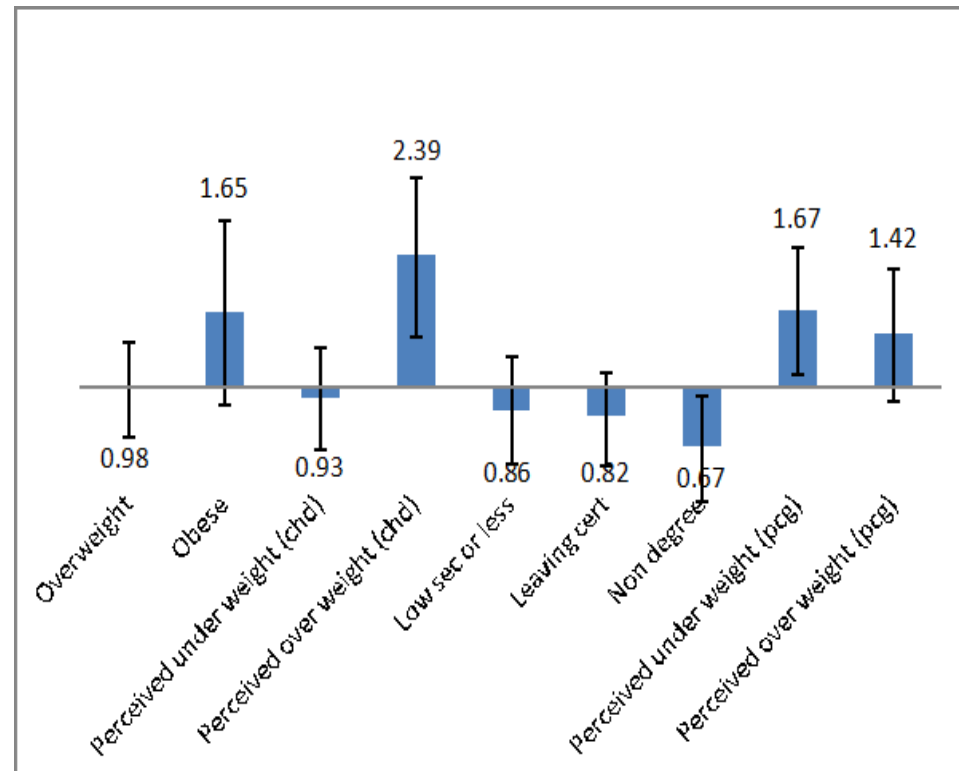
Likelihood of low average or below physical self-concept.

Reference categories are healthy measured weight; perceived normal weight (chd); degree level education; perceived normal weight (PCG).

