

Eating behaviour, body image, and mental health: updated estimates of adolescent health, well-being, and positive functioning in Aotearoa New Zealand

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ABSTRACT

Introduction. Body image dissatisfaction and its associated challenges have been related to poorer health outcomes among adolescents worldwide, including disordered eating behaviour, depression, and anxiety. However, current prevalence estimates of these issues in Aotearoa New Zealand or, relatedly, the estimates of positive attitudes and behaviours, such as intuitive eating and body appreciation are dated. **Aim.** The primary aim of this paper was to provide updated estimates for a variety of constructs related to eating behaviours and body image, sourced from a diverse range of early adolescent participants. **Methods.** For this report, a brief online survey was advertised to adolescents throughout Aotearoa New Zealand ($n = 893$) via school and community noticeboards. **Results.** Approximately one-in-three male participants and one-in-two female participants reported body image dissatisfaction. One in four participants reported clinically significant symptoms of depression and anxiety. **Discussion.** Given such issues, there is clearly still much progress to be made in advancing positive health among early adolescents. Identifying potentially protective constructs such as intuitive eating and body appreciation may offer guidance into the best targets for prevention and early intervention.

Keywords: adolescent health, body appreciation, body dissatisfaction, early adolescence, eating behaviour, health promotion, intuitive eating, mental health, paediatrics.

Introduction

Promoting, maintaining, and understanding adolescent health and well-being is an ongoing and complex global challenge.¹ The 2015 Global Strategy for Women's, Children's, and Adolescents' Health highlighted specific data gaps among early adolescents and noted that existing data do not keep pace with a rapidly changing world.² The strategy document and subsequent reporting by academics suggest the importance of acquiring quality data regarding a variety of health indicators, as well as timely reporting on risks and challenges to health and well-being.^{3–5} Due to their increasing prevalence and chronicity, challenges related to adolescent mental health and nutrition are frequently noted as key areas for investigation.^{6–8}

The challenges of early adolescence

Early adolescence is a critical developmental window and is often a time that mental health concerns begin to emerge, contributing to broad psychosocial challenges, such as social withdrawal, reduced engagement in extracurricular activities, poor school performance, and interpersonal challenges.^{9–13} These issues are likely compounded by additional challenges relating to body image dissatisfaction and disordered eating behaviour; difficulty in these areas are highly prevalent among adolescents and are reliably linked to anxiety and depression.^{14–16} Many adolescents adopt disordered eating

WHAT GAP THIS FILLS

What is already known: Historic self-reported prevalence data demonstrate high rates of disordered eating and body dissatisfaction in early adolescence. Overseas data suggest that more positive constructs of functioning may be useful interventional targets for this age group.

What this study adds: This research offers preliminary estimates of prevalence for a variety of metrics, as well as an exploration of cross-sectional relationships between constructs. The research adds representation from male participants to a body of research that is often focused on the experiences of females.

behaviour as a method of reducing body image dissatisfaction and to protect themselves from weight-based victimisation (stigma and teasing from peers). However, such behaviour among early adolescents has long been associated with poorer health outcomes, such as weight cycling,¹⁷ poor dietary intake, and reduced physical activity.¹⁸ In turn, such behaviours are also associated with metabolic and hormonal maladjustment.^{19,20} Once these behaviours develop in adolescence, they tend to persist well into adulthood and tend to predict food preoccupation, higher long-term body weight, and clinically significant eating disorders.²¹

There are a number of theoretical frameworks that postulate different origins of body image dissatisfaction and disordered eating behaviour, although the sociocultural context is widely cited as the most prominent influence on its genesis.²² Recent cohorts of adolescents are frequent users of digital media and, perhaps as a consequence, face high rates of negative media exposure and pressure to conform to particular body ideals.²³ Increased social media use and online communication also increase exposure to weight-based victimisation, which is a predecessor to anxiety, depression, body image dissatisfaction, and disordered eating behaviour, and also supports their maintenance.

