Evaluating the implementation of an eating disorder prevention programme (The Body Project) in a New Zealand tertiary environment

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Abstract

Background: Body dissatisfaction is a prevalent issue among girls and young women, driven by sociocultural pressures that promote the thin ideal through social media, comparison, peers and family. Repeated exposure to these ideals can foster thin-ideal internalisation and body comparison, increasing body dissatisfaction and promoting disordered eating behaviours which may progress to clinically significant eating disorders (EDs). The Body Project is a cognitive dissonance-based prevention programme designed to reduce thin-ideal internalisation and improve body image by encouraging participants to critically challenge societal beauty standards. International research has demonstrated the programme's efficacy in reducing body dissatisfaction, disordered eating behaviours, and the risk of ED onset in young females, but its implementation and effectiveness in New Zealand tertiary populations quantitively, has not been evaluated. This study evaluated the effectiveness of the Body Project among New Zealand female tertiary students aged 18–30 years by comparing Body Project and control groups across measures of well-being, thin-ideal internalisation, body satisfaction, disordered eating behaviours, negative affect, and psychosocial impairment.

Methods: A randomised controlled trial was conducted with 68 female participants (mean age 23.6 ± 3.4 years; mean BMI 25.6 ± 6.3 kg/m²). A total of 77 participations were included in the analyses, as nine participants were re-recruited and contributed data to both study groups across different time points. Participants were randomly assigned to the Body Project (n=41) or control group (n=36). Eligible participants identified as female, were aged 18–30 years, enrolled in a New Zealand tertiary institution, and reported no current or previous ED diagnosis. The Body Project consisted of four weekly online sessions (30–70 min each) delivered in small groups (3–7 participants) by trained peer educators, incorporating verbal, written, and behavioural exercises to elicit cognitive dissonance around thin-ideal internalisation. The control group watched a 55-minute documentary, *Dying to Be Thin*. Pre- and post-intervention questionnaires were completed by all participants, and assessed psychological well-being (WHO-5), thin-ideal internalisation (IBSS-R), body

part satisfaction (BPSS), dietary restraint (DEBQ), negative affect (PANAS-X), ED classification (EDDS), and psychosocial functioning (IPF).

Results: Baseline characteristics were comparable between groups. Participants in the Body Project demonstrated greater improvements in well-being (WHO-5: 54.0 ± 16.8 to 63.7 ± 14.7; Δ = 9.7 ± 13.8) compared with the control group (58.3 ± 14.6 to 57.4 ± 17.9; Δ = –0.9 ± 13.8; $p = 0.001$, Cohen's d = 0.77). Thin-ideal internalisation decreased in the Body Project group (IBSS-R: 27.1 ± 6.0 to 22.8 ± 6.7; Δ = –4.2 ± 5.9) versus the control group (27.8 ± 4.8 to 28.2 ± 5.0; Δ = 0.4 ± 4.1; $p < 0.001$). Body satisfaction improved in the Body Project group (BPSS total: 24.9 ± 8.4 to 28.4 ± 7.0; Δ = +3.5 ± 6.0) compared with a decline in the control group (25.0 ± 6.4 to 24.2 ± 7.8; Δ = –0.7 ± 4.3; $p = 0.001$). Dietary restraint decreased in the Body Project group (DEBQ total: 27.1 ± 8.0 to 19.9 ± 6.6; Δ = −7.2 ± 6.9) compared with the control group (27.9 ± 7.2 to 27.2 ± 7.4; Δ = −0.7 ± 7.0; $p < 0.001$). DEBQ items showing between-group differences included eating less at mealtimes (Δ = −1.2 vs −0.1; $p = 0.001$), watching exactly what was eaten (Δ = −0.6 vs 0.0; $p = 0.030$), deliberate consumption of slimming foods (Δ = −0.7 vs −0.1; $p = 0.025$), deliberately restricted eating to avoid weight gain (Δ = −0.3 vs −0.2; $p = 0.033$), evening food restriction (Δ = −0.9 vs 0.1; $p = 0.001$), and weight-based food decision-making (Δ = −0.7 vs 0.0; $p = 0.019$). Negative affect decreased across several PANAS-X subscales ("Dissatisfied with self," $p = 0.004$; "Blue," $p = 0.032$; "Angry at self," $p = 0.050$). Baseline psychosocial functioning was within one standard deviation of population norms and showed no significant changes post-intervention.

Conclusion: Participation in the Body Project was associated with greater reductions in thin-ideal internalisation, dietary restraint, and negative self-directed affect, as well as a greater increases in well-being and body satisfaction, compared with the control group who watched the 55-minute documentary. These findings suggest that the Body Project may be an effective evidence-based ED prevention intervention for female tertiary students in New Zealand when evaluated against an active control group.

Key words: ED, body image, prevention, thin ideal, body dissatisfaction, female.

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List of Abbreviations

ABBREVIATION	MEANING
AN	Anorexia nervosa
AOC	Assessment only control
ARFID	Avoidant/restrictive food intake disorder
BAS	Body appreciation scale
BILD-Q	Body image life of disengagement questionnaire
BDI	Beck depression inventory
BDS	Body dissatisfaction scale
BED	Binge eating disorder
BESAA	Body esteem scale for adolescents and adults
BFNE	Brief version of the fear of negative evaluation scale
BIQLI	Body image quality of life
BMI	Body mass index
BN	Bulimia nervosa
BSI	Brief symptom inventory
BSQ	Body shape questionnaire
CBT	Cognitive behavioural therapy
CRED	Central region eating disorder services
CES-D	Centre for epidemiologic studies depression scale
DB	Dissonance based
DFS	Drive for size scale
DMS	Drive for muscularity scale
DRES	Dutch restrained eating scale
DSM-5	Diagnostic and statistical manual of mental disorders, 5th edition
EAT	Eating attitudes test
ED	Eating disorder
EDANZ	Eating disorders association of New Zealand
EDDS	Eating disorder diagnostic scale
EDE-Q	Eating disorder examination questionnaire
EPSI	Eating pathology symptom inventory
FBT	Family based treatment
FFQ	Food frequency questionnaire
GFFS	Goldfarb fear of fat scale
HCAU	Health care access and utilisation
IBSS-R	Ideal body stereotype scale revised
ICC	Intraclass correlation coefficient
IPF	Inventory of psychosocial function
IWVS	Internalisation of western values scale
MBAS	Male body attitudes scale
MBSRQ	Multidimensional body-self relations questionnaire
MDDI	Muscle dysmorphia disorder inventory
NZEDC	New Zealand eating disorder clinic
OBCS	Objectified body consciousness scale
OSFED	Other specified feeding and eating disorder
PANAS	Positive affect and negative affect scale

PANAS-C	Positive affect and negative affect scale for children
PANAS-X	Positive affect and negative affect scale-extended
PD	Purging disorder
PHQ	Patient health questionnaire
QOL	Quality of life
RSES	Rosenberg self-esteem scale
SATAQ	Sociocultural attitudes towards appearance questionnaire
SATAQ-4R	Sociocultural attitudes towards appearance questionnaire-4-revised
SIEDS	South Island eating disorder services
SOBBS	Self-objectification beliefs and behaviours scale
SOQ	Self-objectification questionnaire
UMB-FAT	Universal measure of bias-fat
WHO	World Health Organisation
WHO-5	World Health Organisation well-being index

1 Chapter 1: Introduction

1.1 Body dissatisfaction, thin-ideal internalisation, and disordered eating

Body dissatisfaction is a prevalent concern among girls and women, particularly within Western societies, where appearance-based ideals are reinforced through media, peers, and social norms (Levine & Smolak, 1996; Tiggemann, 2005). Body dissatisfaction refers to a negative self-evaluation of one's physical appearance, including the analysis of weight, body shape, and specific body parts (Stice & Shaw, 2002). Longitudinal evidence indicates that body dissatisfaction and thin-ideal internalisation prospectively predict dieting, unhealthy weight-control behaviours, binge eating, and the subsequent development of eating disorder (ED) pathology (Stice et al, 2017).

A central mechanism linking sociocultural pressures to disordered eating is thin-ideal internalisation, defined as the extent to which individuals cognitively adopt a culturally sanctioned ideal of female thinness as a personal standard (Swami, 2015; Thompson & Stice, 2001). Women who internalise the thin ideal are more likely to engage in appearance-focused behaviours and to evaluate themselves negatively when they perceive they fall short of this ideal (Stice et al, 2012). In turn, body dissatisfaction motivates attempts to alter body shape or weight through dietary restriction, compensatory behaviours, or rigid eating rules, which may progress into disordered eating patterns (Neumark-Sztainer et al, 2006; Stice & Shaw, 2002). Consequently, body dissatisfaction represents one of the most reliable and modifiable risk factors for eating pathology and ED development (Stice & Shaw, 2002).

Multiple interacting factors contribute to body dissatisfaction, including sociocultural pressures, peer norms, media exposure, and individual characteristics such as low self-esteem, depressive symptoms, and higher body mass index (BMI) (Merino et al, 2024; Stice & Shaw, 2002). These risk factors are highly salient during late adolescence and young adulthood, a developmental period

characterised by increased autonomy over food choices, heightened appearance salience, and vulnerability to disordered eating behaviours.

Eating disorders (EDs) can develop at any stage of life, but research suggests that onset is most common during late adolescence, with the median age for eating and feeding disorders being around 18 years old (Solmi et al, 2022). In New Zealand, females aged 15–19 years experienced the highest rates of ED-related hospitalisations in the year ending June 2021, accounting for nearly half of all admissions (Te Whatu Ora – Health New Zealand, 2024). This period, spanning late secondary school to early tertiary education, represents a key window for prevention. Universities may therefore provide an ideal setting for ED prevention, given the developmental stage of students and the availability of health and counselling services (Harrer et al, 2020).

1.2 Sociocultural, peer and social media influences

Sociocultural influences play a substantial role in shaping thin-ideal internalisation and body dissatisfaction, with peer norms and social media exposure being particularly influential among young women. Social media platforms frequently present idealised, edited, and appearance-focused content that emphasises thinness, leanness, and fitness as markers of success and attractiveness (Brown & Tiggemann, 2016; Brown & Tiggemann, 2020; Marks et al, 2020; Raggat et al, 2018). Experimental and longitudinal research has demonstrated that exposure to such content is associated with greater body dissatisfaction, increased appearance comparison, and stronger endorsement of thin-ideal beliefs (Brown & Tiggemann, 2021; Tiggemann & Slater, 2014). Excessive social media use has also been linked to broader psychosocial difficulties including sleep disturbances, depression and anxiety (Marks et al, 2020).

Peer influences are especially salient within tertiary education settings, where young adults are embedded in highly social environments that encourage appearance comparison and normative

discussions about dieting, and body shape. Peer modelling of dieting behaviours, appearance-based teasing, and reinforcement of thinness as socially desirable, have been consistently associated with elevated body dissatisfaction and disordered eating behaviours (Meyer & Gast, 2008; Paxton et al, 2006). Although family influences contribute to early body image development, peer and social media influences are more proximal determinants of body dissatisfaction and disordered eating in young adulthood (Marcos et al, 2013).

1.3 Disordered eating, nutritional consequences, and eating disorders

Body dissatisfaction often precipitates attempts to alter body weight or shape through dietary restraint and engagement with diet culture, which promotes restrictive eating patterns and fad diets (Spadine & Patterson, 2022). These behaviours are strongly associated with disordered eating patterns, including rigid food rules, binge–restrict cycles, and compensatory behaviours (Neumark-Sztainer et al, 2006; Schaack, 2019).

Disordered eating behaviours carry significant nutritional consequences. Restrictive eating and food group elimination are associated with inadequate energy intake and deficiencies in key nutrients, including iron, calcium, vitamin D, B-group vitamins, and essential fatty acids (Elran-Barak et al, 2015; Schaack, 2019). Low carbohydrate availability may impair cognitive functioning and academic performance, while inadequate protein and micronutrient intake compromises bone health, immune function, and menstrual regularity (Das et al, 2017; Elran-Barak et al, 2015).

1.4 Eating disorders in New Zealand and the tertiary student population

Eating disorders are severe and complex mental health conditions associated with substantial physical, psychological, and social impairment, and have among the highest mortality rates of all

psychiatric disorders (Hambleton et al, 2022). Internationally, EDs disproportionately affect females, with estimate lifetime prevalence rates of 8.4% in women and 2.2% in men (Galmiche et al, 2019). In New Zealand (NZ), lifetime prevalence estimates are approximately 0.6% for anorexia nervosa (AN), 1.3% for bulimia nervosa (BN), and 1.9% for binge ED (BED), with higher prevalence consistently observed among females (Cleland et al, 2023).

Young adults in tertiary education are at heightened risk due to increased independence, academic pressure, financial stress, and pervasive exposure to appearance-focused peer and social media environments (Babbott et al, 2023; Neumark-Sztainer et al, 2006). New Zealand data indicates rising rates of ED symptoms and service demand among adolescents and young adults, particularly following the COVID-19 pandemic, with increased referrals and prolonged waiting times reported across both public and private services (Cleland et al, 2023; Hansen et al, 2021). Despite the availability of specialist services, access to timely treatment in NZ remains limited due to workforce shortages, long waitlists, high private treatment costs, and barriers related to stigma and help-seeking behaviours (Hansen et al, 2021; Koreshe et al, 2023; Lawson et al, 2024; Surgenor et al, 2022).

1.5 Consequences of eating disorders

Eating disorders are associated with serious physical and psychological complications, underscoring the importance of early prevention. Prolonged malnutrition, binge eating, purging, and excessive exercise can affect multiple organ systems, including cardiovascular, gastrointestinal, skeletal, and reproductive health, and contribute to elevated ED-related mortality, particularly in AN (Gosseaume et al, 2019; Hambleton et al, 2022; Sachs et al, 2016; Smith et al, 2018). Binge eating is associated with increased risk of metabolic syndrome, type 2 diabetes, and cardiovascular disease, while restrictive or purging behaviours can lead to hormonal disruption, micronutrient deficiencies, and compromised immune function (Hambleton et al, 2022; Raevuori et al, 2014). Psychiatric

comorbidities, including anxiety, mood, obsessive–compulsive, and attention disorders, further exacerbate functional impairment and reduce quality of life (Hambleton et al, 2022).

