

WEIGHT AND EATING DISORDERS

Introduction

This section covers a broad spectrum of eating- and weight-related problems. Although traditionally viewed as separate entities, they are increasingly considered as parts of a continuum with common risk factors and scope for integrated prevention.¹⁻⁴

Obesity is a condition of excess body fat in relation to lean body mass to the extent that it may have a negative effect on health.⁵ Body mass index (BMI) is the measure commonly used to classify body weight, with sex and age-specific BMI cut-off points used to define thinness, overweight and obesity in children.⁶ However there is currently a lack of scientific evidence on the relationship between specific BMI thresholds and any potential short- and long-term health risks for the child.⁵ Factors associated with an increased risk of developing childhood obesity include maternal over-nutrition, pre-term birth and infants being small or large for gestational age.^{7,8} Children with developmental disabilities and autism also have higher prevalence of obesity than other children.^{9,10} Obese children are at greater risk than other children of short- and long-term health problems including musculoskeletal problems, asthma, and psychological problems, and may develop abnormal lipid profiles, impaired glucose tolerance and high blood pressure at a younger age than non-obese peers.⁶

Eating disorders comprise a range of syndromes encompassing physical, psychological and social features, including anorexia nervosa and bulimia nervosa. Eating disorders can be chronic conditions with substantial long-term physical and social sequelae.¹¹ Onset is usually in adolescence, although is increasingly recognised at much younger ages.¹ Alongside asthma and obesity, eating disorders are among the most prevalent chronic conditions for adolescent girls.² Children and younger adolescents with eating disorders have a higher risk of rapid medical deterioration compared with older adolescents and adults. Young people are also at risk of potentially irreversible effects of physical and emotional development.¹² Major depression is commonly comorbid with eating disorders and is associated with poorer prognosis.¹³

In the current obesogenic environment, unhealthy weight loss and muscle gaining behaviours have been observed in children as young as ten years.³ Risk factors for both obesity and eating disorders include dieting (caloric restriction with the goal of weight loss), weight talk, weight teasing and body dissatisfaction.¹

The following section uses data from the New Zealand Health Survey to describe the weight of 0–24 year olds and presents data on eating disorders from the National Minimum Dataset and the National Mortality Collection. The section concludes with brief overviews of evidence for good practice for these conditions and references to relevant literature including obesity-related review topics published in NZCYES 2013 reports.¹⁴

Data sources and methods

Indicators

Prevalence of underweight and overweight/obese individuals among 2–24 year olds

Rates of eating disorders among 0–24 year olds

Definition

Prevalence of underweight and overweight/obese individuals among 2–24 year olds

BMI was calculated using measured height and weight. The extended international IOTF BMI cut-offs for underweight, healthy weight, overweight and obese categories are age and sex-specific.

Underweight: BMI less than 18.5

Healthy weight: BMI of 18.5–24.9

Overweight: BMI of 25.0–29.9

Obese: BMI of 30 or greater

Rates of eating disorders among 0–24 year olds

Hospitalisations of 0–24 year olds with an eating disorder per 100,000 population

Data sources

Prevalence of underweight and overweight/obese individuals among 2–14 year olds

New Zealand Health Survey (2006/07–2014/15), see **Appendix 3**

Rates of eating disorders among 0–24 year olds

Numerator: Hospitalisations: National Minimum Dataset

Denominator: Statistics New Zealand Estimated Resident Population (with linear extrapolation being used to calculate denominators between Census years)

Additional information

Hospitalisation discharge events

This section presents analyses where the condition was the primary diagnosis or was documented within any of the first 15 diagnoses (all cases). The rationale for presenting all cases is to highlight the full spectrum of health issues experienced by those with this condition, and their consequent requirement for acute health services.

Codes used for identifying cases are documented in **Appendix 5**

National trends and distribution

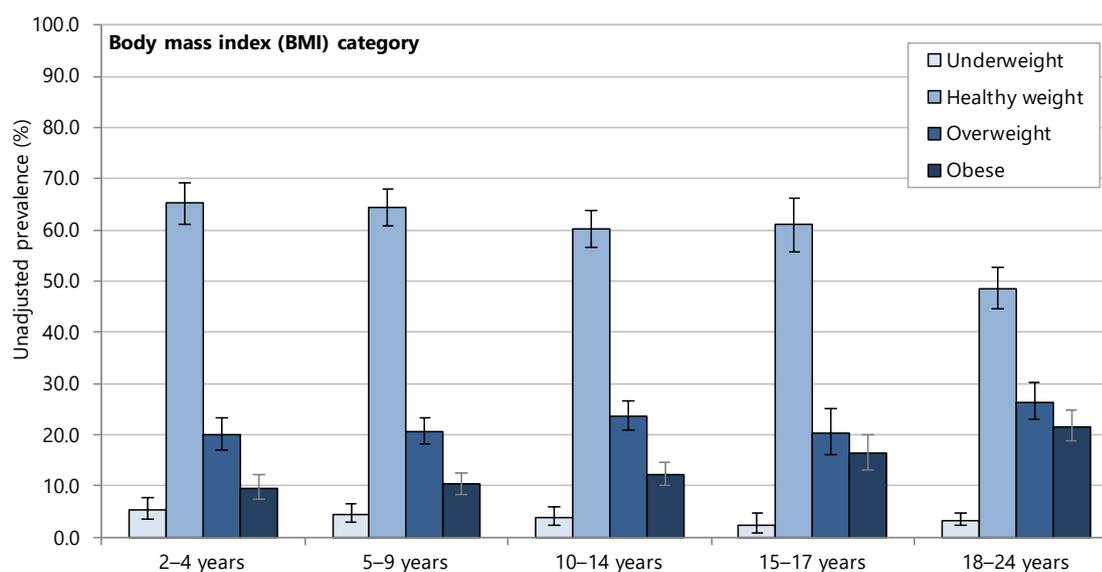
From 2009 to 2013 there were seven deaths of 0–24 year olds with obesity as an underlying cause, as documented within the National Mortality Collection.