Contextualising the global challenge in Aotearoa New Zealand

Data collected from adolescents in Aotearoa New Zealand are limited. An early birth cohort study (1996) found that by age 15 years, approximately 25% of the sample met Diagnostic and Statistical Manual for Mental Disorders (DSM) criteria for at least one psychiatric disorder.²⁴ Further cross-sectional survey data indicate that the prevalence of clinically significant mental health concerns among adolescents in Aotearoa New Zealand has increased, from 10.6% in 2007 to 12.8% in 2012.²⁵ Another early study that reported data specifically relating to body image and disordered eating found that over 70% of adolescents reported that body image dissatisfaction

negatively impacted their overall well-being, and over half of the sample reported engaging in significant caloric restriction and related disordered eating behaviours.²⁶ Globally, meta-analytic data pooled from over 3000 studies suggests that the rates of mental health concerns in children and adolescents (including those related to body image and eating) likely doubled globally in 2020 and 2021 as a result of the COVID-19 pandemic.²⁷ What remains to be understood; however, is whether such rates have returned to pre-pandemic levels or if they remain elevated.

Longitudinal evidence suggests that sociocultural threats are frequently associated with the onset of such behaviours and are prevalent in Aotearoa New Zealand. For example, 94% of a sample comprised over 800 school-aged children reported that bullying occurred in their school.^{28,29} However, current data reflect bullying in general (rather than that which is specific to weight) and estimates are dated.^{30,31} As is discussed more fully below, although prior data from Aotearoa New Zealand are important, the environment and contexts in which both male and female adolescents function have fundamentally changed in the last two decades,^{32–34} necessitating more up-to-date estimates of body image, weight-based victimisation, and outcomes in this unique cultural context.

From challenge to change: avenues for health promotion

In addition to the fact that up-to-date and location-specific data are lacking, prior work has tended to concentrate on factors predicting poorer outcomes, omitting study of the positive factors that might protect adolescents from the development and maintenance of body image dissatisfaction, disordered eating behaviour, and related mental health concerns. One such construct is intuitive eating, a 10-principle self-care framework that promotes awareness and trust of internal cues, respect and care for the body, and development of skills to support the regulation of emotion and eating behaviour.³⁵ Cross-sectional research on intuitive eating among both adults and adolescents indicates strong positive relationships with other protective constructs that have long been associated with physical and psychological health and well-being, such as body appreciation, satisfaction with life, levels of physical activity, and better cardiovascular health and dietary habits when compared with control groups.^{36–42} Globally, research indicates that these constructs are generally related with lower body image dissatisfaction and disordered eating behaviour in adolescents.^{41,43} Thus, in exploring positive aspects of health and well-being, IE might serve as a useful metric for understanding regulated eating behaviour. However, there are few recent data regarding intuitive eating and body appreciation in early adolescents, and to the authors' knowledge, no existing data available that are specific to adolescents in Aotearoa New Zealand.

Present study: aims and hypotheses

Meta-analytic research conducted among adults and adolescents is consistent in denoting links between body image dissatisfaction, disordered eating behaviour, depression, and anxiety.⁴⁴ Yet to be adequately evaluated is the relationship between these phenomena among adolescents in Aotearoa New Zealand. Thus, the primary aim of this paper was to provide updated estimates for a variety of constructs related to eating behaviours and body image, sourced from a diverse range of early adolescent participants. Establishing estimates for both male and female participants was a key element of this aim. A secondary aim of the present paper was to look at associations between *both* positive and negative aspects of body image and eating behaviour. In line with earlier work in other contexts, it was hypothesised that intuitive eating and body appreciation would be positively correlated with each other, but related to lower depression and anxiety.

Methods

A brief electronic survey was advertised to schools throughout Aotearoa New Zealand ($n = 271$) that enrol intermediate-aged students, aged 11–13 years. The parents of early adolescents were also recruited through targeted advertising on social media platforms (Facebook and Twitter). Once both the parent and the adolescent had provided informed consent, and assent and demographic information had been collected, the adolescent completed an online questionnaire approximately 15 min in duration.

Participants provided informed consent for their de-identified data to be shared, analysed, and published.