Given the severity, chronicity, and high burden of EDs, alongside persistent barriers to timely access to treatment, prevention strategies that target modifiable risk factors prior to the onset of clinical pathology are critical. Interventions that reduce thin-ideal internalisation, body dissatisfaction, and disordered eating behaviours during late adolescence and young adulthood may offer substantial benefits in reducing ED risk and long-term health consequences.

1.6 Prevention efforts and the Body Project

Eating disorder prevention research supports both universal and targeted approaches, with targeted interventions delivered to individuals at elevated risk demonstrating stronger and more sustained effects (Langmesser & Verscheure, 2009). Meta-analytic evidence indicates that interventions targeting thin-ideal internalisation are among the most effective in reducing body dissatisfaction, dieting behaviours, and ED symptoms (Schaefer et al, 2019; Stice & Presnell, 2007).

The Body Project is a cognitive-dissonance-based body image intervention developed by Stice and colleagues, designed to reduce thin-ideal internalisation and subsequent ED risk among adolescent girls and young women (Stice & Presnell, 2007). Through structured verbal, written, and behavioural exercises, participants actively critique the thin ideal, generating cognitive dissonance that motivates reductions in ideal internalisation and appearance-based self-evaluation. The programme has demonstrated robust efficacy across multiple randomised controlled trials, with sustained reductions in ED risk factors and symptoms (Ergut & Keser, 2022; Stice et al, 2017). The programme has been successfully implemented internationally, including in the US (Stice & Rhode et al, 2017), Brazil (Dunker et al, 2025), China (Luo et al, 2021), and Turkey (Ergut & Keser, 2022). In NZ, the Body Project has only been adapted for relapse prevention within clinical services for young people,

rather than as a primary prevention programme in tertiary education, highlighting a critical gap addressed by the present study (New Zealand EDs clinic, 2024).

1.7 Aim and objectives

1.7.1 Aim

This study evaluated the effectiveness of the Body Project among New Zealand female tertiary students aged 18-30 years.

1.7.2 Objectives

To evaluate pre- to post-intervention changes associated with participation in the Body Project, compared with a control group, the specific objectives of this study were to:

1. Assess psychological well-being, as measured by the WHO-5 well-being index.
2. Examine levels of thin-ideal internalisation.
3. Determine body image satisfaction, specifically perceptions of weight, shape, and appearance.
4. Assess disordered eating-related behaviours and cognitions, including dietary restraint, weight- and shape-related concerns, and negative affect related to weight and shape.
5. Evaluate psychosocial functioning, including interpersonal relationships, academic/work functioning, and self-care.

1.8 Thesis structure

Chapter 1 provides an overview of EDs and the sociocultural factors contributing to their development, including body dissatisfaction and thin-ideal internalisation, and outlines the aims and objectives of the present study. Chapter 2 presents a review of the relevant literature, examining EDs within both global and NZ contexts, as well as the development and application of the Body Project. Chapter 3 comprises the research manuscript and includes the introduction, methodology,

results, discussion, and conclusion relating to the implementation of the Body Project in a NZ tertiary setting. Finally, Chapter 4 summarises the key findings in relation to the study's aims and objectives, discusses study limitations, and outlines recommendations for future research and practice.

1.9 Researcher contributions

Table 1.1 Researcher contributions

Researcher	Contribution
Maia Cavanagh	MSc Nutrition and Dietetic Student and primary thesis author. Responsible for participant recruitment, allocation, and management; pre- and post-intervention survey administration, fidelity ratings, quantitative data analysis and peer educator of final Body Project group in 2025.
Professor Ajmol Ali	Primary academic supervisor. Provided oversight of study design, participant recruitment, and training of peer educators and counsellors, funding acquisition, study content and ethics application.
Professor Rozanne Kruger	Academic supervisor. Contributed to study design, ethics approval and overall academic oversight.
Ms Garalynne Stiles	Academic supervisor. Advised on study design, ethics application, clinical trial registration, and fidelity procedures, drawing on extensive clinical experience as an ED dietitian.
Professor Eric Stice	Overseas consultant, Stanford University. Co-founder of the Body Project; responsible for counsellor training and provision of expert advice on study implementation.
Professor Heather Shaw	Overseas consultant, Stanford University. Responsible for fidelity training of researchers.
Ms Cate Davis	Conducted qualitative analysis of the Body Project in 2024 and completed fidelity ratings for the 2024 cohort. 2024 participant recruitment and ethics application.
Karen Mumme	Provided statistical advice and guidance on quantitative data analysis.
Stephanie Burd	Provided peer educator refresher training in 2025.
Mark Rainier	Massey University counselling staff; delivered original peer educator training in 2023.
Maria Miller	Massey University counselling staff; delivered original peer educator training in 2023.

2 Chapter 2: Literature review

2.1 Introduction

Body dissatisfaction and the internalisation of sociocultural appearance ideals are consistently identified as central risk factors for disordered eating and the development of eating disorders (EDs) among adolescent girls and young women (Stice & Shaw, 2002; Stice et al, 2017). Eating disorders are among the most severe psychiatric conditions, associated with substantial physical, psychological, and social impairment, and the highest mortality rates of any mental health disorder (Hambleton et al, 2022). Recent international estimates suggest that between 5.5–17.9% of young women and 0.6–2.4% of young men meet criteria for a diagnostic and statistical manual of mental disorders, fifth edition (DSM-5) ED by early adulthood (Silén & Keski-Rahkonen, 2022). Although these data are largely derived from Western populations, emerging evidence indicates that ED prevalence is similarly high across diverse global contexts including Eastern Europe, Asia and Latin America.

Rates of EDs and disordered eating have increased further following the COVID-19 pandemic, likely reflecting the combined effects of social isolation, disrupted routines, increased social media exposure, and reduced access to support services (Hansen et al, 2021; Silén & Keski-Rahkonen, 2022). In New Zealand (NZ), these trends are reflected in increasing service demand, prolonged waitlists, and limited availability of specialist care, resulting in substantial unmet need and burden for individuals and families (Cleland et al, 2023; Surgenor et al, 2022). Females remain disproportionately affected by EDs, underscoring the relevance of gender-specific sociocultural risk factors, particularly thin-ideal internalisation and body dissatisfaction (Galmiche et al, 2019; Swami, 2015).

This chapter critically reviews the literature on ED risk and prevention, with a focus on sociocultural, psychological, and behavioural mechanisms that are modifiable and therefore relevant for preventive

intervention. Both international and New Zealand-based research are examined, with particular attention to prevention programmes targeting thin-ideal internalisation. The Body Project (Stice & Presnell, 2007) is a primary focus due to its strong evidence base, demonstrated cross-cultural efficacy, and theoretical relevance to the mechanisms most strongly implicated in ED risk (Stice et al, 2019). This review aims to establish the rationale for evaluating the Body Project as a prevention strategy among NZ female tertiary students.

2.1.1 Search strategy

A literature search was conducted using PubMed and Google Scholar between October 2023 and December 2025. Search terms included “Body Project,” “thin ideal,” “body dissatisfaction,” “eating disorder,” “body image,” “cognitive dissonance,” “prevention,” and “New Zealand.” Priority was given to peer-reviewed original research, systematic reviews, and meta-analyses examining risk factors and prevention interventions for EDs among female adolescents and young adults. Studies including males and gender-diverse populations were considered where relevant to contextualise broader findings.

2.2 Eating Disorders

2.2.1 Definitions of key concepts

Clear conceptual distinctions between body dissatisfaction, disordered eating, and clinically diagnosable EDs are essential in prevention research, particularly when interventions target subclinical risk factors rather than diagnosed conditions. Table 2.1 outlines key definitions used throughout this review.

Table 2.1 Key definitions

Term	Definition
Body dissatisfaction	A negative evaluation of one's physical appearance, often associated with a perceived failure to meet societal beauty standards (Stice & Shaw, 2002).
Body comparison	The process of evaluating one's body in relation to others, often leading to self-criticism and dissatisfaction (Schutz et al, 2002).
Disordered eating	A range of problematic eating behaviours ranging from dieting and extreme weight control methods (e.g., fasting, binge eating, and purging) to clinically diagnosable disorders (e.g., anorexia and bulimia nervosa). (Ricciardelli & McCabe, 2004).
Eating disorder	A clinically significant disturbance in eating or eating-related behaviours that result in altered intake or absorption, significantly impairing physical health or psychosocial functioning (American Psychiatric Association, 2013).

2.2.2 Overview and aetiology

Eating disorders are complex mental health conditions characterised by clinically significant disturbances in eating or eating-related behaviours, accompanied by maladaptive attitudes toward food, weight, and body image, which may result in impaired physical health or psychosocial functioning (American Psychiatric Association, 2013). They are associated with among the highest mortality rates of all psychiatric disorders, driven by both medical complications and suicide (Hambleton et al, 2022). Contemporary models conceptualise ED aetiology as multifactorial, involving dynamic interactions between biological vulnerability, psychological traits, and sociocultural influences (Sharan & Sundar, 2015). As this thesis focuses on ED prevention rather than diagnosis or treatment, this brief overview is provided for contextual purposes; readers seeking more detailed discussion of ED classification, epidemiology, and clinical management are referred to comprehensive reviews elsewhere (e.g., American Psychiatric Association, 2013; Hay, 2020; Mitchison & Hay, 2014; Treasure et al, 2020).

While biological and genetic factors contribute to baseline susceptibility, sociocultural mechanisms—particularly thin-ideal internalisation and body dissatisfaction—play a central role in the development and maintenance of eating pathology, especially among females (Levine & Smolak, 1996; Stice & Shaw, 2002; Tiggemann, 2005). These modifiable risk factors are therefore key targets for prevention-focused interventions.

2.2.3 Classification of eating disorders

According to the DSM-5, feeding and EDs involve persistent disturbances in eating or eating-related behaviours that result in altered intake or absorption of food, leading to significant impairment in physical health or psychosocial functioning (American Psychiatric Association, 2013). The primary EDs include anorexia nervosa (AN), bulimia nervosa (BN), and binge ED (BED), each of which presents distinct clinical features and treatment challenges (American Psychiatric Association, 2013; Sharan & Sundar, 2015).

While diagnostic classification is essential for clinical management, prevention research often focuses on the broader spectrum of disordered eating behaviours that precede diagnosable EDs. This distinction is particularly relevant in tertiary populations, where subclinical symptoms are prevalent and may represent a critical window for early intervention.

2.2.4 Prevalence of eating disorders in New Zealand

In NZ, lifetime prevalence estimates among women are approximately 1.9% for BED, 1.3% for BN, and 0.6% for AN (Cleland et al, 2023). Females are consistently over-represented across all ED diagnoses. However, these figures likely underestimate the true burden of eating pathology, as many individuals experience disordered eating without meeting full diagnostic criteria, or face delays in help-seeking due to stigma, cost, and limited service availability (Hansen et al, 2021; Lawson et al, 2024; Surgenor et al, 2022).

The discrepancy between prevalence estimates and service demand highlights the importance of prevention strategies targeting risk factors before progression to severe or chronic illness.

2.2.5 Impact and consequences of eating disorders

Eating disorders are associated with substantial physical, psychological, and social consequences, contributing to long-term functional impairment and reduced quality of life (Hambleton et al, 2022). Medical complications affect nearly every organ system and include cardiovascular abnormalities, gastrointestinal dysfunction, reduced bone mineral density, endocrine disruption, and metabolic disturbances. Psychiatric comorbidities such as anxiety, mood disorders, and obsessive–compulsive disorder further exacerbate impairment and complicate recovery (Hambleton et al, 2022).

Beyond individual health impacts, EDs impose significant social and economic costs, affecting education, employment, and family functioning (Cleland et al, 2023; Maunder & McNicholas, 2021). These consequences reinforce the need for early, population-level prevention approaches.

2.2.6 Barriers to accessing treatment

Despite the severity of EDs, access to timely and appropriate treatment remains limited. Common barriers to accessing treatment include limited specialist services, long waiting lists, high treatment costs, stigma, low mental health literacy, and geographic constraints, particularly for those living outside major urban centres (Pehlivan et al, 2022). In NZ, individuals experience an average delay of over five years between symptom onset and treatment engagement, reflecting barriers such as long waitlists, workforce shortages, stigma, and financial constraints (Hamilton et al, 2022). These barriers were exacerbated during the COVID-19 pandemic, with marked increases in ED-related hospitalisations among adolescents and young adults (Taquet et al, 2021). Given these systemic constraints, prevention interventions that reduce risk factors and delay or prevent disorder onset are increasingly recognised as essential to treatment-based approaches.

2.3 Risk factors for eating disorder development

Eating disorders arise from the interaction of non-modifiable and modifiable risk factors. While biological and developmental characteristics establish vulnerability, modifiable sociocultural and psychological mechanisms play a decisive role in determining whether risk progresses to disordered eating and clinical EDs (Stice & Shaw, 2002; Stice et al, 2017).

2.3.1 Non-modifiable risk factors

Non-modifiable risk factors include genetic predisposition, family history of an ED, biological sex, and pubertal timing. Family and twin studies indicate a substantial heritable component, particularly for AN and BN, suggesting that genetic vulnerability contributes to baseline risk (American Psychiatric Association, 2013; Thornton et al, 2011). Twin and family research consistently shows higher concordance rates in identical twins compared with fraternal twins, supporting a role for genetic factors alongside environmental influences (Thornton et al, 2011).

Females experience substantially higher ED prevalence than males, with global lifetime prevalence estimates of 8.4% for women compared with 2.2% for men (Galmiche et al, 2019). This disparity is commonly attributed to heightened biological sensitivity to weight-related cues combined with disproportionate sociocultural pressure surrounding appearance. Women also report higher levels of body dissatisfaction and more frequent appearance-monitoring behaviours such as body checking, than men (Striegel-Moore et al, 2009). Body image is more closely linked to self-esteem among females, increasing vulnerability when sociocultural appearance ideals are internalised (Kates, 2007; Whiteman, 2016). Although females are at greater overall risk, males also experience body dissatisfaction and disordered eating, typically oriented toward muscularity or leanness rather than thinness, which may contribute to under-recognition within traditional ED frameworks (Griffiths et al, 2024).

Puberty represents a critical developmental transition during which rapid physical changes may conflict with sociocultural thin-ideal standards, increasing body dissatisfaction and vulnerability to disordered eating (Klump, 2013). While these factors are not directly modifiable, they underscore the importance of early, developmentally informed prevention efforts.