The majority of 2–17 year olds had a BMI category of healthy weight (**Figure 1**). Among 16–24 year olds the proportion with healthy weight was significantly lower than the proportion with healthy weight in younger age groups, and the proportion who was obese was significantly higher than for those in the younger age groups (**Figure 2**). There was no significant difference by gender in either age group (**Figure 3**). Since 2006 there has been year to year variability in prevalence of thinness, overweight and obesity within the age groups. The greatest variability has been amongst 2–4 year olds (**Figure 4, Figure 5**).

Prevalence of underweight for 2–14 year olds was significantly lower for Māori compared with non-Māori and significantly higher for Asian compared with non-Asian (**Figure 9**).

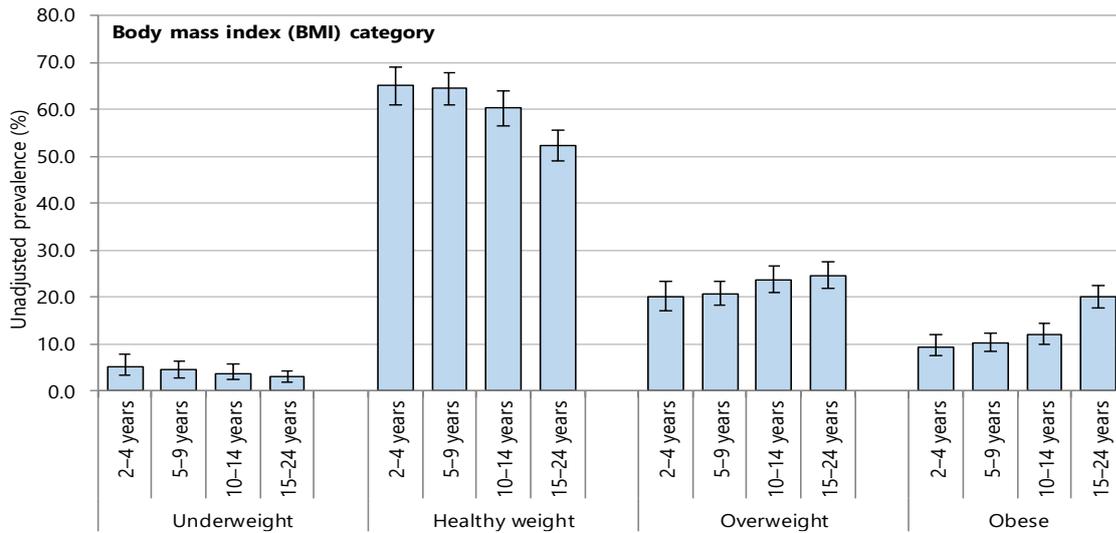
The prevalence of overweight or obesity was higher for 2–14 year olds living in areas with the highest deprivation scores (NZDep2013 deciles 9–10) compared with those living in areas with the lowest NZDep2013 scores areas (deciles 1–2). There was no significant difference by gender in this age group. Prevalence of obesity was significantly higher among Pacific 2–14 year olds compared with non-Pacific and for Māori compared with non-Māori, and significantly lower for Asian compared with non-Asian (**Figure 27**).

Figure 1. Body mass index (BMI) category in 2–24 year olds, by age group and BMI category, NZ Health Survey 2014/15