Disordered eating, body image dissatisfaction, and weight-based victimisation

For the purposes of this project, body image dissatisfaction was measured using actual-ideal weight discrepancy (AIWD), as quantified by the Stunkard Figure Rating Scale (SFRS).⁴⁵ Based on self-discrepancy theory,⁴⁶ body image dissatisfaction is often indexed by measuring the difference between actual and ideal weight status.^{46–48} Participants are shown six figures, ordered from smallest to largest. Using a 1 (smallest figure) to 6 (largest figure) Likert scale, they are asked to identify which body most resembles their own. They are then shown the same set of images and asked to identify which figure they would like to resemble. The two numeric responses are used to compute a difference score. Difference scores vary from 0 (little to no body image dissatisfaction) to 5 (high levels of body image dissatisfaction). The SFRS has good construct validity in early adolescents,⁴⁹ moderate correlations with other measures of body image dissatisfaction,⁵⁰ and good internal reliability.⁵¹

Disordered behaviour and negative experiences relating to food, body weight, and eating were measured using a

brief series of questions. Though not part of a validated instrument, these were derived with permission from the Growing Up in New Zealand Study and project EAT,⁴³ and were included to preliminarily document the prevalence of disordered eating behaviour and weight-based victimisation in the sample. Questions pertaining to disordered eating behaviour were answered using a Yes/No binary scale. The questions included ‘Do you try to eat less at mealtimes than you would like to eat?’, ‘In the last year, have you skipped meals to lose weight?’, ‘In the last year, have you eaten so much food in a short period of time that you’d be embarrassed if others saw you?’, and ‘In the last year, have you ever felt like you couldn’t stop or control your eating?’. With regards to weight-based victimisation, participants rated the question ‘Have you ever been teased about your weight?’ on a frequency basis, with a 1–5 Likert-type scale response option ranging from (1) ‘Never’ to (5) ‘At least once a week’.

Depression and anxiety

Depression and anxiety were measured using the Generalised Anxiety Disorder (GAD) and Major Depressive Disorder (MDD) subscales of the Revised Child Anxiety and Depression Scale (RCADS). The subscales of interest are scored on a Likert scale from 0 (never) to 3 (always); GAD consisted of six items, and MDD consisted of 10 items. Subscale scores were calculated by adding items to get a total, ranging from 0–18 for GAD to 0–30 for MDD. Higher scores indicate greater levels of pathology.

The RCADS has sufficient structural validity and internal consistency, as well as sufficient test-retest and criterion validity among clinical and non-clinical samples of children and adolescents aged 8–18 years.^{52–54} Scores can be reported as raw scores or *t* scores and are typically classed into one of three categories, which were developed using normative population data.⁵⁵ The first category is ‘Normal’, which refers to scores in a normal range; a *t* score below 65. The second category is ‘Borderline’, which refers to *t* scores between 65 and 69, which sit approximately in the top 6% of population norms (scores of young people in the same age category with no previous mental health referral); such scores necessitate more thorough assessment in general practice. The third category is ‘Clinical’, which refers to *t* scores 70 or higher, which sit approximately in the top 2% of population norms and necessitate onward referral.^{52,55,56} Cronbach’s alpha for both the depression and anxiety subscales in the present study was high; 0.873 and 0.824 respectively.

Intuitive eating and body appreciation

Two key outcome measures sought to explore regulated aspects of body esteem and eating behaviour; the Body Appreciation Scale (BAS-2) and the Intuitive Eating Scale for Early Adolescents (IES-2-EA). The BAS-2 is a 10-item scale scored on a Likert scale from 1 (never) to 5 (always), with

higher scores indicating higher levels of body appreciation.⁵⁷ Studies among adolescents provide evidence of good convergent validity and internal consistency; scores on the BAS-2 are positively associated with self-esteem, well-being, and intuitive eating⁵⁸ and have a high Cronbach's alpha (0.94). In the present study, Cronbach's alpha was high (0.94).

Intuitive eating was measured using the Intuitive Eating Scale for Early Adolescents (IES-2-EA). This scale comprises 17 items, which load onto three factors, 'Reliance on Hunger and Satiety Cues' (RHSC, eight items), 'Eating for Physical Rather than Emotional Reasons' (EPR, five items), and 'Unconditional Permission to Eat' (UPE, four items, reverse scored). Responses are scored on a Likert scale from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate better ability to eat intuitively. Among participants aged 11–13 years, the measure has good internal consistency ($\omega = 0.80$) and concurrent validity, and is positively associated with interoceptive awareness, general well-being, and quality of life (K. M. Babbott *et al.*, unpubl.). In the present study, Cronbach's alpha was above the conventional 0.70 cut-off for the overall IES-2-EA score (0.80), RHSC (0.80) and EPR (0.87), and UPE (0.72).