2.3.2 Modifiable risk factors

2.3.2.1 *Thin-ideal internalisation and body dissatisfaction*

Thin-ideal internalisation—the extent to which individuals adopt culturally sanctioned appearance ideals as personal standards—is one of the most robust and consistently identified predictors of body dissatisfaction and disordered eating (Schaefer et al, 2019; Stice et al, 2012). Longitudinal research demonstrates that internalisation typically precedes the onset of dieting, negative affect, and eating pathology, rather than merely co-occurring with these outcomes (Stice & Shaw, 2002). Importantly, thin-ideal internalisation is modifiable, making it a central target for prevention interventions.

Within Western societies, physical appearance is highly valued, with thinness frequently associated with success, confidence, and social desirability (Tiggemann, 2011). Repeated exposure to these ideals encourages the development of cognitive schemas linking thinness to personal worth and social reward (Slater & Tiggemann, 2002; Thompson et al, 1999). When these ideals are internalised, individuals are more likely to engage in persistent appearance monitoring and experience dissatisfaction when their bodies diverge from the perceived ideal.

Body dissatisfaction—a negative subjective evaluation of one's weight, shape, or appearance—emerges as a central psychological consequence of thin-ideal internalisation and functions as a proximal risk factor for disordered eating (Stice & Shaw, 2002). Women who strongly internalise the thin ideal are more likely to engage in dieting, excessive exercise, and other maladaptive weight-

control behaviours, increasing the risk of restrictive, binge–purge, or compensatory cycles and the development of eating pathology (Hawkins et al, 2004; Stice, 2001). Longitudinal evidence indicates that thin-ideal internalisation often develops early, persists across adolescence and adulthood, and remains active during recovery, increasing relapse risk if not directly addressed (Schaefer et al, 2019; Stice & Shaw, 2002).

2.3.2.2 *Social media exposure and social comparison*

Media exposure plays a central role in reinforcing thin-ideal internalisation. Traditional and social media frequently portray idealised, digitally altered, and unattainable bodies that function as powerful reference points for self-evaluation (Brown & Tiggemann, 2016; Grabe et al, 2008). Exposure to such content is consistently associated with increased body dissatisfaction, lower self-esteem, depressive symptoms, and disordered eating behaviours (Grabe et al, 2008; Markey, 2010).

Social comparison theory provides a key framework for understanding these effects, suggesting that individuals evaluate themselves relative to others, particularly when comparison targets are perceived as similar or aspirational (Festinger, 1954). Comparisons can occur across multiple domains, including physical appearance, eating habits, athletic performance, and lifestyle behaviours (Wheeler & Miyake, 1992). Factors predicting body comparison tendencies include the perceived importance of thinness, internalisation of socio-cultural ideals, peer concern with weight, body image instability, competitiveness, academic grades, public self-consciousness, perfectionism, and family concerns with weight (Schutz et al, 2002). Among adolescent girls and young women, upward appearance-based comparisons are especially harmful and are strongly associated with body dissatisfaction, dietary restraint, and emotional distress (Schutz et al, 2002).

Social media platforms intensify the processes of thin-ideal internalisation and appearance-based social comparison by providing continuous access to curated, appearance-focused content that lacks real-life context (Brown & Tiggemann, 2020). Highly visual platforms such as Instagram and TikTok

amplify opportunities for comparison across domains including body shape, eating behaviours, fitness, and lifestyle (Sharma & Vidal, 2023; Raggat et al, 2018). Research indicates that females are more likely to engage in passive consumption of appearance- and dieting-related content, with social comparison mediating the relationship between social media use and disordered eating (Brown & Tiggemann, 2020; Sharma & Vidal, 2023). Advertising content further normalises unrealistic beauty standards, reinforcing internalisation of extreme thinness or hyper-muscularity ideals (Aparicio-Martinez et al, 2019; Grogan, 2016).

2.3.2.3 *Peer influence*

Peer influence represents another highly salient and proximal modifiable risk factor, particularly during adolescence and young adulthood. Peer modelling of dieting behaviours, frequent discussions about weight and appearance, and reinforcement of thinness as socially desirable are consistently associated with greater body dissatisfaction and disordered eating behaviours (Eisenberg et al, 2003; Meyer & Gast, 2008).

A particularly strong predictor of disordered eating is the belief that thinness enhances social acceptance. Young women who perceive that peers will like them more if they are thinner, are more likely to engage in dieting, appearance comparison, and unhealthy weight-control behaviours (Meyer et al, 2008). Weight-related teasing and appearance-based comments further exacerbate dissatisfaction and reinforce internalised appearance ideals (Field et al, 2001; Stice & Shaw, 2002). Compared with family influences, peer norms and behaviours appear more proximal and influential during young adulthood, particularly within appearance-salient environments such as tertiary education settings.

2.3.2.4 *Secondary modifiable influences*

Family factors, including parental modelling of dieting behaviours and weight-related comments, contribute to early body image development but appear less influential than peer and media factors

during late adolescence and young adulthood (Marcos et al, 2013). Similarly, diet culture and fad dieting promote restrictive eating and reinforce the misconception that thinness equates to health, contributing to disordered eating risk, although these influences often operate through internalisation and comparison processes rather than independently (Spadine & Patterson, 2022).

Sport-related pressures may heighten risk within specific subgroups, particularly female athletes in leanness-focused sports, where restrictive eating and excessive exercise can be reinforced by performance expectations (Krane et al, 2001; Smolak et al, 2000). However, these influences are context-specific and do not account for the broader population-level risk observed among young women.

2.3.2.5 *Summary and prevention relevance*

Collectively, evidence indicates that thin-ideal internalisation, body dissatisfaction, social media exposure, and peer influence represent the most salient and modifiable risk factors for disordered eating among young women. These factors operate through interrelated mechanisms involving internalisation of appearance ideals, social comparison, and reinforcement of thinness as a marker of personal and social value. Their modifiable nature, strong empirical support, and relevance during young adulthood highlight their importance as primary targets for prevention.

2.4 Prevention of eating disorders

Preventive approaches play a critical role in addressing EDs, given their high chronicity, relapse rates, and substantial personal and societal costs. Rather than waiting for disordered eating patterns to emerge, prevention programmes aim to intervene early by targeting modifiable risk factors that precede the onset of clinically significant pathology. Among these, body dissatisfaction and internalisation of sociocultural appearance ideals have been consistently identified as robust

predictors of disordered eating, particularly during adolescence and young adulthood (Stice & Presnell, 2007).

Internationally, prevention efforts have targeted populations at heightened risk for ED development, particularly female adolescents and young adults, through programmes delivered in schools (Body Bright; Butterfly Foundation, 2021), universities (Body Advocacy Movement; Pictor et al, 2024), community groups (Free Being Me; Paraskeva et al, 2024), and online settings (Student Bodies; Taylor et al, 2006). (See Table 2.2). These initiatives increasingly aim to reduce exposure to, and endorsement of, culturally prescribed appearance ideals before maladaptive eating behaviours develop.

Prevention programmes vary considerably in their theoretical orientation, delivery format, and outcome focus. While psychoeducational and media literacy interventions are commonly implemented due to their ease of delivery (e.g. media Smart; Wilksch et al, 2018), these approaches have often demonstrated limited or short-term effects on ED risk factors. In contrast, interactive, theory-driven interventions, particularly those grounded in cognitive dissonance have demonstrated stronger and more sustained reductions in ED risk factors (Stice & Presnell, 2007; Stice et al, 2017). These programmes actively engage participants in critiquing and challenging appearance ideals, rather than relying on passive information provision.

Table 2.2 summarises key ED prevention programmes evaluated internationally. The table highlights the diversity of target populations, intervention formats, and outcome measures used across studies, as well as the variability in methodological quality and strength of evidence. Collectively, these studies illustrate both the promise of prevention-based approaches and the limitations of the existing literature.

Table 2.2 Worldwide ED prevention studies

Programme	Participants	Intervention	Outcome measures	Results	Comment
DB ED prevention for body-dissatisfied Brazilian cisgender gay and bisexual men (Almeida et al, 2024)	• Cisgender gay and bisexual men • Aged 18–30 years • Assigned male at birth • Endorsed body image concerns (appearance, body fat, or muscularity)	• Randomised to: – DB intervention (n=74) - AOC (n=75) • Measures at baseline, post, 1-, 6-, and 12-month follow-up • Intervention group completed acceptability ratings	•Intervention acceptability • SATAQ-4R • EDE-Q • MDDI • DMS • SOBBS • BAS-2	• Limited significant effects immediately post-intervention. • DB intervention led to greater reductions in self-objectification than AOC post-intervention (small to moderate effects; Cohen's d = −0.31 to −0.76) • At 1-, 6-, and 12-month follow-ups, the DB group showed greater reductions in: appearance-ideal internalisation, drive for muscularity, ED and muscularity-oriented disordered eating symptoms (small to large effects; Cohen's d = −0.33 to −0.92). • The DB group also showed greater increases in body appreciation across all follow-ups (small to large effects; Cohen's d = 0.31 to 0.81).	• PRIDE Body Project translated into Brazilian Portuguese • Strong long-term effects • Supports adaptation for sexual minority men
Free Being Me (Paraskeva et al, 2024)	• Girls aged 11–14 years • Mean age = 12.6 • n=117 • Indian scouting and guiding association	• Five weekly 1-hour group sessions • Manualised cognitive-dissonance programme • Focus on: – Appearance-ideal internalisation – Media literacy – Body talk • Delivered by trained Guide leaders	• BESAA • SATAQ-3 • PANAS-C • RSES • BILD-Q • Acceptability and fidelity	• High acceptability – Comfort: 89% – Enjoyment: 90% – Importance: 92% • Significant pre–post improvements – Body esteem (Cohen's d = 0.28) – Appearance-ideal internalisation (Cohen's d = 0.49) • No significant changes in self-esteem, positive affect, negative affect, or life disengagement, although	• Feasible community-based delivery • Effects modest • Authors recommend RCT

				life engagement showed a non-significant moderate effect (Cohen's d = 0.40)	
Body Advocacy Movement (BAM) (Pictor et al, 2024)	• Adults aged 18–30 years • University community • All genders (majority cisgender women; n=66)	• Quasi-random assignment to: – BAM (n=37) (psychoeducation on fatphobia, exploration of anti-fat bias across multiple societal levels, and exposure-based tasks such as "worst-case scenario" writing and behavioural role-play to challenge weight stigma – Body Project (BP) (n=29) (traditional) • Two 2-hour peer-led sessions led one week apart by trained peer educators • Delivered in person and online during COVID-19 (n=29) and in person thereafter (n=37).	• EPSI • GDDS • IBSS-R • SATAQ-4 • UMB-Fat	• Reductions in fear of fatness – Both BAM and BP showed significant pre–post reductions – Medium effect sizes for both programmes – BP maintained reductions more strongly at 8-week follow-up • Weight bias outcomes – BAM produced meaningful short-term reductions in explicit weight bias (UMB-Fat) – These reductions were not maintained at follow-up • Appearance-ideal internalisation – Decreases observed for both programmes – Larger immediate effects for BAM on IBSS-R – Minimal change on broader SATAQ-4 measure • Follow-up effects – Post-intervention improvements generally weakened over time across both interventions	• Explicitly targets fatphobia • Effects attenuated over time • Promising but requires longer follow-up
Body Bright (Butterfly	• Australian primary school students	• Whole-school programme • Staff training + classroom	• Body image • Body appreciation	• Improved body image, confidence and appreciation to deal with appearance related teasing.	• Not peer-reviewed • Programme cost may limit uptake

Foundation, 2021)	• Years 4–6 • n=127	lessons • Focus on body inclusivity, teasing, media literacy, joyful movement • Aimed to improve body image early and to reduce body dissatisfaction and disordered eating patterns	• Confidence • Staff self-efficacy	• Increased staff confidence in delivering programme	•No control group, participants were all from one school
BodyKind (Mahon et al, 2023)	• Irish secondary school students • Aged 15–17 years • n=600	• Teacher-delivered, school-based programme • Four-week duration (one lesson per week) • Combines dissonance, self-compassion, compassion for others, and social justice and activism • Schools randomly assigned to receive BodyKind (intervention condition n=300) or classes as usual (waitlist control, n=300).	• BAS-2 • Body dissatisfaction • WHO-5 • SCS-Y • SATAQ-3	• Outcomes pending (cluster RCT protocol)	• Well-powered trial • Strong theoretical integration • Addresses contemporary body image concerns (social media)
REbel (Eickman et al, 2018)	• High school aged students across three schools • Self selected	• Peer-led, cognitive-dissonance–based ED prevention programme • Continuous extracurricular programme throughout the school year	• Eating attitudes and behaviours (EDE-Q global and subscales) • Body image (Body checking	• REbeL participants had significantly lower post-test scores compared to control students on: – EDE-Q global score ($p < 0.05$) – EDE-Q subscales: restraint, eating concern, shape concern, weight	• RCT conducted across 3 schools; control school had higher baseline ED symptomatology • Year-long,