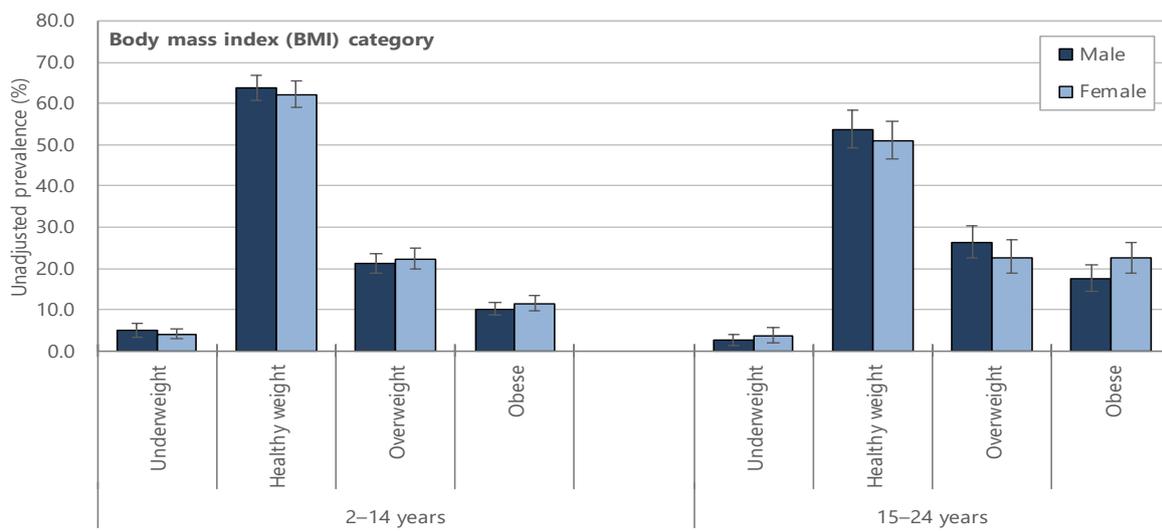
Source: NZ Health Survey

Figure 2. Body mass index (BMI) category in 2–24 year olds, by age group, NZ Health Survey 2014/15



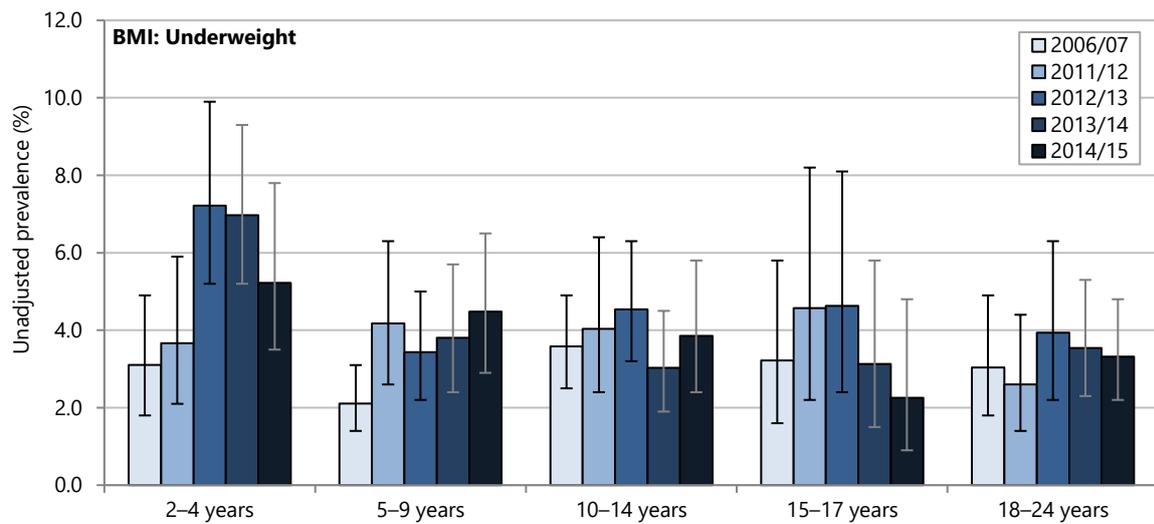
Source: NZ Health Survey. Ethnicity is total response

Figure 3. Body mass index (BMI) category in 2–24 year olds, by age group and sex, NZ Health Survey 2014/15



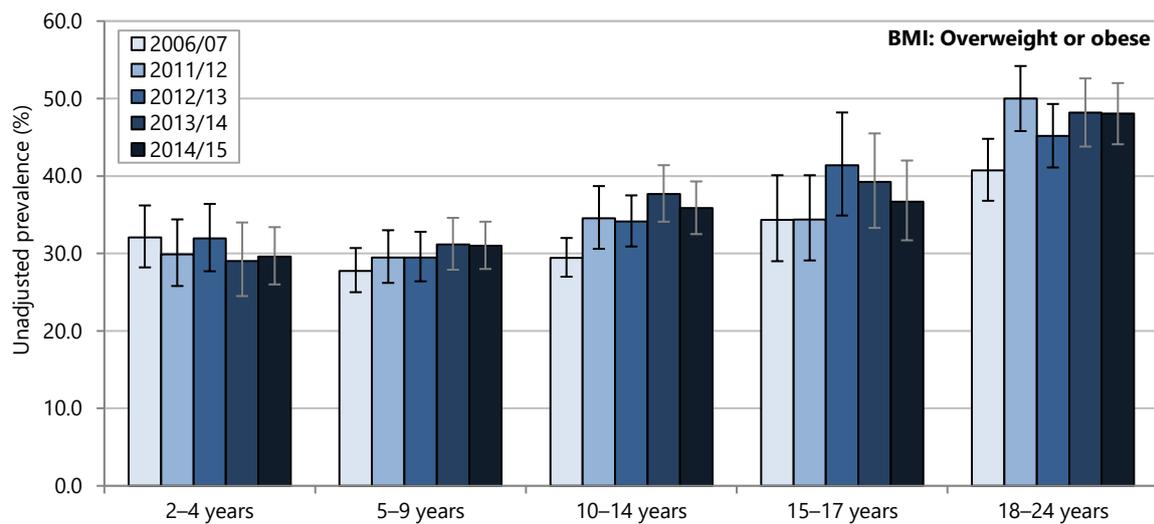
Source: NZ Health Survey

Figure 4. BMI: Underweight among 2–24 year olds, by age group and survey year, NZ Health Surveys 2006/07–2014/15