Un-adjusted



Adjusted





## Part 2 - Measures (2)

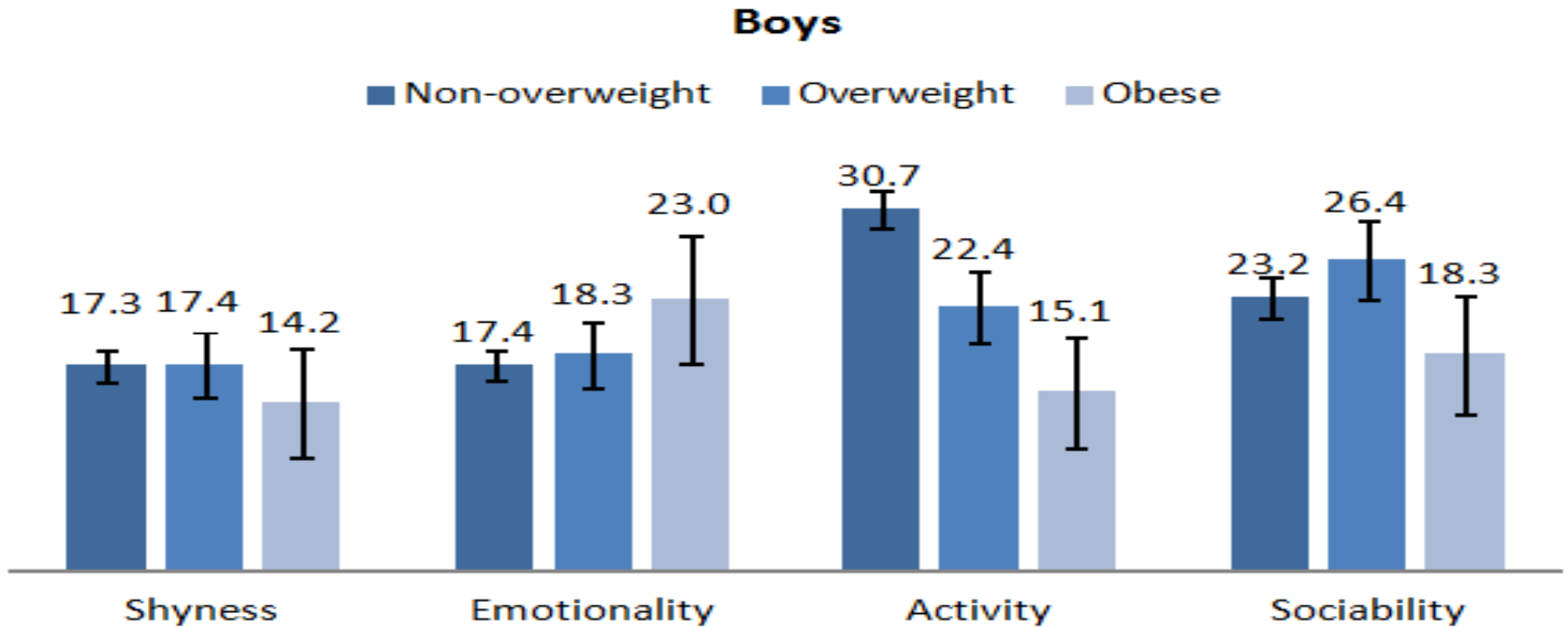
### **Emotionality, Activity and Sociability Temperament Questionnaire (EAS)**

➤ 20 item scale completed by the child's parent that measures aspects of temperament that are related to developmental differences in personality and behaviour.

#### **Captures information on 4 domains (sub-scales)**

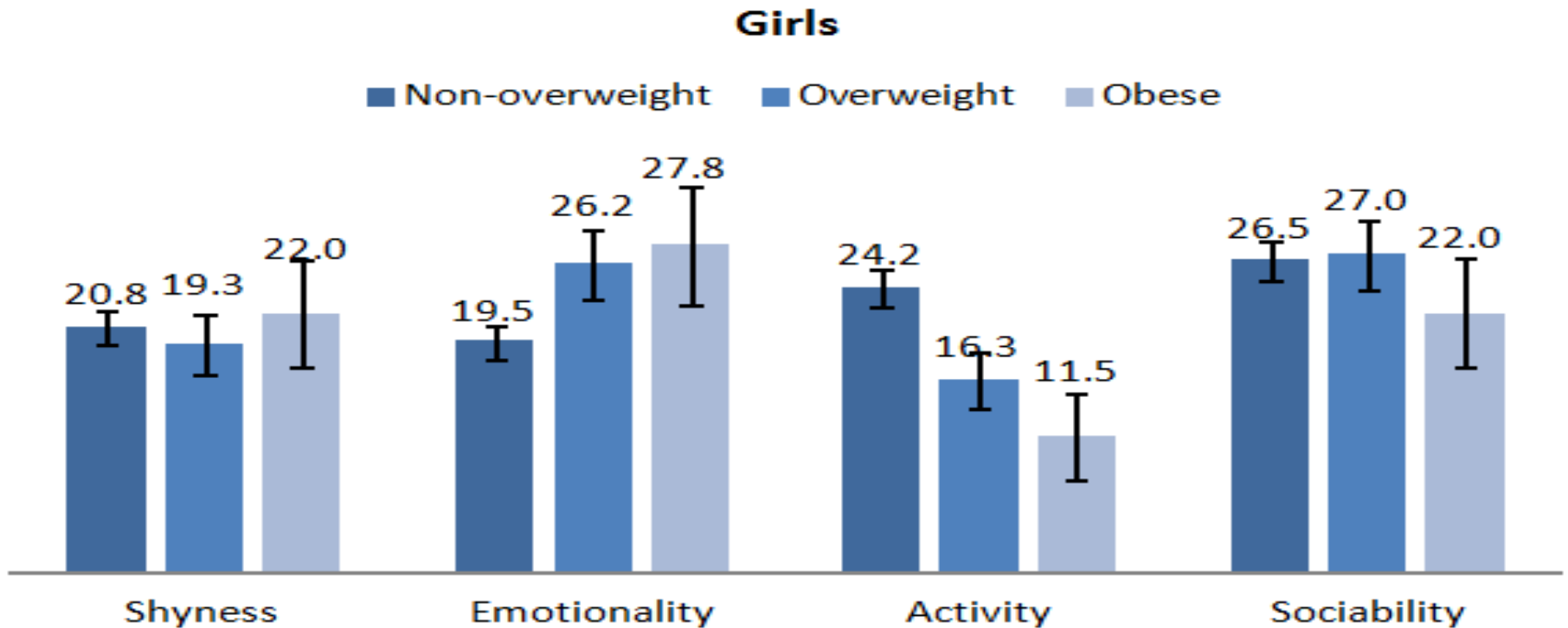
- (i) Emotionality – emotional style and intensity of reactions;
- (ii) Activity level – preferred levels of activation and speed of action;
- (iii) Sociability – tendency to prefer the company of others to being alone;
- (iv) Shyness – tendency to be inhibited and awkward in new social situations.