	• Total n=71 (REbeL n=48; Control n=23)	• Weekly 30–60 min sessions • Peer educators ("sponsors") trained and certified (≥70% on exam) • Weekly content planned with director; psycho-educational materials provided • Modules included: – Body image and self-esteem – ED and mindful eating – Exercise and self-worth – Weight bias and bullying – Appreciation of others and media literacy	questionnaire) • Weight bias • Self-esteem • Empowerment • Mood	concern (all $p < 0.05$) – Body checking questionnaire ($p < 0.05$) • No significant reductions in weight bias were observed	extracurricular format may limit participation for busier students • Attrition occurred due to moving schools or graduation • Engagement depends on sponsor's promotion and support of students • Preliminary evidence supports REbeL as an effective peer-led dissonance-based programme.
Student Bodies (Taylor et al, 2006)	• College-age women with high weight and shape concerns • n=480	• 8-week online cognitive behavioral therapy (CBT) programme • Moderated discussion group • Assessed for up to 3 years	• ED onset • Weight concern • EDE-Q • ED inventory (Drive for thinness) • Depressed mood	• Weight concerns significantly reduced in student bodies group compared with control at: – Post-intervention ($p < 0.001$) – 1 year ($p < 0.001$) – 2 years ($p < 0.001$) • ED onset overall: 43 participants developed subclinical or clinical EDs; no significant difference overall between groups • High-risk subgroups: – Participants with elevated BMI (≥25): 0% in intervention vs. 4.7% at 1 year and 11.9% at 2 years in control – Participants with baseline	• Long-term follow-up up to 2 years • First study to demonstrate prevention of EDs in high-risk groups • Effective particularly for high-risk subgroups (elevated BMI or baseline compensatory behaviours)

				compensatory behaviours: 4% in intervention vs. 16% at 1 year and 14.4% at 2 years in control • Slope of reduction in weight concerns significantly greater in intervention group (*p*= 0.02)	
The Body Project (Stice at al, 2019).	• Females at high risk of EDs development • n=7808	• Cognitive-dissonance–based ED prevention programme • Aimed to reduce thin-ideal internalisation • Participants challenged societal body ideals through verbal discussions, written tasks, behavioural exercises – Delivered over four sessions	• Thin-ideal internalisation • Body dissatisfaction • Dieting behaviours • Negative affect • ED symptoms	• Significantly greater reductions in ED risk factors compared to: – Minimal intervention (effect sizes: thin-ideal d=0.57, body dissatisfaction d=0.42, dieting d=0.37, negative affect d=0.29, ED symptoms d=0.31) – Alternative interventions (effect sizes: thin-ideal d=0.31, body dissatisfaction d=0.18, dieting d=0.17, negative affect d=0.21, ED symptoms d =0.13) • Largest effects observed when: – 4 sessions completed – Group size ≈10 participants	• More meaningful reductions seen when compared with active interventions rather than AOC • No significant advantage over mindfulness-based ED prevention • Some participants may have had sub-threshold or threshold EDs, potentially inflating symptom reductions • Effects stronger for: in-person delivery, voluntary participation, mid-adolescents/adults, ethnic minority participants, clinician-led groups, ≥2 facilitators, and more facilitator training/supervision

Media Smart (Wilksch et al, 2018).	• Young adults aged 13–25 years • Any gender • From Australia and New Zealand • Total n=555	• Online ED prevention programme (Media Smart-Targeted, MS-T) • Two delivery formats: – MST-Flexible (MST-F, n=184): participants access modules at own pace – MST-Standard (MST-S, n=187): weekly release of 9 modules • Control group (n=148): received general tips for positive body image • Fully automated programme with low implementation cost	• Primary: EDE-Q global score and diagnostic status (ED onset and remission) • Secondary: ED risk factors (thin-ideal internalisation, body dissatisfaction, dieting, negative affect) • Tertiary: Social media behaviours and engagement • Assessed at baseline, post-programme, 6-month, and 12-month follow-up	• ED onset (prevention): MS-T participants 66% less likely than controls to develop an ED by 12-month follow-up (nonsignificant) • ED remission (treatment): MS-T participants meeting ED criteria at baseline were 75% less likely than controls to still meet criteria at 12 months (significant), regardless of accessing external face-to-face treatment • EDE-Q global score: MST-F showed more favourable outcomes than control • Secondary outcomes (MST-F vs control): significant improvements in regular eating, clinical impairment, internalisation, and social media behaviours	• Fully automated, low-cost, scalable online programme • Effective for improving body image and reducing ED risk and symptoms in high-risk young adults • Particularly promising for those without access to face-to-face services (e.g., remote areas) • Further research required to confirm prevention effects (ED onset)
Dissonance vs healthy weight (Stice et al, 2006)	• Adolescent girls • Mean age =17 • n=481 • Reported body dissatisfaction	• RCT comparing dissonance-based ED prevention programme, healthy weight management programme, expressive writing control, AOC	• ED risk factors • Bulimic symptoms • Binge eating • Obesity onset • Service utilisation	• Dissonance participants showed significantly greater reductions in ED risk factors and bulimic symptoms compared with: healthy weight, expressive writing, AOC • Healthy weight participants showed greater reductions in risk factors and symptoms than expressive writing and AOC • Effects weakened at 6- and 12-month follow-ups • Both dissonance and healthy weight groups showed: lower binge eating, reduced obesity onset, reduced	• Both the dissonance and healthy weight interventions demonstrate public health potential • Effects attenuated over time • Limited cultural diversity in sample

	service utilisation through 12-month follow-up

Note: AOC = Assessment-only control, BAS/BAS-2 = Body appreciation scale/body appreciation scale–2, BESAA = Body esteem scale for adolescents and adults, BILD-Q = Body image life disengagement questionnaire, CBT = Cognitive behavioural therapy, DB = Dissonance-based, DE = Disordered eating, DMS = Drive for muscularity scale, ED = Eating disorder, EDE-Q = Eating disorder examination questionnaire, EDI = Eating disorder inventory, EPSI = Eating pathology symptom inventory, GDDS = Goldfarb drive for thinness scale, IBSS-R = Ideal body stereotype scale–revised, MDDI = Muscle dysmorphic disorder inventory, MD = Muscularity-oriented disordered eating, MS-T = Media smart–targeted, MST-F = Media smart–targeted flexible, MST-S = Media smart–targeted standard, PANAS-C = Positive and negative affect schedule for children, RCT = Randomised controlled trial, RSES = Rosenberg self-esteem scale, SATAQ-3/SATAQ-4 /SATAQ-4R = Sociocultural attitudes toward appearance questionnaire, SCS-Y = Self-compassion scale–youth, SM = Social media, SOBBS = Self-objectification beliefs and behaviours scale, UMB-Fat = Universal measure of bias–fat, WHO-5 = World health organisation–five well-being index

As shown in Table 2.2, ED prevention programmes draw on a range of theoretical approaches, including cognitive dissonance-based (e.g., Body Project; Stice et al, 2019), cognitive–behavioural and digitally delivered (e.g. Student Bodies; Taylor et al, 2006; Media Smart; Wilksch et al, 2018), psychoeducational/media literacy (e.g. Media Smart; Wilksch et al, 2018), and whole-school or community based models (e.g. Body Bright; Butterfly Foundation, 2021). These programmes have been implemented across diverse age groups and cultural contexts. Collectively, the studies demonstrate promising short-term reductions in ED risk factors, while also revealing substantial variability in study quality, follow-up duration, and cultural generalisability.

A prominent subset of interventions adopt a cognitive dissonance-based approach, including the Body Project (Stice et al, 2019), REbeL (Eickman et al, 2018), Free Being Me (Paraskeva et al, 2024), BodyKind (Mahon et al, 2023), and culturally adapted programmes such as the PRIDE Body Project for Brazilian cisgender gay and bisexual men (Almeida et al, 2024). Across these studies, dissonance-based interventions consistently reduce core ED risk factors, particularly appearance-ideal internalisation, body dissatisfaction, and disordered eating symptoms. However, while some programmes demonstrate sustained benefits at longer follow-up (e.g., Almeida et al, 2024), several report attenuation of effects over time (e.g., Body Advocacy Movement; Pictor et al, 2024; Stice et al, 2006) or assess outcomes only at post-intervention without extended follow-up (e.g., REbeL; Eickman et al, 2018; Free Being Me; Paraskeva et al, 2024), limiting conclusions regarding long-term prevention.

Cognitive–behavioural and digitally delivered interventions show a different pattern of effects. Student Bodies (Taylor et al, 2006), an online CBT-based programme for high-risk college women, produced sustained reductions in weight and shape concerns and demonstrated ED prevention effects within specific high-risk subgroups. Similarly Media Smart (Wilksch et al, 2018) demonstrated significant symptom improvements in ED symptoms and remission among participants with baseline

pathology. Together, these findings suggest that CBT-informed digital programmes may be particularly effective for targeted or indicated prevention, although evidence for universal ED onset prevention remains mixed.

In contrast, whole-school and community-based programmes, such as Body Bright (Butterfly Foundation, 2021), prioritise early intervention and the promotion of broad protective factors including body inclusivity and reduced appearance-based teasing. While these approaches may enhance reach and feasibility, the absence of control groups and peer-reviewed evaluation limits confidence in their preventive efficacy.

Across the prevention literature, diagnostic outcomes are infrequently assessed, with most studies relying on changes in ED risk factors rather than ED onset or remission. Although recent work has begun to address gaps in gender, sexual orientation, and cultural representation (e.g., Almeida et al, 2024; Paraskeva et al, 2024), the evidence base remains heavily concentrated in Western contexts.

Within this landscape, the Body Project stands out as the most extensively evaluated dissonance-based ED prevention programme, with consistent evidence of effectiveness across multiple randomised controlled trials, facilitators, and settings (Stice et al, 2017; Stice et al, 2019). Notably, it is also the only programme outlined in Table 2.2, for which replicated reductions in ED onset at long-term follow-up have been demonstrated (Stice et al, 2020). While some outcomes attenuate over time and early trials lacked cultural diversity, emerging international adaptations suggest promising cross-cultural applicability.

Accordingly, Table 2.3 summarises international adaptations of the Body Project, examining how the programme has been modified for different populations and contexts, and whether its core preventive effects extend beyond its original Western female samples.

Table 2.3 Worldwide adaptations of the Body Project

Programme	Participants	Intervention adaptations	Outcome measures	Result	Critique
AlShebali et al, (2021). Saudi Arabia	• Saudi undergraduate women • Mean age =19.16 years • n=48 (intervention n=47; control n=45) • Mean BMI = 24.4	• Programme translated into Arabic • Audio recordings used instead of video recording • Behavioural challenges culturally modified: – Wearing a belt, heavy makeup, heels, or letting hair down instead of wearing shorts • Social activism tasks replaced with written awareness-raising about the costs of the thin ideal • Social media posting replaced with written reflections due to legal restrictions • Delivered online due to COVID-19 restrictions	• EDE-Q 6.0 (primary) • BSQ-8C • BFNE • PHQ-9	• Significant group × time effects favouring the BP for: – Eating pathology (EDE-Q Global; large effect) – Body dissatisfaction (BSQ-8C; medium effect) – Depression (PHQ-9; medium effect) • No significant changes in social anxiety (BFNE) • Reductions observed in eating attitudes but not behavioural frequency (EDE-Q) • Effects maintained at 3-month follow-up • Session attendance and homework completion did not predict outcomes	• Strong evidence for effectiveness in a non-Western cultural context • Demonstrates feasibility of culturally sensitive adaptation without loss of core mechanisms • EDDS not yet fully validated in Saudi populations • No control group so could not firmly ascribe changes to the intervention.
The Body Project: More than Muscles Brown et al, (2017).	• Males aged 18-30 years old (n=112). • Caucasian (55.9%), Hispanic/Latino (17.2%), African American (9.7%),	• Participants were randomised to the more than muscles group consisting of two, two-hour sessions (n=52), involving discussion, written and verbal exercises around the cultural ideal for the male	• SATAQ-3 • EDE-Q • MBAS • DMS • MDDI	• Intervention condition demonstrated significant decreases in body-ideal internalisation, dietary restraint, bulimic symptoms, drive for muscularity and muscle dysmorphia symptoms	• Short follow up (only 1 month) • African American men were more likely to drop out

USA	Asian (7.5%) and Other (9.7%).	body and letter writing to resist the future pressures of the thin and muscular ideals, or to a waitlist control condition (n=60).		compared with control group (*p* values < 0.2; between condition Cohens d =0.30-1.1) from pre to post intervention. • Effects remained at one month post intervention for all variables	
PRIDE Body Project (cognitive dissonance–based ED prevention) Brown & Keel, (2015).	• Gay men aged 18–30 years • Mean age =21 years • n=87 – Intervention n=47 – Waitlist control n=40 • No current ED diagnosis • Ethnicity: – Caucasian 56.9% –Hispanic/Latino 22.2% – African American 16.7% – Native American 2.8% – Other 1.4%	• Randomly assigned to either a two-session DB programme (2×2-hour sessions) or a waitlist control condition • Adapted from Becker et al. (2005) peer-led DB intervention • Targeted male and gay-specific body ideals: – Muscularity, thinness, partner objectification • Activities included verbal, written, and counter-attitudinal exercises • Delivered in a university-based setting	• BSQ • DMS, • SATAQ-3 • EDE-Q • SOQ	• Significant group × time effects favouring the PRIDE DB Body Project for: – Body dissatisfaction – Drive for muscularity – Self- and partner-objectification – Body-ideal internalisation – Dietary restraint – Bulimic symptoms • Improvements were maintained at 4-week follow-up for all outcomes except body-ideal internalisation • Acceptability ratings were highly favourable among intervention participants	• Demonstrates the feasibility and effectiveness of adapting a DB prevention programme for gay men • Peer-led delivery likely enhanced relevance and engagement • Short follow-up period limits conclusions about long-term maintenance • Predominantly young, university-based, and Caucasian sample

v-Body Project (virtual cognitive dissonance–based ED prevention) Dunker et al, (2025). Brazil	• Brazilian women aged 18–25 years • Mean age =22.55 years (SD = 2.07) • n=85 • Community sample of young adult women • No diagnostic inclusion criteria specified	• Virtual delivery of the Body Project (v-Body Project) • DB prevention programme delivered online in small groups • Adapted to reduce costs and enable large-scale dissemination	• ED symptoms • Body dissatisfaction • Thin-ideal internalisation • Negative affect • Self-esteem • Body appreciation	• Significant improvements observed across all outcomes at post-intervention • Large effect sizes for ED symptoms, body dissatisfaction, thin-ideal internalisation, negative affect, body appreciation (Cohen's d = 0.74–1.31) • Small effect size for self-esteem (Cohen's d = 0.40) • All effects were maintained at 1-month and 6-month follow-up	• Provides evidence for the efficacy of virtual delivery of a DB prevention programme • Extended follow-up period strengthens conclusions regarding maintenance of effects • Virtual format enhances accessibility, scalability, and cost-effectiveness • Absence of a control group reduces ability to attribute changes solely to the intervention
Virtual Body Project (vBP; cognitive dissonance–based ED prevention) Ergut & Keser, (2022). Turkey	• Turkish female university students aged 18–25 years • Reported body dissatisfaction • No current ED diagnosis • Final sample: vBP intervention group n=40, expressive writing group n=33	• Virtual delivery of the Body Project (vBP) • Randomised, to virtual BP group or expressive writing control group • Programme delivered over four weeks • Translated and culturally adapted for Turkish participants	• BSI • EDE-Q • BIQLI • RSES	• ED symptoms (EDE-Q): $p < 0.01$ • Body image–related quality of life (BIQLI): $p < 0.01$ • Psychological symptoms (BSI): $p < 0.01$ • Self-esteem (RSES): $p < 0.05$ • No significant changes observed across time in the expressive writing control group	• Strengthened internal validity through use of an active placebo control rather than a waitlist • Extends evidence for the BP to a non-Western cultural context • Demonstrates effectiveness of virtual delivery for multiple psychological outcomes • Absence of follow-up assessments limits conclusions about long-term maintenance