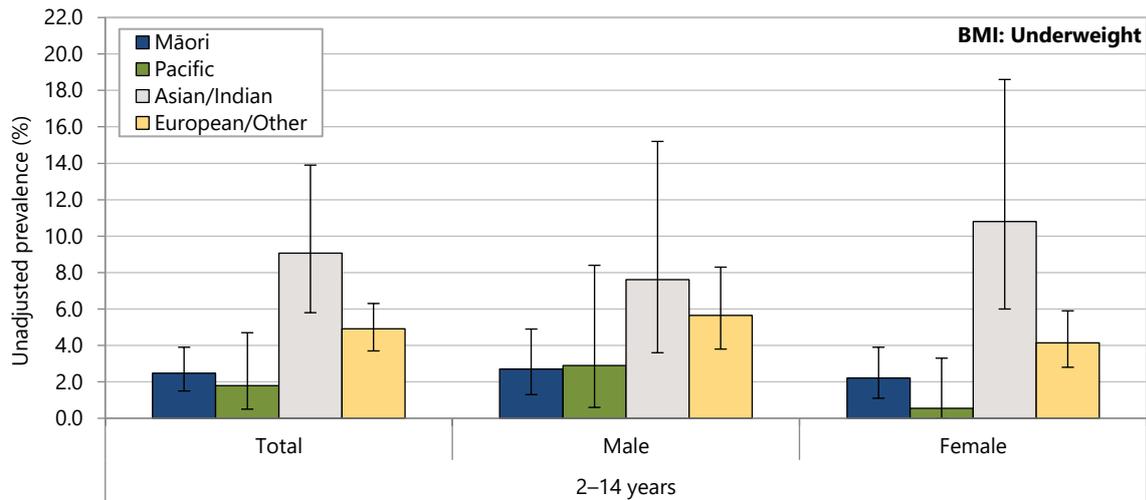
Source: NZ Health Survey

Figure 5. BMI: Overweight or obese among 2–24 year olds, by age group and survey year, NZ Health Surveys 2006/07–2014/15



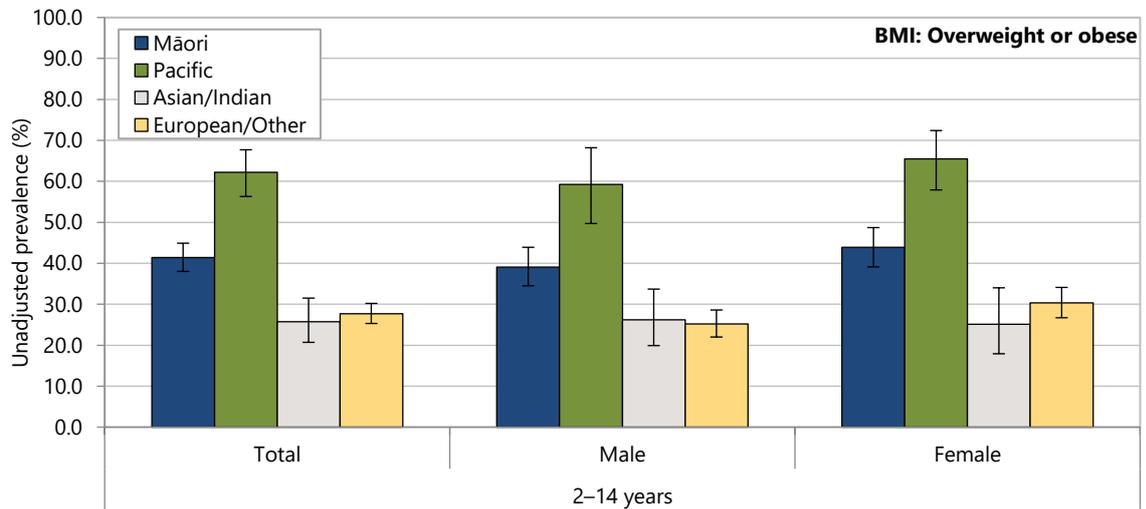
Source: NZ Health Survey

Figure 6. BMI: Underweight in 2–14 year olds, by ethnicity and sex, NZ Health Survey 2014/15