# Temperament and BMI (1)



Significant differences on activity with a lower proportion of obese boys scoring in the highest quartile compared to overweight and healthy weight.

# Temperament and BMI (2)



Similar findings among girls though this time the obese group are also significantly more likely than the healthy group to score in the highest quartile for emotionality.



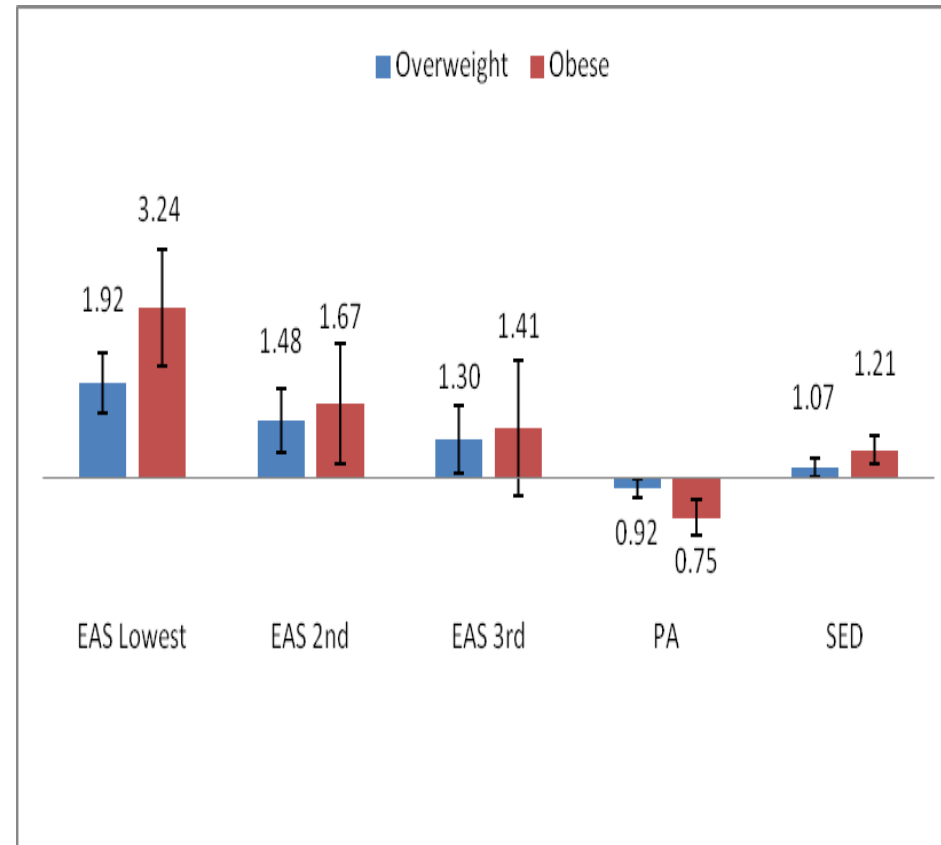
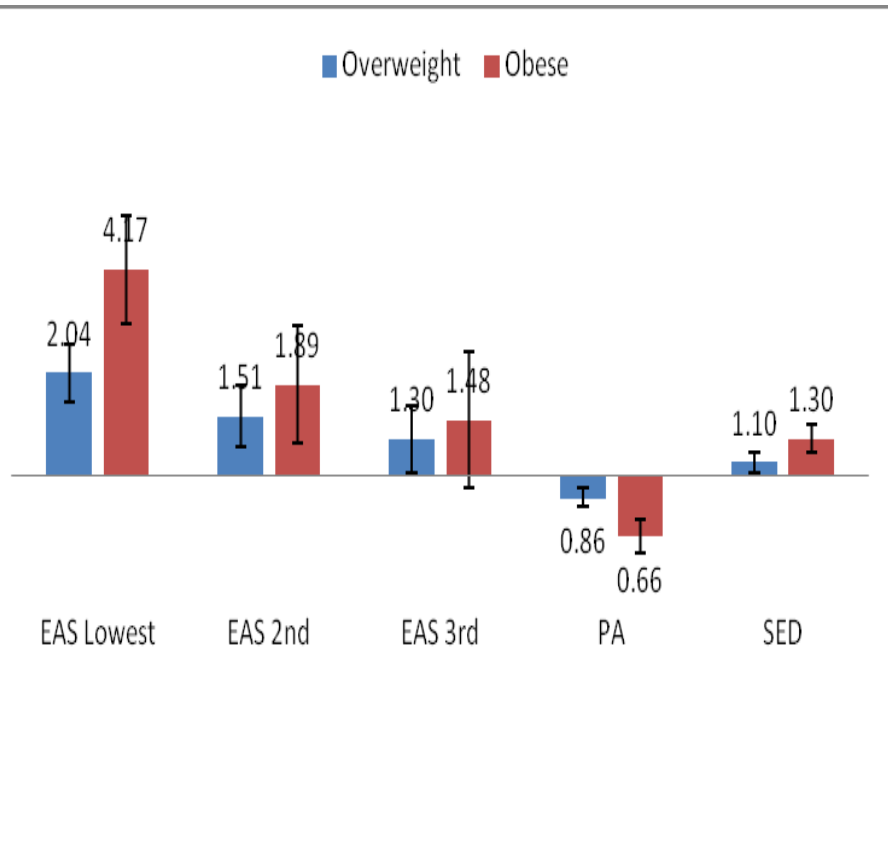