Hazzard et al, (2022). USA	• 18–65-year-old, mixed gender (n=11,620). • White (75.2%), Black (6.7%), Hispanic (4.0%), Asian (6.1%) and other (7.9%).	Standard BP sessions	• SATAQ-4 • BIQLI • Body Surveillance subscale of the OBCS • Appearance evaluation and overweight preoccupation subscales of the MBSRQ.	• Evidence of invariance for all five measures across age, gender, sexual orientation, race and weight status groups	• Large sample size compared to other studies with both males and females and ethnic group varieties.
Hudson et al, (2021). Brazil	• Brazilian university women aged 18-30 years old (n=141). • BP group (n=63) • AOC (n=78)	• Randomised controlled trial (RCT) comparing BP group vs AOC • Assessments at baseline, post-test, 1-month, and 6-month follow-up	• BSQ • SATAQ-3 • EAT-26 • EDDS • BAS • BDI •PANAS.	• BP group showed significantly greater reductions compared to control in body dissatisfaction, sociocultural influence, disordered eating, ED symptoms, depressive symptoms, negative affect • Greater increases in body appreciation • Most effects persisted to 6-month follow-up (d = 0.35–0.74)	• Effect on ED symptoms weaker at 6 months → booster sessions may be required • Evidence supports effectiveness in Brazilian young women, suggesting the programme is culturally adaptable
eBody Project (online cognitive dissonance–	• Chinese females aged 14–22 years • Mean age =17.36 years (SD = 1.37) • n=372	• Online, DB BP (eBody Project) • Participants randomly assigned to a six-week programme delivered via	• BDS • IBSSR • CES-D • RSES • BAS-2	• No baseline differences between groups prior to intervention • eBP participants showed significantly greater	• Large sample size and multi-site recruitment strengthen generalisability

based ED prevention) Luo et al, (2021). China	eBody Project intervention n=191 Education brochure control n=181	35–45 min modules translated into Mandarin with culturally adapted images and names compared with an education brochure control group • Designed for scalable delivery in low- and middle-income settings	• DRES • EDDS	improvements than controls in body dissatisfaction, thin-ideal internalisation, restrained eating, disordered eating, depressive symptoms, self-esteem, body appreciation • Effects were maintained at 6-month follow-up • Control group showed limited or no change across most risk-factor outcomes	• Demonstrates feasibility of online ED prevention in a low-resource context • High attrition at 6-month follow-up (33%) may bias results • Programme content differed slightly from the original BP, limiting direct comparability (6 weeks, virtual, modified for cultural relevance in China).
Pregnancy Body project (PBP) Vanderkruik et al, (2025). USA	• Pregnant women in first or second trimester with a history of self-reported ED or disordered eating • Aged ≥18 years, fluent in English • Pilot trial n=10 • Peer facilitators recruited with lived experience relevant to target population	• 6-week group-based virtual programme, peer-led PBP • Adapted using ADAPT framework and stakeholder input to address pregnancy-specific body dissatisfaction • Feedback incorporated using CFIR and framework for Reporting Adaptations and Modifications-Enhanced	• Feasibility and acceptability (session attendance, satisfaction ratings) • Body dissatisfaction • ED symptoms • Mental health • Follow-up at 3 and 6 months postpartum	• Participants showed: 80% attended ≥5 of 6 sessions Average satisfaction = 9.28/10 89% reported improvements in body satisfaction ~33% reported reductions in disordered eating	• First adaptation for perinatal women • Small pilot RCT • Includes women with ED history • Focus on feasibility and acceptability rather than effectiveness

Wisting et al, (2023). USA	• Young women with body image concerns aged 16-25 years (n=441)	• Randomised to three virtual conditions: BP groups led by clinicians, BP groups led by peers, psychoeducational control group • Delivered entirely online • Assessments conducted at baseline, post-test, 6 months, 1 year, 2 years	• ED risk factors • ED symptoms • Prospective ED onset	• Results pending (protocol only) • Study aims to evaluate: Feasibility of virtual delivery, long-term effectiveness over 2 years, differential effects of facilitator type (peer vs. clinician)	• Protocol only; no outcome data yet • High potential for attrition over long follow-up (2 years).

Notes: AOC = Assessment only condition, BAS = Body appreciation scale, BAS-2 = Body appreciation scale-2, BDI = Beck depression inventory, BFNE = Brief fear of negative evaluation scale, BIQLI = Body image–related quality of life inventory, BDS = Body dissatisfaction scale, BSQ = Body shape questionnaire, BSQ-8C = Body shape questionnaire, short version, CES-D = Centre for epidemiologic studies depression scale, DB = Dissonance based, DMS = Drive for muscularity scale, DRES = Dutch restrained eating scale, DFS = Drive for size scale, ED = Eating disorder, EDDS = Eating disorder diagnostic scale, EDDS-DSM-5 = Eating disorder diagnostic scale, DSM-5 version, EDE-Q = Eating disorder examination questionnaire, EDE-Q 6.0 = Eating disorder examination questionnaire, version 6.0, EAT-26 = Eating attitudes test-26, IBSSR = Ideal body stereotype scale – revised, IWVS = Internalisation of western values scale, MBAS = Male body attitudes scale, MDDI = Muscle dysmorphia disorder inventory, OBCS = Objectified body consciousness scale, PANAS = Positive and negative affect schedule, PHQ-9 = Patient health questionnaire, RSES / ESES = Rosenberg self-esteem scale, SATAQ-3 = Sociocultural attitudes towards appearance questionnaire-3, internalisation-general subscale, SATAQ-4 = Sociocultural attitudes towards appearance questionnaire-4, SOQ = Self-objectification questionnaire.

The Body Project has been adapted and evaluated in diverse countries, including the USA (Brown & Keel, 2015; Brown et al, 2017; Hazzard et al, 2022; Wisting et al, 2023), Brazil (Dunker et al, 2025; Hudson et al, 2021), China (Luo et al, 2021), Turkey (Ergut & Keser, 2022), and Saudi Arabia (AlShebali et al, 2021), as well as digitally delivered formats, such as the eBody Project in China (Luo et al, 2021), the v-Body Project in Brazil (Dunker et al, 2025) and Turkey (Ergut & Keser, 2022), and population-specific adaptations, including male-focused (More Than Muscles; Brown et al, 2017), sexual minority (PRIDE Body Project; Brown & Keel, 2015), and perinatal adaptations (Pregnancy Body Project; Vanderkruik et al, 2025).

Evidence from these adaptations demonstrates consistent reductions in body dissatisfaction, ED symptoms, and thin-ideal internalisation, alongside improvements in self-esteem and body appreciation across delivery formats and cultural contexts (e.g. Brown & Keel, 2015; Dunker et al, 2025; Luo et al, 2021; Vanderkruik et al, 2025). Collectively these findings suggest that the programme's core cognitive dissonance mechanisms are robust across cultures and delivery formats, supporting the potential for its application in new contexts, such as NZ.

2.5 Strengths, limitations and future directions

The Body Project has consistently demonstrated efficacy in reducing thin-ideal internalisation, body dissatisfaction, depressive symptoms, and disordered eating behaviours across diverse populations and delivery methods including standard in-person (Brown & Keel, 2015), male-specific (More Than Muscles; Brown et al, 2017), culturally adapted (AlShebali et al, 2021; Hudson et al, 2021), and virtual formats (v-Body Project; Dunker et al, 2025; eBody Project; Luo et al, 2021).

One notable strength is its cost-effectiveness, the programme is delivered in small groups rather than individually, allowing multiple participants to engage simultaneously while fostering peer support, social

connection, and accountability (Ergut & Keser, 2022; Vanderkruik et al, 2025). Group sizes of approximately 7–10 participants appears optimal for engagement and for achieving cognitive dissonance effects (AlShebali et al, 2021; Stice et al, 2019).

The programme's peer-led delivery model, implemented in adaptations such as the PRIDE Body Project (Brown & Keel, 2015), More Than Muscles (Brown et al, 2017), and the Pregnancy Body Project (Vanderkruik et al, 2025), further enhances acceptability and engagement, particularly among adolescents and young adults. Peer facilitators who share similar age, demographic, or lived experience characteristics may increase relevance and relatability for participants (Brown & Keel, 2015; Wisting et al, 2023). In addition, peer-led delivery reduces costs relative to clinician-led interventions, while structured manuals and scripts help maintain fidelity across facilitators, allowing consistent implementation (Stice et al, 2020; Vanderkruik et al, 2025).

Cultural and contextual adaptability represents another strength. The Body Project has been successfully implemented in non-Western countries including Saudi Arabia (AlShebali et al, 2021), Turkey (Ergut & Keser, 2022), China (Luo et al, 2021), and Brazil (Hudson et al, 2021; Dunker et al, 2025). These adaptations retained the core cognitive dissonance framework while modifying language, imagery, behavioural exercises, and delivery format to align with cultural norms and constraints. Virtual adaptations, such as the eBody Project (Luo et al, 2021) and v-Body Project (Dunker et al, 2025; Ergut & Keser, 2022), further increase accessibility and scalability, particularly for university students with geographic or scheduling barriers.

Adaptations targeting underrepresented populations, including males (More Than Muscles; Brown et al, 2017), sexual minority men (PRIDE Body Project; Brown & Keel, 2015), and perinatal women (Pregnancy

Body Project; Vanderkruik et al, 2025), show promising acceptability and preliminary effectiveness, although evidence in these groups remains limited and often based on small or pilot samples.

Despite these strengths, several limitations remain. Many studies were pilot or feasibility trials with small samples and limited or absent control groups (e.g., AlShebali et al, 2021; Dunker et al, 2025), restricting generalisability and causal inference. Follow-up periods were often short (e.g., 1–6 months in Brown & Keel, 2015; Luo et al, 2021), limiting conclusions about long-term maintenance or relapse prevention.

Group-based delivery can also present challenges. For example, individuals with elevated social anxiety may avoid participation, and dominant group members may influence discussions, potentially affecting engagement and the intended cognitive dissonance effects (Brown & Keel, 2015; Vanderkruik et al, 2025). Cultural adaptations require careful consideration of translation, gender norms, and local practices; while necessary for feasibility, such modifications may alter participant experience or intervention processes (AlShebali et al, 2021; Luo et al, 2021). Evidence for the effectiveness of the Body Project in males, LGBTQ+ individuals, and perinatal populations remains limited, often relying on small or relatively homogeneous samples and pilot designs (Brown et al, 2017; Vanderkruik et al, 2025). Additionally, the majority of studies have prioritised psychological outcomes, with comparatively little attention to behavioural or dietary changes.

Tertiary students represent a particularly high-risk population for disordered eating, given the combination of heightened sociocultural pressures, peer influence, and appearance-based stressors during late adolescence and early adulthood (Cleland et al, 2023; Stice et al, 2012). Elevated levels of body dissatisfaction and engagement in disordered eating behaviours have been consistently observed

in tertiary student samples, reflecting increased vulnerability during this developmental period (Babbott et al, 2023; Cleland et al, 2023; Neumark-Sztainer et al, 2006). Consequently, tertiary education settings represent a critical target for preventive interventions.

Future research should prioritise expanding inclusivity across genders, sexual identities, and cultural contexts, while testing larger, and more representative samples (Brown et al, 2017; Vanderkruik et al, 2025). Randomised controlled trials incorporating longer-term follow-up and active control groups are necessary to evaluate sustained effects and relapse prevention (Hudson et al, 2021; Wisting et al, 2023). Incorporating behavioural and dietary outcomes, alongside psychological constructs, would provide a more comprehensive understanding of intervention impact. Finally, virtual and hybrid delivery formats offer scalable and accessible options for remote participants, and further research examining facilitator type, participant engagement, and adherence is needed to optimise implementation strategies (Wisting et al, 2023).

2.6 Conclusion

Thin-ideal internalisation and body dissatisfaction are key modifiable risk factors for disordered eating and EDs, particularly among females and university students (Cleland et al, 2023; Stice & Shaw, 2002). The Body Project demonstrates consistent efficacy internationally in reducing these risks across populations, genders, and delivery formats, including virtual and peer-led implementations.

Tertiary students represent a critical population for prevention research, given elevated levels of body dissatisfaction and disordered eating during late adolescence and early adulthood, alongside increased exposure to sociocultural and appearance-based pressures. However, ED prevention research in NZ tertiary students remains limited, and culturally adapted, controlled evaluations are lacking. The current

study addresses this gap by quantitatively evaluating a Body Project intervention among NZ tertiary students, building on prior qualitative research (Davis, 2024) to provide robust evidence for the programme's effectiveness in reducing body dissatisfaction, thin-ideal internalisation, and other disordered eating risk factors in this high-risk population.

3 Chapter 3: Manuscript

3.1 Evaluating the implementation of an eating disorder prevention programme (The Body Project) in a New Zealand tertiary environment

Background: Eating disorders (EDs) are serious mental health conditions, with body dissatisfaction and thin-ideal internalisation identified as key modifiable risk factors. This study evaluated the effectiveness of the Body Project – a cognitive-based ED prevention programme – among young New Zealand (NZ) females.

Methods: Female tertiary students (n=68; aged 18-30 years) in NZ were randomly assigned to a Body Project (n=41) or control (n=36) group, nine participants initially allocated to the control group were re-recruited into the Body Project group resulting in 77 total participations. The Body Project comprised of four weekly online sessions facilitated by trained peer educators. The control group watched a short documentary called *Dying to Be Thin*. All participants completed validated self-report questionnaires at pre- and post-intervention assessing psychological well-being, thin-ideal internalisation, body satisfaction, dietary restraint, negative affect, ED symptoms, and psychosocial functioning.