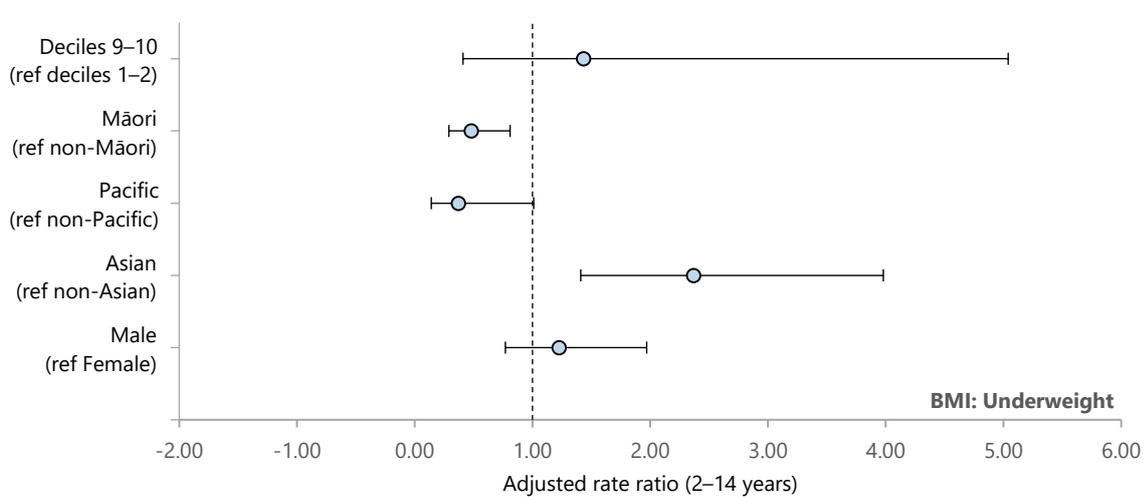
Source: NZ Health Survey. Ethnicity is total response

Figure 7. BMI: Overweight or obese in 2–14 year olds, by ethnicity and sex, NZ Health Survey 2014/15



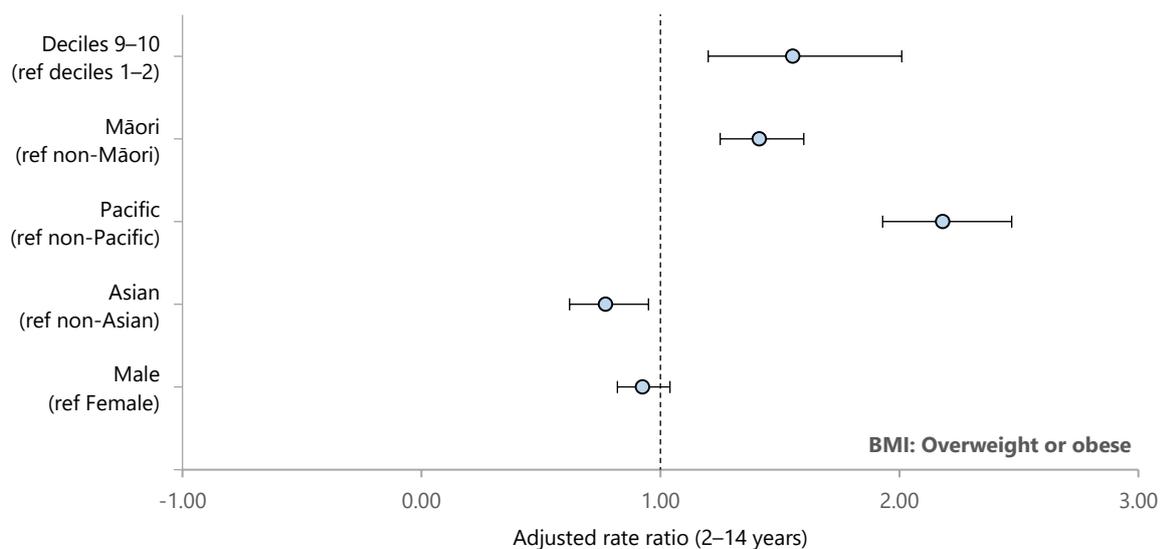
Source: NZ Health Survey. Ethnicity is total response

Figure 26. BMI: Underweight among 2–14 year olds, by demographic factor, NZ Health Survey 2014/15



Source: NZ Health Survey. Underweight=children who are thin, with a BMI equivalent to an adult BMI of 18.5 or lower. Ethnicity is total response

Figure 27. BMI Overweight or obese among 2–14 year olds, by demographic factor, NZ Health Survey 2014/2015



Source: NZ Health Survey. Children aged 2–14 years who are overweight or obese, with a BMI equivalent to an adult BMI of 25 (or higher), by sex, ethnic group, neighbourhood deprivation, 2014/15; Adjusted rate ratios, 95% confidence intervals

From 2009 to 2013 there were fewer than five deaths of 0–24 year olds with an eating disorder as an underlying cause, as documented within the National Mortality Collection.