Ethics approval

All research methods were approved by the University of Auckland Health Research Ethics Committee (AHREC; Reference: AH22950).

Results

Sample

A total of 893 students were recruited from virtual flyers, which advertised that the study team were 'investigating eating behaviour and well-being among adolescents aged 11–13 years'. These flyers were distributed via online school noticeboards throughout Aotearoa New Zealand. Statistical analysis was performed using IBM SPSS statistics for Mac (IBM Corp. Released 2020. IBM SPSS Statistics for Windows, Version 27.0. Armonk, NY: IBM Corp). Data collected from participants who had incomplete or missing parental consent to complete the questionnaires were removed ($n = 14$). Participants who did not provide any data beyond initial demographics were also removed ($n = 152$). In total, data from 727 participants were used for analysis (Table 1).

Disordered eating, body image dissatisfaction, and weight-based victimisation

As noted, participants were asked four questions about restrictive and disordered eating behaviours. Overall, 40.2% of participants ($n = 282$) reported eating less at mealtimes than they would like to eat and 26.5% of participants ($n = 193$) reported regularly skipping meals for the purposes

Table 1. Participant demographics.

<i>n</i> = 727	
Gender, <i>n</i> (%)	
Female	242 (33.3)
Male	478 (65.7)
Transgender/Takatāpui	7 (1.0)
Age (years), mean (%)	
11	171 (23.5)
12	357 (49.1)
13	199 (27.4)
Cultural identity, <i>n</i> (%)	
New Zealand European/Pākehā	431 (59.3)
New Zealand Māori	94 (12.9)
Cook Island Māori	13 (1.8)
Pasifika	58 (8.0)
Asian	164 (22.6)
Middle Eastern/Latin American/African	19 (2.6)
Other	109 (15.0)

of weight loss. With respect to binge eating, 30.7% of participants ($n = 224$) reported feeling like they could not stop or control their eating (in the 12 months prior to data collection), and 25.3% of participants ($n = 187$) reported instances of eating large quantities of food in a short period of time. Findings stratified by gender can be found in Table 2, but broadly, compared to their male counterparts, female participants were much more likely to report restrictive eating (Q1; $t(188) = -1.77$, $P = 0.03$, Q2; $t(178) = -3.31$, $P < 0.001$) and binge eating behaviour (Q3; $t(488) = -3.12$, $P < 0.001$, Q4; $t(488) = -1.58$, $P = 0.04$).

Body image dissatisfaction was indexed using AIWD. Of the total participants, 38.7% ($n = 281$) reported body image dissatisfaction. More information about the distribution and directionality of body image dissatisfaction can be found in Fig. 1. In terms of gender differences, female participants had higher rates of body image dissatisfaction; $t(486) = 4.47$, $P < 0.001$.

Participants were also asked to share their experiences with weight-based victimisation on a frequency basis. Overall, 59.8% of participants ($n = 435$) had no recollections of being teased about their weight. The frequency of weight-based victimisation for male, female, and transgender/takatāpui participants are reported in Fig. 2. There was no significant difference among male and female participants with regards to reports of weight-based victimisation.

Depression and anxiety

Participants' combined mean score on the MDD and GAD subscales of the RCADS were 9.01 (5.96) and 6.12 (3.69),

Table 2. Questions regarding restrictive (Q1 and Q2) and binge (Q3 and Q4) eating behaviour, reported by sex and gender identity.