Results: Participants in the Body Project group demonstrated greater increases in well-being (Δ = 9.7 ± 13.8 vs -0.9 ± 13.8, $p = 0.001$, Cohen's d = 0.77), and greater reductions in thin-ideal internalisation (Δ = –4.2 ± 5.9 vs 0.4 ± 4.1, $p < 0.001$), dietary restraint (Δ = −7.2 ± 6.9 vs −0.7 ± 7.0, $p < 0.001$), negative affect (Δ = −10.4 ± 14.8 vs −4.8 ± 12.7, $p = 0.081$), with item-level improvements in "Dissatisfied with self" (Δ = −0.9 ± 1.1 vs −0.1 ± 1.2, $p = 0.004$), "Blue" (Δ = −0.6 ± 1.1 vs −0.1 ± 1.0, $p = 0.032$), and "Angry at self" (Δ = −0.9 ± 1.4 vs −0.3 ± 1.1, p = 0.050), and body part satisfaction (Δ = 3.5 ± 6.0 vs –0.7 ± 4.3, $p = 0.001$) compared with the control group. Baseline psychosocial functioning was within 1 SD of population norms and did not change significantly.

Conclusion: The Body Project effectively reduced thin-ideal internalisation, dietary restraint, and negative affect, while increasing well-being and body satisfaction among NZ female tertiary students.

Key words: eating disorder, body image, prevention, thin ideal, body dissatisfaction, female.

3.2 Introduction

Eating disorders are complex psychiatric conditions associated with severe physical, psychological, and social consequences, including elevated mortality from medical complications and suicide (Hambleton et al, 2022). Beyond the individual, EDs impose substantial burdens on families, healthcare systems, and society due to prolonged hospitalisation, high treatment costs, and ongoing care needs (Ahmed et al, 2025; Cleland et al, 2023; Maunder & McNicholas, 2021).

In NZ, lifetime prevalence among women is estimated at 0.6% for anorexia nervosa (AN), 1.3% for bulimia nervosa (BN), and 1.9% for binge ED (BED) (Cleland et al, 2023). Globally, EDs disproportionately affect females (8.4% lifetime prevalence) compared to males (2.2%) (Galmiche et al, 2019). These prevalence rates, combined with challenges in accessing timely treatment, including long waitlists, workforce shortages, high private costs, and stigma underscore the importance of preventive strategies to reduce the incidence and burden of EDs (Hansen et al, 2021; Koreshe et al, 2023; Lawson et al, 2024; Surgenor et al, 2022).

A key, modifiable risk factor for ED development is body dissatisfaction, defined as negative self-evaluation of appearance, including weight, body shape, or specific body regions (Stice & Shaw, 2002). Body dissatisfaction is strongly shaped by sociocultural pressures to conform to an idealised thin ideal, reinforced through media, peers, family, and romantic relationships (Marks et al, 2020; Merino et al, 2024). These pressures associate thinness with attractiveness, social acceptance, and success, while marginalising body diversity and stigmatising higher body weight (Marks et al, 2020;

Westbury et al, 2023). Thin-ideal internalisation, the degree to which individuals adopt societal standards of attractiveness, links sociocultural pressures to body dissatisfaction and disordered eating behaviours (Stice et al, 2012). Internalising the thin ideal often promotes unrealistic expectations and negative self-evaluation, increasing vulnerability to depression, anxiety, and disordered eating, which may escalate into clinical EDs if unaddressed (Hargreaves & Tiggemann, 2003; Soares et al, 2021).

Tertiary students are a particularly high-risk population for disordered eating and EDs due to a convergence of factors during late adolescence and early adulthood, including heightened sociocultural pressures, peer influence, academic and financial stress, and pervasive exposure to appearance-focused media (Babbott et al, 2023; Neumark-Sztainer et al, 2006; Stice et al, 2012; Tiggemann., 2005). Research consistently shows elevated body dissatisfaction and engagement in disordered eating behaviours among tertiary student populations, highlighting the university setting as a critical target for preventive interventions (Cleland et al, 2023).

Despite public and private ED treatment options in NZ, access remains limited, often delaying intervention until conditions require hospitalisation (Hansen et al, 2021; Koreshe et al, 2023; Lawson et al, 2024; Surgenor et al, 2022). These challenges highlight the need for preventive strategies that target modifiable sociocultural risk factors, such as thin-ideal internalisation and body dissatisfaction, to reduce the incidence and impact of EDs in NZ (Koreshe et al, 2023).

The Body Project is a cognitive dissonance-based prevention programme designed to reduce thin-ideal internalisation and body dissatisfaction by encouraging participants to critically evaluate sociocultural appearance pressures (Stice & Presnell, 2007). Delivered via four structured sessions involving verbal, written, and behavioural exercises, the programme has demonstrated efficacy in improving body satisfaction, mood, and disordered eating risk factors internationally (Dunker et al,

2025; Ergut & Keser, 2022; Stice & Rhode et al, 2017). In NZ, the Body Project has only been implemented as a relapse prevention programme in clinical settings, leaving a gap in primary prevention for tertiary students (New Zealand EDs clinic, 2024). Given tertiary students elevated sociocultural pressures, peer influence, and appearance-based stressors, this population represents a critical target for preventive interventions (Cleland et al, 2023).

This study evaluated the effectiveness of the Body Project among NZ female tertiary students aged 18–30 years by comparing intervention and control groups across measures of well-being, thin-ideal internalisation, body satisfaction, disordered eating behaviours, negative affect, and psychosocial impairment.

3.3 Methods

3.3.1 Study design

The study design was a randomised controlled trial with participants randomly assigned to either the Body Project group consisting of a four-session ED prevention programme targeting thin-ideal internalisation and body dissatisfaction using group-based discussions and exercises (intervention), or watching a documentary titled '*Dying to be Thin'* (control group) (McPhee, 2000). Both groups completed the same pre- and post- intervention surveys to provide comparative quantitative results, which will be the focus of this research report. Data were collected between October 2024 and September 2025. Some participants and peer educators were interviewed by Davis (2024), to provide qualitative experiences of the programme (not reported here).

3.3.2 Ethical considerations

This study was approved by the Massey University Human Ethics Committee (MUHEC) (OM1 24/11) and was registered with the Australian New Zealand Clinical Trial Registry (ACTRN12624001190594)

on the 30/09/2024. All data was kept anonymous with participants being assigned ID numbers for survey data collection and participants could withdraw from the study at any time.

3.3.3 Power calculation

A statistical software package (G*Power) was used to calculate the required sample size. Using a medium effect size (d = 0.5), an alpha level of 0.05, and a power level of 0.80, a minimum of 34 participants per group (intervention versus control) was required (total n=68). To account for drop out, an attrition rate of approximately 15% was assumed. Accordingly, the target sample size for the wider project was set at 80 participants (40 per group).

3.3.4 Recruitment processes and inclusion criteria

Participants were recruited using a combination of strategies, including poster-based, digital, and snowball sampling approaches. Recruitment materials were distributed across NZ tertiary institutions, including the University of Otago and Massey University, and during selected pre-lecture sessions at Massey University. Digital recruitment was conducted via university course pages, Student Job Search, and social media platforms. Snowball sampling was also utilised, with participants encouraged to refer eligible peers to the programme. See Appendix C and D for recruitment material. Recruitment in 2024 was limited to Massey University students, while 2025 eligibility was extended to students from all NZ tertiary institutions who met the inclusion criteria to increase participation numbers. Participants received a $20 koha (gift) for participation in the study. Peer educators were recruited via a separate poster distributed to students within the Massey University School of Health Sciences, advertising a paid facilitation role for the Body Project (See Appendix E).

Interested participants accessed a Google Form via a QR code provided on the recruitment poster. The form contained the study information sheet, screening questions to confirm self-reported

eligibility, and an electronic consent form. Eligible participants were required to identify as female, be aged 18-30 years, be enrolled at a NZ tertiary institution, and have no prior or current formal diagnosis of an ED. Participants were excluded if they did not meet the eligibly criteria or were unable to attend at least three out of four of the Body Project sessions. Eligible respondents provided their name and email address to receive further study information. Responses were monitored daily by the research team. Peer educators were required to identify as female, be aged 18-35 years, and be enrolled at a NZ tertiary institution to ensure similarity in age and life stages to participants.

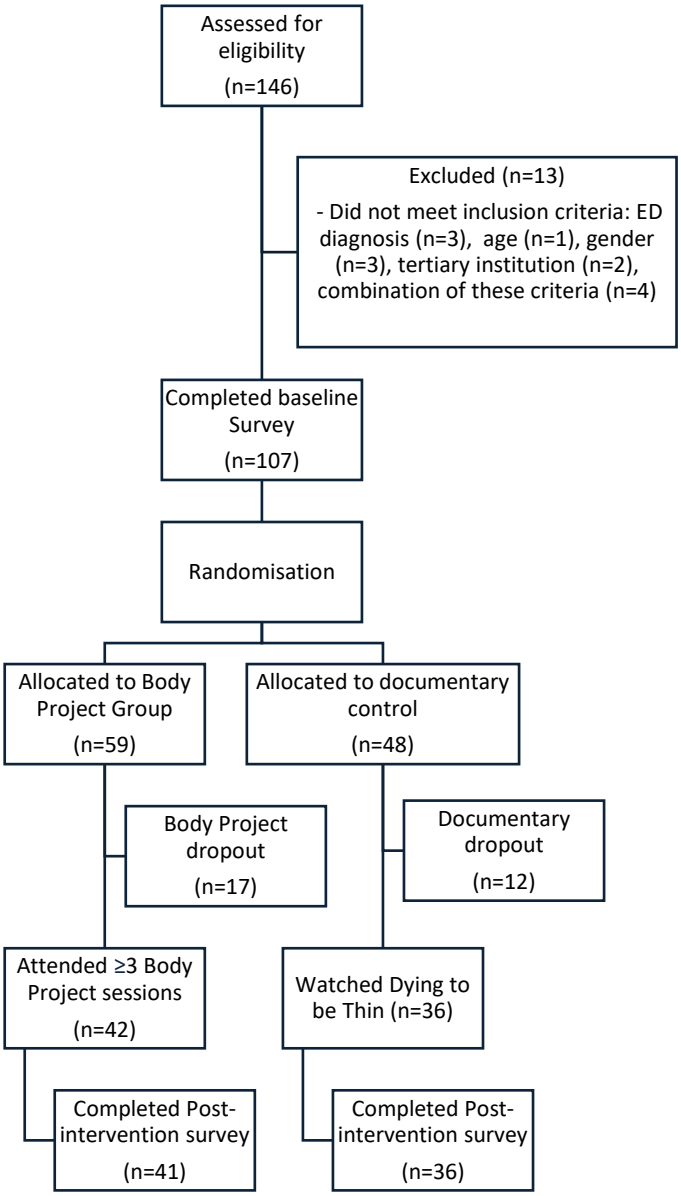

Figure 3.1 Participant flow diagram

Note: Nine participants who completed the control group in 2024 were re-recruited into the Body Project group in 2025. As a result, the figure presents 77 total study participants (Body Project n=41; control n=36), while the unique sample comprised 68 individual participants. Dropouts were mainly due to non-completion of surveys (control group) or non-attendance and scheduling conflicts (Body Project group).

3.3.5 Procedures

3.3.5.1 *Counsellor and peer educator training*

Six counsellors from the Massey University Student Health and Counselling service completed Body Project facilitator training led by Professor Eric Stice (Stanford University). The training was delivered

online over two days (eight hours total) in December 2023. Counsellors revisited the recorded training materials in August-September 2024 prior to training the peer educators.

Ten peer educators were subsequently selected based on their availability, relevant experience, and fulfilment of inclusion criteria. Peer educators completed an eight-hour, two-day training programme delivered by the trained counsellors, which included observation of exemplar sessions, role-playing activities, feedback, and group discussion. Peer educators were also provided with the Peer Body Project Clinical and Peer Leader 4-Session Version Script (Stice et al, n.d) and were encouraged to review and practice all activities prior to facilitation. A voluntary refresher training session was conducted via zoom in April 2025 by Stephanie Burd, from the NZ EDs Clinic to prepare peer educators for 2025 delivery.

3.3.5.2 *Session delivery and fidelity monitoring*

Throughout the study, the researcher maintained regular contact with peer educators to coordinate administrative processes and provide support. Fidelity feedback was provided following session review by research team members and confirmed with an ED clinician supervisor via email prior to the next session. During initial delivery in late 2024 and early 2025, sessions were primarily co-facilitated by peer educators (n=4). Later sessions in 2025 were led by a single peer educator (n=4), with one group facilitated by the researcher (Master's student) (n=1).

3.3.5.3 *Participants*

Eligible participants were assigned a unique Body Project identification (ID) number (BPXXX) and emailed a link to the pre-intervention surveys, which included questionnaires administered at both pre- and post- intervention, and were completed using assigned ID numbers. Survey completion was monitored daily. Completion of all pre-intervention questionnaires was required for participation in the study. Participants were blinded to group allocation during the pre-intervention survey phase.

Group allocation (intervention versus control) was determined using an online random number generator (Google). The randomisation sequence was generated using a coding system whereby "1" indicated allocation to the control group (Documentary) and "2" indicated allocation to the intervention group (Body Project group). The allocation sequence was recorded in a secure Excel spreadsheet containing participant names and corresponding ID numbers. This spreadsheet was used to assign participants to groups according to the pre-generated random sequence.

The randomisation process was conducted by the Master's student, who was responsible for generating the sequence and maintaining the allocation spreadsheet. Allocation occurred on a rolling basis as participants enrolled in the study, and group assignments were communicated to participants via email along with specific instructions for their assigned condition. This process resulted in variable group sizes (3–7 participants) due to ongoing recruitment and rolling enrolment.

It is important to note that participants who were initially allocated to the control group in 2024 were offered to be involved in the Body Project group in 2025 and nine of these participants were re-recruited into the Body Project group in 2025. As a result, while 77 participations were recorded across the study, these represent 68 unique individuals. These repeated participations were treated as independent observations in the analyses.

Control group

Participants allocated to the control group (n=36), were emailed a YouTube link to watch the 55-min documentary *Dying to Be Thin* (McPhee, 2000), which explores the risks associated with the pursuit of the thin ideal.

Intervention group

Participants assigned to the Body Project intervention group (n=41) attended four online sessions, each ranging from 30-70 min, delivered online via Zoom (Version 6.1.11) in small groups of 3-7 participants. Sessions were facilitated by one or two trained peer educators. A total of nine intervention groups were conducted across the study period. The sessions comprised verbal, written, and behavioural exercises designed to elicit cognitive dissonance between participants personal values and sociocultural appearance ideals.