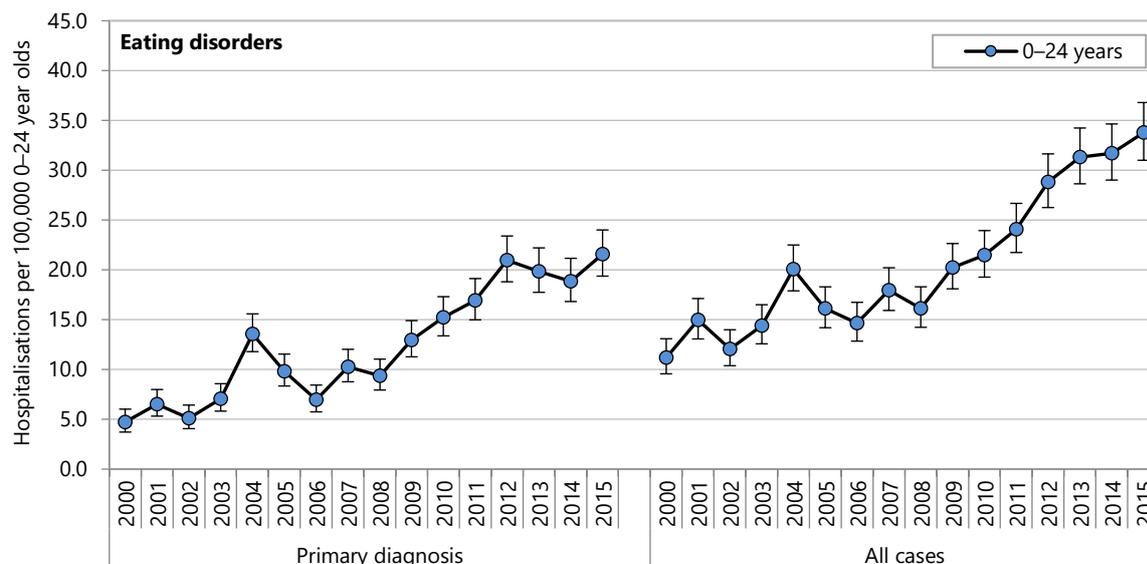
The number of 0–24 year olds hospitalised between 2011 and 2015 with any diagnosis of eating disorders is presented in **Table 1**, together with the total number of hospitalisations with an eating disorder as a primary or any diagnosis.

Table 1. 0–24 year olds hospitalised with eating disorders using primary diagnosis compared to all cases, New Zealand 2011–2015

	Unique individuals (<i>n</i>)	Hospitalisations (<i>n</i>)		Ratio All : Primary
		Primary diagnosis	All cases	
Eating disorders				
Hospitalisation				
0–24 years	1,012	1,509	2,301	1.52
0–14 years	266	363	417	1.15
15–24 years	781	1,146	1,884	1.64
Eating disorders in 0–24 year olds				
Anorexia nervosa	632	1,174	1,467	1.25
Bulimia nervosa	145	90	264	2.93
Other eating disorders†	382	245	598	2.44

Source: National Minimum Dataset. 'Primary' corresponds to hospitalisation where an eating disorder was the primary diagnosis; 'All cases' = inclusion in any of the first 15 diagnoses; The sum of the age groups may total to more than the 0–24 year old total

Figure 8. Hospitalisations for eating disorders in 0–24 year olds, New Zealand 2000–2015



Numerator: National Minimum Dataset, Denominator: Statistics NZ Estimated Resident Population. 'All cases' = inclusion in any of the first 15 diagnoses; Hospitalisations per 100,000 0–24 year olds

Diagnosis

Most hospitalisations of 0–24 year olds with eating disorders had Anorexia nervosa as a primary diagnosis, though other eating disorders and other mental and behavioural disorders also feature highly as primary diagnoses (**Table 2**).

Table 2. Hospitalisations involving eating disorders in 0–24 year olds, by primary diagnosis, New Zealand 2011–2015

Primary diagnosis	2011–2015 (n)	Annual average	Rate	95% CI	%
Eating disorders* in 0–24 year olds					
New Zealand					
Anorexia nervosa	1,174	235	15.28	14.44–16.18	51.0
Bulimia nervosa	90	18	1.17	0.95–1.44	3.9
Other eating disorders	245	49	3.19	2.81–3.61	10.6
Eating disorders total	1,509	302	19.65	18.68–20.66	65.6
Other mental and behavioural disorders	389	78	5.06	4.59–5.59	16.9
Injury and/or poisoning	126	25	1.64	1.38–1.95	5.5
Endocrine, nutritional and metabolic diseases	105	21	1.37	1.13–1.65	4.6
Symptoms and/or abnormal clinical findings NEC	71	14	0.92	0.73–1.17	3.1
Other diagnoses	101	20	1.31	1.08–1.60	4.4
Total	2,301	460	29.96	28.76–31.21	100.0

Numerator: National Minimum Dataset; Denominator: Statistics NZ Estimated Resident Population; * Eating disorders listed in the first 15 diagnoses; Rate per 100,000 0–24 year olds; NEC = not elsewhere classified

Demographic distribution

Table 3 presents the demographic distribution of individuals with eating disorders in New Zealand between 2011 and 2015. The prevalence of eating disorders was significantly lower among individuals residing in areas with higher deprivation scores (NZDep2013 deciles 3–10) compared to the lowest deprivation scores (deciles 1–2), and significantly higher among 15–24 year olds compared to 0–14 year olds. The majority of 0–24 year olds with eating disorders were of European/Other ethnicities.