	Female (n = 242)		Male (n = 478)		Transgender/Takatāpui (n = 7)	
	Yes % (n)	No % (n)	Yes % (n)	No % (n)	Yes % (n)	No % (n)
Do you try to eat less at mealtimes than you would like to eat?	50.9 (123)	49.2 (119)	46 (220)	54 (258)	71.5 (5)	28.6 (2)
In the last year, have you skipped meals to lose weight?	35.5 (86)	64.5 (155)	21.4 (102)	78.2 (374)	71.5 (5)	28.6 (2)
In the last year, have you eaten so much food in a short period of time that you'd be embarrassed if others saw you?	33.1 (80)	66.9 (162)	20.5 (98)	79.5 (380)	85.7 (6)	14.3 (1)
In the last year, have you ever felt like you could not stop or control your eating?	35.6 (87)	64 (154)	27.8 (133)	72.2 (345)	57.1 (4)	42.9 (3)

respectively. Means and standard deviations reported by sex and gender identity are reported in Table 3. Female participants had higher scores than male participants on measures of both depression ($t(473) = -3.03$, $P = 0.002$) and anxiety ($t(473) = -2.32$, $P = 0.02$).

RCADS scores divided into clinical thresholds (based on age-specific population averages) can be found in Table 4. For both male and female participants, anxiety and depression scores were positively correlated with body dissatisfaction and were inversely correlated with all scores on the BAS-2 and the IES-2-EA. Correlations are reported in Table 5.

Intuitive eating and body appreciation

Participants also provided data regarding the extent to which they endorsed the principles of the intuitive eating framework. Means and standard deviations reported by sex and gender identity are reported in Table 3. Across participants, the mean global score on the IES-2-EA was 3.50 (0.58). The mean score on the 'Unconditional Permission to Eat' subscale was 3.53 (0.88), and the mean score in the 'Eating for Physical Rather than Emotional Reasons' and 'Reliance on Hunger and Satiety Cues' subscales were 3.47 (1.01) and 3.49 (0.70) respectively. The mean score on the BAS-2 for all participants was 3.70 (0.96). Further analysis was conducted to explore whether there were differences in mean scores by sex. Independent samples *t*-tests indicated that scores reported by female participants were lower than those reported by their male counterparts on the BAS-2 ($t(400) = -4.23$, $P < 0.001$, two-tailed) indicating lower body appreciation. All mean scores and standard deviations for the BAS-2 are reported by sex and gender identity in Table 3.

The global score of the IES-2-EA was positively correlated with scores on the BAS-2. High IES-2-EA scores were associated with lower depression and anxiety scores of the RCADS, as well as with lower AIWD/body image dissatisfaction scores. Correlations are reported in Table 5.

An independent samples *t*-test was used to compare mean scores reported by males and females on the IES-2-EA global score (GS), as well as for each of the three subscales, 'Unconditional Permission to Eat', 'Eating for Physical Rather than Emotional Reasons', and 'Reliance on Hunger and Satiety Cues'. Male participants reported higher global scores than female participants, indicating that their eating was more intuitive ($t(419) = 2.85$, $P = 0.002$, two-tailed). Male participants also scored more highly on the 'Eating for Physical Rather than Emotional Reasons' subscale ($t(718) = 3.94$, $P < 0.001$, two-tailed) and the 'Reliance on Hunger and Satiety Cues' subscale ($t(718) = 3.04$, $P = 0.001$, two-tailed). There were no differences on the 'Unconditional Permission to Eat' subscale. Due to low sample size, participants who identified as transgender/takatāpui were not included in parametric analyses. However, means and standard deviations reported

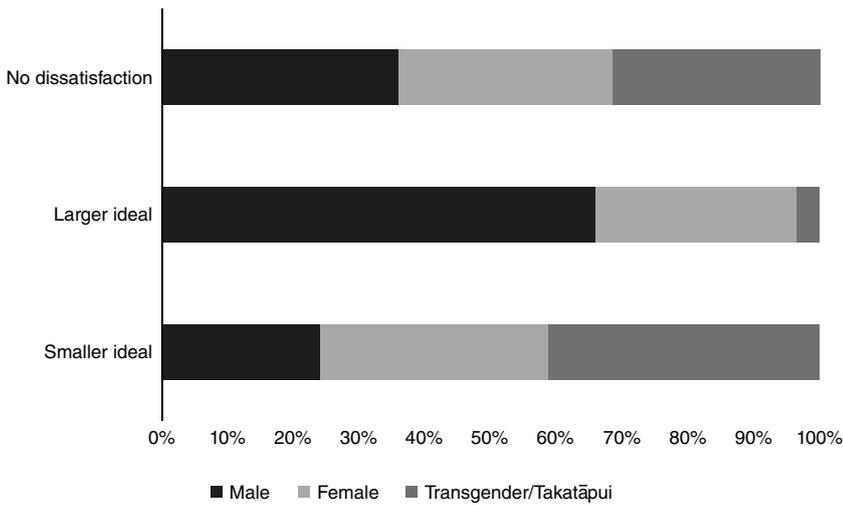


Fig. 1. Percentage of respondents who reported body image dissatisfaction (larger ideal and smaller ideal) and no body image dissatisfaction.