# Activity sub-scale and BMI

**Likelihood of overweight and obesity.  
Reference category for EAS activity is highest quartile.**

Un-adjusted

Adjusted





# Conclusions

## 1) Does the weight status of children impact on their self-concept?

Yes. Overweight and obese children are more likely than their healthy weight peers to score low average or below on each of the six domains.

*Girls* in particular fair poorest, especially in terms of their perceptions of their *physical appearance and other attributes*, and their evaluation of their *social functioning* (popularity).

### 1a) Is the observed effect mediated by other factors, in particular children's perception of their own weight status?

Yes. How girls *perceive* their weight and also how their weight is perceived by their PCG are more important than their actual measured weight status.



# Conclusions

## 2) Is there an association between children's temperament and their weight status?

Yes. Overweight and obese children are significantly less likely to score in the highest quartile for *activity* with girls also fairsing poorly in terms of *emotionality*.

### 2a) Might temperament impact behaviours directly implicated in increased weight?

*Possibly.* The children's temperament in terms of their activity levels appears to be a stronger predictor of overweight and obesity than the physical activity and sedentary indicators used in this analysis.

Also, the child's temperament in terms of activity appears to *mediate* a number of the distal factors highlighted in the literature



# Implications

## **Balancing act –**

Benefits of greater awareness of overweight and obesity among children needs to be balanced against impacting negatively on children's self-esteem.....Public health messages might benefit from concentrating on the benefits of children being a healthy weight, rather than focusing solely on potential negative outcomes associated with overweight and obesity.

## **Researching the causes of childhood overweight and obesity –**

Studies addressing the role played by physical activity and sedentary behaviour might benefit from the inclusion of relevant personality traits in their analysis vis a vis the EAS activity sub-scale.

More attention needs to be paid to potential characteristics of the child that may mediate or moderate the impact of more distal factors, such as obesogenic environments, that are implicated in the rising prevalence of obesity.



# Acknowledgements

The children and parents who participated in the study.

PhD funded by the **OMCYA** National Children's Strategy Research Scholarship Programme.

Dr Sinead Hanafin & Ms Anne-Marie Brooks.

School of Social Work and Social Policy TCD.