Table 3. 0–24 year olds hospitalised with eating disorders by demographic factor, New Zealand 2011–2015

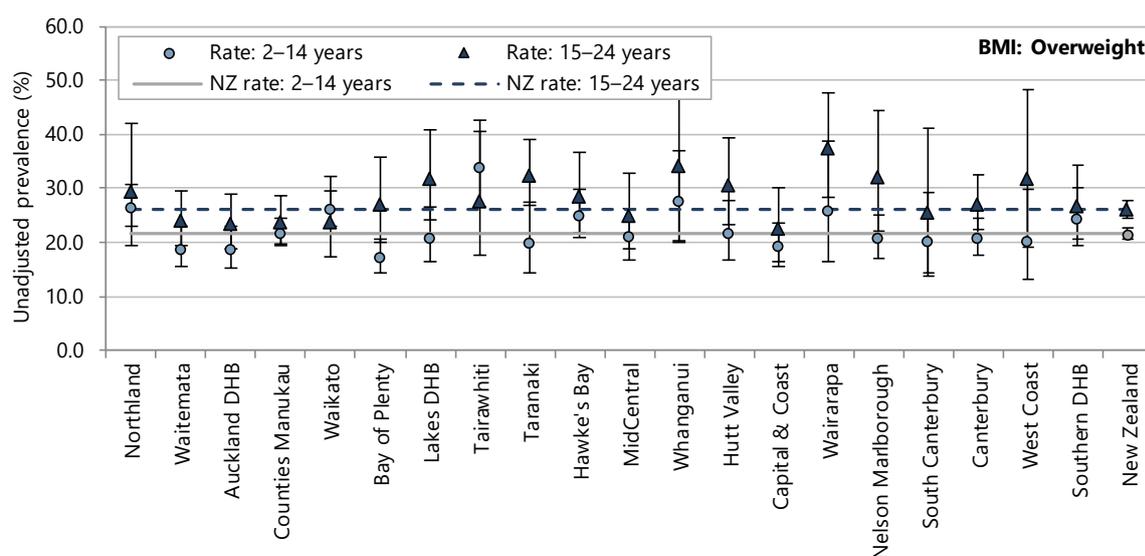
Variable	Unique individuals 2011–2015 (n)	Rate per 100,000 population	Rate ratio	95% CI
Eating disorders* in 0–24 year olds				
New Zealand				
NZ Deprivation Index quintile				
Deciles 1–2	323	22.76	1.00	
Deciles 3–4	217	16.23	0.71	0.60–0.85
Deciles 5–6	217	15.05	0.66	0.56–0.79
Deciles 7–8	222	13.67	0.60	0.51–0.71
Deciles 9–10	148	7.97	0.35	0.29–0.43
Prioritised ethnicity				
Māori	76	4.21	0.20	0.16–0.25
Pacific	6	0.85	0.04	0.02–0.09
Asian/Indian	53	5.53	0.26	0.20–0.35
MELAA	10	9.92	0.47	0.25–0.88
European/Other	866	21.08	1.00	
Gender				
Female	918	24.45	1.00	
Male	94	2.39	0.10	0.08–0.12
Age group (years)				
0–4	9	0.58	0.02	0.01–0.04
5–14	257	8.61	0.35	0.30–0.40
15–24	781	24.90	1.00	

Numerator: National Minimum Dataset, Denominator: Statistics NZ Estimated Resident Population. * Eating disorders in any of the first 15 diagnoses; Rate per 100,000 age-specific population; Rate ratios are unadjusted; Ethnicity is level 1 prioritised; Decile is NZDep2013; Summation of components may equal more than the 0–24 year old unique total

Regional trends and distribution

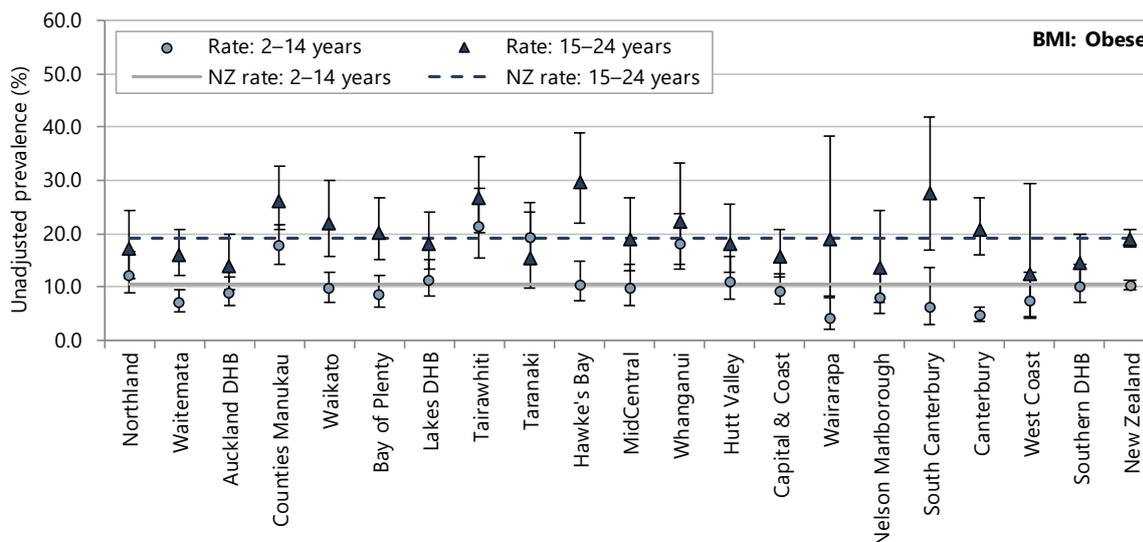
Figure 9 shows the percentage of 2–14 and 15–24 year olds in each DHB who were assessed as overweight, and Figure 10 shows the percentage who were assessed as obese, in the 2011/12 to 2013/14 New Zealand Health Surveys. Prevalence of overweight and of obesity were similar to the national prevalence in all South Island DHBs.