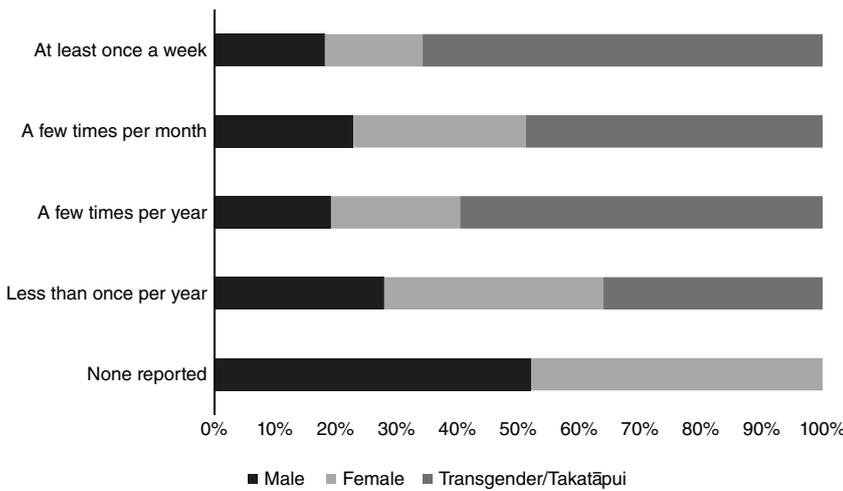


Fig. 2. Percentage of respondents who reported weight based victimisation (on a frequency basis).

by all three gender identities can be found in Table 3, and the implications of these findings are discussed in more detail in the discussion below.

Discussion

The present study reports findings from a cross-sectional study of adolescents aged 11–13 years in Aotearoa New Zealand. In line with study aims, this report provides updated estimates for a variety of constructs related to eating behaviours and body image among both male and female adolescents, and assesses the links between positive and negative aspects of body image and relating to food. Mental health difficulties, including disordered eating behaviour, body image dissatisfaction, and weight-based victimisation remain highly prevalent among early adolescents in Aotearoa New Zealand. As expected, intuitive eating and body appreciation were positively correlated with one another and both constructs were associated with lower

depression, anxiety, and body image dissatisfaction. These findings are discussed in more detail below.

‘The Kids Aren’t Alright’: updated estimates of mental health outcomes

Specific to issues relating to the body and food, approximately one-in-three male participants and one-in-two female participants in the present study reported body image dissatisfaction. Although concerning, the present findings are somewhat unsurprising given that it is well-documented in international research that body image dissatisfaction often develops prior to adolescence, in some cases in children as young as 6 years.⁵⁹ The prevalence of both weight-based victimisation and disordered eating behaviour were also high in the present sample, highlighting a clear need for intervention. Weight-based victimisation and disordered eating are associated with a variety of poor psychological outcomes including suicidality and self-harm,^{60,61} as well as

Table 3. Means and standard deviations of scores on the IES-2-EA, the RCADS, and the BAS-2.

	Female (n = 242) M (s.d.)	Male (n = 478) M (s.d.)	Transgender/ Takatāpui (n = 7) M (s.d.)
IES-2-EA			
Global score	3.41 (0.64) ^A	3.55 (0.54) ^A	2.67 (0.68)
Unconditional permission to eat	3.63 (0.90)	3.49 (0.85) ^A	2.57 (1.18)
Eating for physical reasons	3.27 (1.04) ^A	3.59 (0.97) ^A	2.34 (1.23)
Reliance on hunger and satiety cues	3.55 (0.67) ^A	3.55 (0.67) ^A	2.92 (1.47)
RCADS			
Depression	10.12 (6.53) ^A	8.32 (5.36) ^A	18.57 (11.02)
Anxiety	5.83 (3.47) ^A	5.83 (3.47) ^A	8.14 (5.95)
BAS-2			
Body appreciation	3.50 (1.05) ^A	3.83 (0.87) ^A	1.91 (1.07)

IES-2-EA, Intuitive Eating Scale 2 for Early Adolescents; RCADS, Revised Child Anxiety and Depression Scale; BAS-2, Body Appreciation Scale.