3.3.5.4 *Session content*

The Body Project intervention consisted of four structured sessions designed to reduce thin-ideal internalisation and promote positive body image (Stice et al, n.d). Homework activities were assigned after each session to encourage reflection and real-world application of skills, and were emailed to participants by the peer educators, see Table 3.1 for specific content for each of the four sessions. Participants were encouraged to attend all four sessions; if a session was missed, brief catch-up sessions (15 min) were arranged via Zoom before the next scheduled session. Informed consent was obtained at the start of each session.

Table 3.1 Body Project session content

Session	Session focus	Key activities	Homework
1	Introduction and thin ideal awareness	Group introductions; discussion of the origins of the thin ideal, societal standards of the "perfect" female body, and associated personal and cultural costs	Write a letter to a younger girl describing the consequences of pursuing the thin ideal; complete a mirror self-reflection identifying valued appearance and non-appearance qualities
2	Resisting thin-ideal pressures	Review of session 1 homework; role-play exercises to practice resisting thin-ideal messages	Conduct three brief community interviews about the costs of thin idealisation; create a "top ten" list of strategies for resisting societal appearance pressures
3	Challenging body image concerns	Review of session 2 homework; practice "quick comebacks" to thin-ideal statements; identify personal	Complete two behavioural challenges outside participants' comfort zones; engage in two body activism behaviours; write a

		body image concerns and plan behavioural challenges	letter to one's younger self about avoiding body image concerns
4	Consolidation and self-affirmation	Review behavioural and activism challenges; share letters to younger selves; reflect on group experiences and benefits of participation	Select three self-affirmation activities to practice regularly to support ongoing skill use

3.3.5.5 *Pre and post session questionnaire description*

All participants completed a series of validated self-reported questionnaires at baseline (pre-intervention) and immediately following the intervention (post-intervention). These questionnaires included the following:

Demographics: A brief demographic questionnaire was completed at baseline to provide contextual information about the sample, including age, ethnicity, height, and weight. Height and weight data were used in ED diagnostic scale (EDDS) analyses.

Well-being index (WHO-5): The Who-5 (World Health Organisation, 1998) was used to assess subjective psychological well-being over the past two weeks. The scale consists of five items rated on a 6-point Likert scale ranging from 0 (at no time) to 5 (all of the time). Raw scores range from 0 to 25, with higher scores indicating better well-being. Raw totals were converted to percentage scores by multiplying by four (range 0 to 100), with scores below 50% (or raw score below 13) indicating poor well-being and possible depressive symptoms. The WHO-5 is brief, non-invasive, and demonstrates strong validity and sensitivity to change, making it suitable for both screening and outcome measurement in intervention research (Topp et al., 2015).

Ideal body stereotype scale-revised (IBSS-R) (Stice et al, 1996): Assessed internalisation of the thin ideal over the past month. The scale consists of eight items rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) with scores averaged to produce a total thin-ideal

internalisation score. Higher scores indicated stronger endorsement of sociocultural appearance standards.

Satisfaction and dissatisfaction with body parts scale (BPSS) (Berscheid et al, 1973): The BPSS was used to assess satisfaction with specific body parts over the past month. The nine-item scale was rated on a 5-point Likert scale ranging from 1 (extremely dissatisfied) to 5 (extremely satisfied). Lower scores indicated greater body dissatisfaction, while higher scores reflected greater body satisfaction.

Dutch eating behaviour questionnaire (DEBQ): (Van Strein et al, 1986): Dietary restraint was assessed using 10-items with responses ranging from 1 (never) to 5 (always) over the past month. The scale captures intentional efforts to limit eating, resist food temptations, and compensations after episodes of overeating.

Negative affect subscales of the positive and negative affect schedule-expanded form (PANAS-X) (Watson et al, 1992): Negative affect was assessed using 20 items drawn from the sadness, guilt, and fear/anxiety subscales of the PANAS-X. Participants rated the extent to which they had experienced each emotion during the past week on a 5-point Likert scale ranging from 1 (not at all) to 5 (extremely). Higher scores indicated greater negative affect.

Eating disorder diagnostic scale (EDDS) (Stice et al, 2000): The EDDS was used to assess ED symptoms and probable diagnoses, including AN, BN and BED. The 22-item self-report measure assessed key domains of eating pathology, including body image concerns, disordered eating behaviours, and compensatory behaviours. In the present study EDDS responses were reviewed and scored at the individual participant level, to determine probable diagnostic classifications. The EDDS

has demonstrated strong reliability and is widely used as a screening tool for identifying individuals at risk.

Inventory of psychosocial function (IPF) (Marx et al, 2020): The IPF was used to assess psychosocial impairment over the past 30 days across seven domains: romantic relationships, family relationships, work, friendships/socialising, parenting, education, and self-care. Participants indicated whether each domain was applicable to them, and rated applicable items on a 7-point Likert scale from 0 (never) to 6 (always). Domain scores were calculated as a percentage of the maximum possible score (0 to 100), with higher scores indicating greater impairment, and an overall IPF score was calculated by averaging all completed domains. The IPF demonstrates strong reliability and validity as a measure of functional impairment (Bovin et al, 2018).

3.3.5.6 *Fidelity ratings*

All Body Project sessions were automatically recorded and reviewed by members of the research team to assess fidelity, adherence to the Body Project script, and peer educator competence. Three researchers (GS, CD, and MC) completed training in fidelity and competency rating procedures with Professor Heather Shaw (Stanford University). Training involved comparing fidelity and competency scores across sessions and clarifying any discrepancies or questions via email.

Fidelity adherence was assessed using a standardised fidelity checklist scored on a 10-100 scale, reflecting the extent to which peer educators adhered to the prescribed script across key components (See Appendix F). Peer educator competency was evaluated using a corresponding 10-100 scale assessing delivery factors including timing, organisation, communication, and engagement during session delivery (See Appendix G). Fidelity ratings were completed by at least one trained researcher (CD or MC) for all recorded Body Project sessions, and a minimum of 50% of sessions were independently rated by a second researcher (GS). The final Body Project group facilitated by

MC was rated by GS. Professor Shaw was involved in rating the first group only. Following each rated session, peer educators received constructive feedback highlighting strengths and areas for improvement before their subsequent session. Questions or concerns raised by peer educators were addressed promptly via email. Catch-up sessions were not fidelity rated.

3.3.5.7 *Post-intervention procedures*

The day after each Body Project group completed their final session, participants were emailed the post-intervention survey link via Qualtrics. Control group participants received their post-intervention survey link at least two days after being provided with the documentary link to allow sufficient time for viewing. Survey completion was monitored by the research team, and participants who completed all required post-intervention questionnaires were added to a koha (gift) payment list. Koha payments were processed by an individual external to the research team.

3.4 Data analysis

Data were analysed using Microsoft Excel and SPSS (version 30). Excel was used for initial data entry handling, including exporting responses from Qualtrics, coding Likert-scale questionnaires, cleaning datasets (e.g. removing participants data that dropped out), organising tables, and preliminary calculations. SPSS was used for statistical analyses. Descriptive statistics, including means and standard deviations (mean ± SD) for continuous variables, and counts and percentages for categorical variables were calculated. Mean values were cross-checked between Excel and SPSS to ensure accuracy. Pre- to post-intervention delta change scores (Δ scores) were calculated for each participant when able, to quantify individual differences over time. Normality of change scores was assessed using the Shapiro-Wilk test for each outcome variable. For variables demonstrating non-normal distribution, log transformations were considered; however, as Shapiro-Wilk tests indicated approximate normality for the primary outcomes, parametric analyses were deemed appropriate. Between-group differences in pre- to post-intervention change scores (Body Project vs control) were

analysed using independent samples t-tests for normally distributed data. For any variables that violated normality assumptions, non-parametric equivalents (Mann-Whitney U tests) were considered, although in this study all primary outcomes met normality assumptions following inspection of skewness, kurtosis, and histograms. Statistical significance was set at $p < 0.05$ (two-tailed). Effect sizes (Cohen's d) was calculated in SPSS to determine the magnitude of observed between-group differences for well-being data only. Effect sizes were interpreted using conventional thresholds: small (d = 0.2), moderate (d = 0.5), and large (d = 0.8) (Cohen, 1988). Effect sizes were not calculated for all outcome variables, as the study included multiple secondary and item-level comparisons. All data was reported as mean ± SD or as percentages and counts for categorical outcomes. Given the number of outcome variables and item-level comparisons conducted, no formal adjustment for multiple testing was applied. This decision was made to avoid increasing the risk of Type II error (false negatives) in this exploratory evaluation; however, it consequently increases the likelihood of Type I error (false positives), particularly for item-level analyses. As such, statistically significant findings, especially at the item level, should be interpreted with caution.

3.5 Results

Of the 41 participants included in the BP intervention group, a total of 33 participants attended all four BP (Body Project) sessions. This includes participants that attended brief 15-min catch-up session, that were offered as required. An additional eight participants attended at least 75% of sessions (3/4). There were 36 participants who completed the CON (control) group.

3.5.1 Participant characteristics

All participants (n=68) identified as female, with a mean age of 23.6 ± 3.4 years. The sample was predominantly European (n=50, 73.5%), followed by Asian (n=14, 20.6%), Māori (n=8, 11.8%), Pacific Peoples (n=5, 7.4%), and Middle Eastern, Latin American, and African (MELAA) (n=2, 2.9%). Mean

BMI for the total sample was 25.6 ± 6.3 kg/m^2. Baseline characteristics showed no significant differences between BP and CON for age, weight, height and BMI (all $p > 0.05$).

Table 3.2 Baseline characteristics of participants by group (mean ± SD unless stated otherwise)

Variable	Total Sample (n=68)	CON (n=36)	BP (n=41)	*p*-value
Age (years)	23.6 ± 3.4	23.7 ± 3.2	23.3 ± 3.5	0.674
Ethnicity (n(%))				
European	50 (73.5)	26 (72.2)	31 (75.6)	
Māori	8 (11.8)	2 (5.5)	6 (14.6)	
Pacific Peoples	5 (7.4)	2 (5.5)	4 (9.8)	
Asian	14 (20.6)	9 (25)	7 (17.1)	
MELAA	2 (2.9)	1 (2.8)	1 (2.4)	
Prefer not to say	1 (1.5)	1 (2.8)	0	
Weight (kg)	71.4 ± 19.0	74.3 ± 21.1	67.8 ± 14.7	0.114
Height (m)	1.67 ± 0.09	1.68 ± 0.11	1.66 ± 0.07	0.209
BMI (kg/m^2)	25.6 ± 6.3	26.2 ± 7.0	24.7 ± 4.9	0.256

Note: Continuous variables are presented as mean ± SD; categorical variables as n (%). Totals may exceed 100% due to multiple ethnic identifications. MELAA = Middle Eastern Latin, American and African.

3.5.2 Well-being

The WHO-5 well-being scores increased in BP (54.0 ± 16.8 to 63.7 ± 14.7) but decreased in CON (58.3 ± 14.6 to 57.4 ± 17.9) (Table 3.3). The mean delta change was greater in BP vs CON (Δ = 9.7 ± 13.8 vs -0.9 ± 13.8; $p = 0.001$; Cohen's $d = 0.765$).

Table 3.3 Changes in psychological well-being (WHO-5) by group

Group	**Pre** (Mean ± SD)	**Post** (Mean ± SD)	**Delta change (Δ)** (Mean ± SD)	***p*-value**	**Effect size** (Cohen's d)
BP (n=41)	54.0 ±16.8	63.7 ± 14.7	9.7 ± 13.8	0.001	0.765
CON (n=36)	58.3 ± 14.6	57.4 ± 17.9	-0.9 ± 13.8		

Note. Values are presented as mean ± SD. WHO-5 scores are reported on a 0–100 scale. Delta change (Δ) represents individual change scores calculated as post-intervention minus pre-intervention. Group differences

were assessed using independent samples t-tests on change scores. Effect sizes are reported as Cohen's d. A change of ≥5 points on the WHO-5 is considered clinically meaningful.

3.5.3 Behavioural functioning

At baseline, total IBBS-R scores were similar between CON and BP (27.8 ± 4.8; 27.1 ± 6.0; Table 3.4). Post-intervention, BP demonstrated a significant reduction in overall IBBS-R scores compared with CON (22.8 ± 6.7; Δ = -4.2 ± 5.9 vs 28.2 ± 5.0; Δ = 0.4 ± 4.1; $p < 0.001$). At the item level, significant decreases in agreement with statements was observed in BP for statements reflecting slim, toned and slender ideals ($p \leq 0.05$), while CON showed minimal change or small increases across items.

Table 3.4 Changes in thin-ideal internalisation (IBSS-R) by group

Item	**CON Pre** (Mean ± SD)	**CON Post** (Mean ± SD)	**Delta change (Δ) CON** (Mean ± SD)	**BP Pre** (Mean ± SD)	**BP Post** (Mean ± SD)	**Delta change (Δ) BP** (Mean ± SD)	***p*-value**
Slim women are more attractive	3.1 ± 0.7	3.7 ± 1.1	0.2 ± 1.2	3.5 ± 1.1	2.8 ± 1.0	-0.7 ± 1.4	**0.005**
Tall women are more attractive	3.1 ± 0.6	3.1 ± 0.7	0.2 ± 0.8	2.9 ± 1.0	2.7 ± 0.9	-0.2 ± 1.3	0.089
Women with toned bodies are more attractive	3.3 ± 0.7	3.7 ± 0.9	0.0 ± 1.0	3.7 ± 1.0	3.1 ± 1.1	-0.6 ± 1.3	**0.042**
Women who are in shape are more attractive	3.6 ± 0.8	4.0 ± 0.9	-0.3 ± 1.1	4.0 ± 0.9	3.3 ± 1.0	-0.7 ± 1.2	0.095
Slender women are more attractive	3.1 ± 0.7	3.4 ± 1.0	0.0 ± 1.4	3.4 ± 1.0	2.6 ± 0.8	-0.8 ± 1.2	**0.004**
Women with long legs are more attractive	3.1 ± 0.6	3.3 ± 1.0	0.1 ± 1.2	3.1 ± 0.9	2.7 ± 0.8	-0.4 ± 1.1	0.055
Women with big breasts are more attractive	3.1 ± 0.7	3.1 ± 0.7	0.1 ± 0.9	3.0 ± 1.0	2.6 ± 1.0	-0.4 ± 1.3	0.055
Women with shapely butts are more attractive	3.6 ± 0.7	3.8 ± 0.8	0.0 ± 0.9	3.4 ± 1.1	3.0 ± 1.1	-0.4 ± 1.5	0.134
Overall score	**27.8 ± 4.8**	**28.2 ± 5.0**	**0.4 ± 4.1**	**27.1 ± 6.0**	**22.8 ± 6.7**	**-4.2 ± 5.9**	**<0.001**

Note: CON (n=35) and BP (n=41); one CON participant excluded due to missing pre-intervention data. Values are presented as mean ± SD. Scores reflect agreement with each item (1–5), and overall scores represent the sum of all items (maximum 40), with higher scores indicating stronger thin-ideal internalisation.