Figure 9. BMI: Overweight in 2–24 year olds, by age group and district health board, NZ Health Survey 2011–2014



Source: NZ Health Survey

Figure 10. BMI: Obese in 2–24 year olds, by age group and District Health Board, NZ Health Survey 2011–2014



Source: NZ Health Survey

Numbers of unique individuals hospitalised for eating disorders in the South Island DHBs between 2011 and 2015 are shown in **Table 4** where hospitalisation was the primary diagnosis or one of the first 15 diagnoses. Canterbury, Nelson Marlborough and Southern DHBs have a higher ratio of All:Primary hospitalisations than the national while South Canterbury and West Coast DHBs are lower.

Table 4. Hospitalisations for eating disorders in 0–24 year olds, South Island DHBs vs New Zealand 2011–2015

DHB	Unique individuals (n)	Hospitalisations (n)		Ratio All:Primary
		Primary diagnosis	All cases	
Eating disorders in 0–24 year olds				
Nelson Marlborough	29	49	77	1.57
South Canterbury	17	25	32	1.28
Canterbury	188	222	443	2.00
West Coast	9	14	21	1.50
Southern	105	144	221	1.53
New Zealand	1,012	1,509	2,301	1.52

Source: National Minimum Dataset, Denominator: Statistics NZ Estimated Resident Population. 'All cases' corresponds to hospitalisations with eating disorders listed in any of the first 15 diagnoses

Evidence for good practice

Possibilities for prevention

The increase in obesity worldwide over the past few decades suggests a key role for environmental determinants rather than changes in humans' basic genetic code.⁸ Obesity prevention and treatment requires a whole-of-government approach in which policies across all sectors systematically take health into account, avoid harmful health impacts, and thus improve population health and health equity.¹⁵ It is important that interventions to prevent obesity do not result inadvertently in disordered eating or increase weight stigmatisation.^{1,2} From a social justice perspective BMI screening does not address underlying issues that lead to obesity, such as genetic predisposition and economic inequality, and nor does it ensure access to healthy food.³ There is moderate evidence that health promoting schools (HPS) interventions seeking to reduce BMI and increase physical activity or fitness and fruit and vegetable intake have positive effects at an individual level with potential to produce public health benefits at the population level.¹⁶ Conversely, the provision of sugary drinks in schools and in reward packets can be considered direct-to-consumer marketing of unhealthy, empty calories.⁷ An integrated approach to prevention of both eating disorders and obesity will focus on sustainable, healthy, family-based lifestyle modification rather than on weight, promote a positive body image, encourage more frequent family meals, facilitate healthy eating and physical activity especially within the family, and address any history

of maltreatment or bullying.¹ Different BMI thresholds and descriptors may be relevant for population surveillance compared with individual level clinical management.⁵

Evidence-based health care for children and young people with obesity or eating disorders

For children and young people identified as obese or overweight, family-based lifestyle interventions that include dietary, physical activity and behavioural components produce significant and clinically meaningful weight reductions in the short and the long term. Parental involvement is important, particularly for pre-adolescent children. It is not possible to say whether any one lifestyle intervention is better than any other.¹⁴ Pharmacological treatment or bariatric surgery may be indicated, as part of a multidisciplinary treatment programme, for post-pubertal adolescents with severe obesity and associated severe co-morbidities.^{17,18} Family members, including siblings, should also be included in the treatment of children and adolescents with eating disorders.¹¹ Outpatient family-based treatment is the treatment of choice for children and adolescents with eating disorders, although some will need a period of management as an inpatient. Medical and nutritional stabilisation is the first and most important goal of inpatient treatment and this is usually necessary before psychological therapy can be effective.¹² Mindfulness training is associated with a decrease in disordered eating patterns.^{19,20} When assessing outcomes of treatment it is important to use an appropriate rating scale that includes the perceptions of the child or young person. Qualitative studies of parents of children with health conditions have shown that the process of answering many personal and negative questions found in some instruments can have a negative impact.²¹

New Zealand publications and guidelines

- Ministry of Health. 2016. Health targets: Raising healthy kids. <http://www.health.govt.nz/new-zealand-health-system/health-targets/about-health-targets/health-targets-raising-healthy-kids>
- Ministry of Health. 2016. Childhood obesity plan. <http://www.health.govt.nz/our-work/diseases-and-conditions/obesity/childhood-obesity-plan>
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- Starship Children's Health. 2013. Starship clinical guidelines: Anorexia. <https://www.starship.org.nz/for-health-professionals/starship-clinical-guidelines/a/anorexia/>

International guidelines

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Evidence-based medicine reviews

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Other relevant publications

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