^AMeans having the same symbol differ significantly at $P < .05$. Transgender/Takatāpui participants were unable to be included in these analyses.

Table 4. Threshold data for measures of anxiety and depression.

	Normal score % (n)	Borderline % (n)	Clinical % (n)
MDD			
Male	71.4 (335)	7.10 (34)	13.4 (63)
Female	71.3 (154)	7.8 (19)	20.3 (47)
Transgender/Takatāpui	14.3 (1)	–	71.5 (5)
GAD			
Male	76.5 (359)	12.8 (54)	11.9 (56)
Female	84.3 (194)	10.3 (13)	9.5 (23)
Transgender/Takatāpui	42.9 (3)	14.3 (1)	28.6 (2)

MDD, Major Depressive Disorder; GAD, Generalised Anxiety Disorder. As per RCADS scoring guidelines, 'Borderline' refers to scores in the top 6% of population norms and 'Clinical' refers to scores in the top 2% of population norms (Chorpita et al. 2005).

poor psychosocial outcomes such as reduced school achievement and withdrawal from extracurricular activities.^{62–64}

Further, given the high risk for disordered eating behaviour to intensify in later adolescence and develop into a clinically significant disorder,⁶⁵ it is reasonable to conclude that the findings captured in this study represent a significant public health concern among early adolescents. The high rates of disordered behaviour and psychological distress in this sample suggest a clear need for further strategies to help early adolescents develop protective and regulated behaviour so that a trajectory of positive development can be established and maintained through later adolescence and adulthood.

Alongside reports of disordered eating behaviour and body image dissatisfaction, approximately one-in-four participants

in the present study reported clinically significant symptoms of depression and anxiety. Such a pattern is consistent with other studies, suggesting that the prevalence of psychological distress may be increasing among adolescents and young adults aged 13–24 years in Aotearoa New Zealand.^{66–68} Importantly, however, these data reflect a young adolescent sample, aged 11–13 years. Early adolescence is a short but critical transitory phase characterised by significant psychosocial and physical change. Given the possibility that patterns relating to food, the body, and the self are established in this time and 'carried forward',⁶⁹ our findings are troubling and necessitate further investigation.

Where to from here? Fostering positive mental health and eating behaviour

To the authors' knowledge, this is the first paper to report preliminary estimates of body appreciation and intuitive eating among early adolescents in Aotearoa New Zealand, offering preliminary norms for measuring intuitive eating using a validated psychometric, the IES-2-EA. Consistent with views of intuitive eating as having important implications for both body appreciation and positive health outcomes,^{57,70} strong inverse relationships between scores on measures of intuitive eating and body appreciation, and scores on measures of depression, and anxiety, body image dissatisfaction and disordered eating behaviour were observed in both males and females. Participants who reported more appreciation and gratitude for their bodies were more likely to engage in regulated eating behaviour and less likely to report symptoms of depression and anxiety. This pattern is consistent with studies among Australian adolescents, showing that body appreciation longitudinally predicted increased intuitive eating, increased physical activity, and reduced disordered eating and dieting behaviour.⁷¹

Table 5. Associations between intuitive eating scores, actual-ideal weight discrepancy, body appreciation, anxiety, and depression.

	<i>n</i>	1	2	3	4	5	6	7	8
IES-2-EA									
Global score	727	–							
IES-2-EA: UPE	727	0.540*	–						
IES-2-EA: RHSC	727	0.762*	0.141*	–					
IES-2-EA: EPR	727	0.752*	0.217*	0.298*					
SFRS									
AIWD (change score)	616	–0.472*	–0.303*	–0.372*	–0.308*	–			
BAS									
Total score	604	0.592*	0.323*	0.533*	0.349*	–0.543*	–		
RCADS									
Depression	597	–0.506*	–0.302*	–0.332*	–0.422*	0.448*	–0.594*	–	
Anxiety	597	–0.430*	–0.280*	–0.218*	–0.412*	0.328*	–0.433*	0.715*	–

IES-2-EA, Intuitive Eating Scale 2 for Early Adolescents; UPE, Unconditional Permission to Eat; RHSC, Reliance on Hunger and Satiety Cues; EPR, Eating for Physical Rather than Emotional Reasons; RCADS, Revised Child Anxiety & Depression Scale; SFRS, Stunkard Figure Rating Scale; AIWD, Actual-Ideal Weight Discrepancy; BAS, Body Appreciation Scale; * $P < 0.01$.

Given that adolescence is a time wherein the foundations of long-term behaviours and attitudes are established, the preliminary finding that body appreciation and intuitive eating might be useful constructs to support well-being is noteworthy. However, questions remain regarding how best body appreciation and intuitive eating can be fostered.

Strengths and limitations

Given that the present study utilised a cross-sectional design, there are inherent limitations to the conclusions that can be drawn from the findings presented. Because cross-sectional data cannot effectively establish causality or temporality between variables, it is not possible to make claims of this kind. In addition, although face validity is high, both weight-based victimisation and disordered eating behaviours were measured using informally validated measures; obviously, this may have implications for the accuracy of prevalence estimates. The current report accessed a large sample of early adolescents from a range of ethnic and cultural backgrounds. Frequently, research that pertains to body image challenges and disordered eating in adolescents is limited by under-reporting or excluding the experience of male participants, but the present study included data from a substantial cohort of both males and females. Males were over-represented in the present sample, which is an uncommon feature of many studies on disordered eating behaviour and body image dissatisfaction. This over-representation is likely due to the number of all-boys schools who opted to distribute the surveys; all-girls schools more frequently declined, citing risk and concern regarding asking about disordered behaviours, resulting in a low response rate. As a result of the inclusion of substantial numbers of male participants, the present study

was able to offer analyses split by gender so that the differential experiences of both males and females could better be understood and measured.

Several other strengths and limitations related to recruitment and the subsequent sample demographics are worth mentioning. First, the percentage of participants who identified as Māori was lower than that of the general adolescent population. Based on the most recently available New Zealand Census numbers, much of the demographic data captured within the study was representative of the population. However, 26.5% of the total sample identifying as Māori would have ensured results were generalisable. However, 12.9% of participants in the present study identified as New Zealand Māori. Unfortunately, the study was not adequately powered to substantially investigate subgroup differences, so it is advisable that future research undertakes a comprehensive evaluation of results by ethnicity. Further, given that this study recruited participants on an opt-in basis, there is likely to be some element of self-selection bias, and true prevalence data would be better equipped to offer a higher response rate, more generalisable data, and findings stratified by more granular demographic information, such as ethnicity, geographical location, and socio-economic status (to prevent misattribution of restrictive eating to eating pathology rather than poverty). Such limitations necessitate careful and critical interpretation of the findings.

This strength noted, the limited number of gender-diverse participants was a limitation of the current study. Approximately 1% of the sample identified as transgender/takatāpui; their data were thus unable to be included in certain statistical analyses against data collected from males and females. However, from the findings, it was

clear that considerable disparities exist in the present study; participants who identified as transgender/takātapui reported much lower rates of positive functioning and well-being across all domains evaluated. Though limited, existing data among gender-diverse adolescents in Aotearoa New Zealand indicate that they have significantly higher mental health needs, which often go unmet, thus contributing to the perpetuation of disparities and poor outcomes.^{72,73} These findings necessitate larger-scale research, which can draw robust conclusions about the mental health status of transgender/takātapui adolescents, and how best to facilitate substantial improvement.

Conclusions

The present study serves as a reminder that there is still progress to be made in the interest of advancing positive health outcomes among early adolescents and reversing the current documented trajectories in Aotearoa New Zealand. Taken together, the early evidence captured within this research suggests that there is much to be done, but cautious optimism may be warranted; in the interest of facilitating well-being, targeting positive constructs (such as body appreciation and intuitive eating) may offer a useful pathway forward.^{74–77}

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Data availability. The data that support the findings of this study are available upon reasonable request to the corresponding author. The code created and used in this study is available upon reasonable request to the corresponding author.

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