Baseline body satisfaction total scores were similar between groups (CON: 25.0 ± 6.4; BP: 24.9 ± 8.4; Table 3.5). Post-intervention, total satisfaction increased significantly in BP (28.4 ± 7.0, Δ = +3.5 ± 6.0 vs. CON 24.2 ± 7.8, Δ = -0.7 ± 4.3; $p = 0.001$). Item level increases were observed in BP in "weight" (Δ = +0.7; $p = 0.001$), "figure" (Δ = +0.6; $p = 0.002$), "stomach" (Δ = +0.7; $p = 0.004$), and "body build" (Δ = +0.5; $p = 0.005$). Changes in other items were smaller and non-significant, while CON showed minimal change.

Table 3.5 Changes in body part satisfaction (BPSS) by group

Item	**CON Pre** (Mean ± SD)	**CON Post** (Mean ± SD)	**Delta change (Δ) CON** (Mean ± SD)	**BP Pre** (Mean ± SD)	**BP Post** (Mean ± SD)	**Delta change (Δ) BP** (Mean ± SD)	***p*-value**
Weight	2.5 ± 1.1	2.5 ± 1.1	-0.1 ± 1.0	2.5 ± 1.1	3.1 ± 1.0	0.7 ± 1.0	**0.001**
Figure	2.7 ± 1.0	2.6 ± 1.2	0.0 ± 0.7	2.7 ± 1.2	3.3 ± 1.1	0.6 ± 1.0	**0.002**
Appearance of stomach	2.1 ± 1.1	2.2 ± 1.1	0.1 ± 0.8	2.2 ± 1.3	2.9 ± 1.1	0.7 ± 1.0	**0.004**
Body build	2.9 ± 0.9	2.8 ± 1.1	-0.1 ± 0.7	2.8 ± 1.2	3.2 ± 1.0	0.5 ± 1.1	**0.005**
Waist	2.8 ± 1.0	2.7 ± 1.0	-0.1 ± 0.9	2.7 ± 1.3	3.0 ± 1.1	0.2 ± 1.2	0.216
Thighs	2.9 ± 1.1	2.8 ± 1.1	-0.1 ± 0.8	2.7 ± 1.3	3.1 ± 1.0	0.4 ± 1.1	0.065
Buttocks	3.0 ± 1.1	2.7 ± 1.2	-0.3 ± 0.8	3.3 ± 1.2	3.3 ± 0.9	0.0 ± 1.0	0.108
Hips	2.9 ± 1.1	2.8 ± 1.0	-0.1 ± 1.1	3.1 ± 1.1	3.3 ± 0.8	0.2 ± 1.0	0.290
Legs	3.1 ± 0.8	3.0 ± 1.2	-0.1 ± 0.9	2.9 ± 1.2	3.1 ± 0.9	0.2 ± 0.9	0.162
Overall score	**25.0 ± 6.4**	**24.2 ± 7.8**	**-0.7 ± 4.3**	**24.9 ± 8.4**	**28.4 ± 7.0**	**3.5 ± 6.0**	**0.001**

Note: CON (n=35) and BP (n=41); one CON participant excluded due to missing data. Body part satisfaction was rated from 1 (extremely dissatisfied) to 5 (extremely satisfied). Overall scores (max 45) reflect overall body satisfaction, with higher scores indicating greater satisfaction.

Dietary restraint scores were similar between groups at baseline (Table 3.6). Post-intervention, BP demonstrated a significant reduction in overall dietary restraint (Δ = −7.2 ± 6.9) compared with minimal change in CON (Δ = −0.7 ± 7.0; $p < 0.001$). Significant between-group reductions in BP were observed across multiple restraint-related behaviours, including efforts to eat less at mealtimes, watching exactly what they ate, selecting “slimming” foods, and restricting intake in response to weight concerns (all $p < 0.05$). In contrast, changes in CON were small.

Table 3.6 Dietary restraint scores (DEBQ) pre- and post- intervention by group

Item	**CON Pre** (Mean ± SD)	**CON Post** (Mean ± SD)	**Delta change (Δ) CON** (Mean ± SD)	**BP Pre** (Mean ± SD)	**BP Post** (Mean ± SD)	**Delta change (Δ) BP** (Mean ± SD)	***p*-value**
If you put on weight, did you eat less than you normally would?	2.6 ± 1.1	2.6 ± 1.1	0.0 ± 1.0	2.9 ± 1.1	2.3 ± 1.0	-0.6 ± 1.4	**0.036**
Did you try to eat less at mealtimes than you would like to eat?	3.0 ± 1.2	2.9 ± 1.1	-0.1 ± 1.5	2.9 ± 1.0	1.8 ± 0.9	-1.2 ± 1.1	**0.001**
How often did you refuse food or drink because you were concerned about your weight	2.80 ± 1.1	2.6 ± 1.1	-0.2 ± 1.4	2.6 ± 1.2	2.0 ± 0.9	-0.6 ± 1.3	0.233
Did you watch exactly what you ate?	2.9 ± 1.2	2.9 ± 1.1	0.0 ± 1.0	2.8 ± 1.2	2.2 ± 1.1	-0.6 ± 1.3	**0.030**
Did you deliberately eat foods that were slimming?	2.6 ± 1.0	2.5 ± 1.1	-0.1 ± 1.4	2.4 ± 1.0	1.7 ± 1.0	-0.7 ± 1.1	**0.025**
When you ate too much, did you eat less than usual the next day?	2.7 ± 1.2	2.4 ± 1.2	-0.3 ± 1.3	2.6 ± 1.1	1.9 ± 0.9	-0.9 ± 1.4	0.137
Did you deliberately eat less in order not to become heavier?	2.9 ± 1.3	2.7 ± 1.2	-0.2 ± 1.4	2.8 ± 1.3	1.8 ± 1.0	-0.3 ± 1.4	**0.033**

Item	**CON Pre** (Mean ± SD)	**CON Post** (Mean ± SD)	**Delta change (Δ) CON** (Mean ± SD)	**BP Pre** (Mean ± SD)	**BP Post** (Mean ± SD)	**Delta change (Δ) BP** (Mean ± SD)	***p*-value**
How often did you try not to eat between meals because you were watching your weight?	2.9 ± 1.2	3.0 ± 1.2	0.1 ± 1.5	2.6 ± 1.3	2.3 ± 1.1	-0.3 ± 1.5	0.309
How often in the evenings did you try not to eat because you were watching your weight?	2.6 ± 1.2	2.7 ± 1.3	0.1 ± 1.4	2.7 ± 1.3	1.8 ± 1.1	-0.9 ± 1.3	**0.001**
Did you take into account your weight in deciding what to eat?	2.9 ± 1.3	2.8 ± 1.3	0.0 ± 1.4	2.9 ± 1.3	2.2 ± 1.1	-0.7 ± 1.2	**0.019**
Overall score	**27.9 ± 7.2**	**27.2 ± 7.4**	**-0.7 ± 7.0**	**27.1 ± 8.0**	**19.9 ± 6.6**	**-7.2 ± 6.9**	**<0.001**

Note: CON (n=35; one participant excluded) and BP (n=41). Items were rated on a 5-point scale (1 = never, 5 = always), over the past month. The overall score is the sum of all items out of 50.

Negative affect scores were similar among CON and BP pre intervention (See Table 3.7). Post-intervention, BP showed a larger reduction in total negative affect (36.3 ± 15.1, Δ = –10.4 ± 14.8) compared with the CON group (42.7 ± 18.8, Δ = –4.8 ± 12.7). The between-group difference in total negative affect was not statistically significant ($p = 0.081$). Item-level analyses indicated significant between-group reductions for “Dissatisfied with self” ($p = 0.004$), “Blue” ($p = 0.032$), and “Angry at self” ($p = 0.050$), with smaller, non-significant changes observed for other negative emotions.

Table 3.7 Changes in negative affect (PANAS-X) by group

Item	**CON Pre** (Mean ± SD)	**CON Post** (Mean ± SD)	**Delta change (Δ) CON** (Mean ± SD)	**BP Pre** (Mean ± SD)	**BP Post** (Mean ± SD)	**Delta change (Δ) BP** (Mean ± SD)	***p*-value**
Disgusted with self	2.3 ± 1.3	2.1 ± 1.2	-0.2 ± 1.1	2.3 ± 1.3	1.7 ± 1.0	-0.6 ± 1.1	0.113
Sad	2.7 ± 0.9	2.5 ± 1.1	-0.1 ± 1.0	2.8 ± 1.3	2.3 ± 0.9	-0.5 ± 1.1	0.133
Afraid	2.3 ± 1.3	2.0 ± 1.2	-0.3 ± 1.0	2.2 ± 1.3	1.8 ± 1.1	-0.4 ± 1.1	0.703
Shaky	1.9 ± 1.1	1.7 ± 1.1	-0.3 ± 1.0	1.8 ± 1.0	1.5 ± 0.9	-0.3 ± 1.2	0.809
Alone	2.4 ± 1.3	2.1 ± 1.2	-0.2 ± 1.4	2.2 ± 1.3	1.8 ± 1.0	-0.5 ± 1.3	0.413
Blue	2.0 ± 1.1	1.9 ± 1.1	-0.1 ± 1.0	2.3 ± 1.3	1.8 ± 1.0	-0.6 ± 1.1	**0.032**
Guilty	2.5 ± 1.3	2.4 ± 1.4	-0.1 ± 1.3	2.3 ± 1.2	1.8 ± 1.1	-0.5 ± 1.2	0.188
Nervous	2.5 ± 1.1	2.5 ± 1.3	-0.1 ± 1.1	2.7 ± 1.1	2.3 ± 1.1	-0.4 ± 1.0	0.156
Lonely	2.4 ± 1.4	2.1 ± 1.1	-0.3 ± 1.4	2.2 ± 1.3	1.8 ± 1.1	-0.3 ± 1.3	0.993
Jittery	2.2 ± 1.3	1.6 ± 1.1	-0.5 ± 1.1	1.9 ± 1.1	1.6 ± 0.8	-0.3 ± 1.1	0.380
Ashamed	2.3 ± 1.3	2.0 ± 1.4	-0.3 ± 1.1	2.2 ± 1.4	1.5 ± 0.8	-0.7 ± 1.1	0.196
Scared	2.2 ± 1.3	1.7 ± 1.1	-0.5 ± 1.2	2.1 ± 1.2	1.6 ± 1.0	-0.5 ± 1.1	0.994
Angry at self	2.6 ± 1.2	2.3 ± 1.5	-0.3 ± 1.1	2.5 ± 1.5	1.6 ± 0.9	-0.9 ± 1.4	**0.050**

Item	**CON Pre** (Mean ± SD)	**CON Post** (Mean ± SD)	**Delta change (Δ) CON** (Mean ± SD)	**BP Pre** (Mean ± SD)	**BP Post** (Mean ± SD)	**Delta change (Δ) BP** (Mean ± SD)	***p*-value**
Downhearted	2.3 ± 1.1	2.0 ± 1.0	-0.3 ± 0.8	2.4 ± 1.4	1.7 ± 0.9	-0.7 ± 1.2	0.142
Blameworthy	2.2 ± 1.2	2.0 ± 1.4	-0.2 ± 0.8	2.1 ± 1.4	1.5 ± 0.8	-0.6 ± 1.3	0.129
Frightened	1.7 ± 1.0	1.8 ± 1.2	0.1 ± 0.7	1.8 ± 1.1	1.6 ± 1.0	-0.2 ± 0.8	0.184
Dissatisfied with self	3.1 ± 1.2	3.0 ± 1.4	-0.1 ± 1.2	2.8 ± 1.3	2.0 ± 1.0	-0.9 ± 1.1	**0.004**
Anxious	3.1 ± 1.2	2.5 ± 1.3	-0.6 ± 1.2	3.2 ± 1.2	2.5 ± 1.1	-0.7 ± 1.0	0.548
Depressed	2.2 ± 1.2	2.1 ± 1.2	-0.1 ± 1.4	2.2 ± 1.4	1.9 ± 1.2	-0.3 ± 1.0	0.394
Worried	2.7 ± 1.3	2.5 ± 1.3	-0.2 ± 1.2	2.7 ± 1.4	2.2 ± 1.1	-0.6 ± 1.4	0.239
Overall score	**47.5 ± 17.5**	**42.7 ± 18.8**	**-4.8 ± 12.7**	**46.7 ± 19.0**	**36.3 ± 15.1**	**-10.4 ± 14.8**	**0.081**

Note: CON (n=35; one participant excluded) and BP (n=41). Items were rated on a 5-point scale (1 = not at all, 5 = extremely) reflecting the extent participants experienced each emotion in the past week. The overall score is the sum of all items. Higher scores indicate greater negative affect.

Table 3.8 shows the distribution of EDDS classifications across groups at pre- and post-intervention. In CON, the proportion classified as “ED not likely” remained relatively stable from pre- (37.1%) to post-intervention (40.0%), with little change across probable ED categories. In contrast, BP showed a substantial increase in participants classified as “ED not likely,” rising from 47.5% at pre-intervention to 80.0% post-intervention, alongside marked reductions in probable ED classifications, particularly AN (45.0% to 15.0%).

Table 3.8 Eating disorder classifications (EDDS) by group and time

Group (n)	Phase	ED not likely	AN probable	AN and BN probable	BED probable	AN and BED probable
CON (35) (%(n))	Pre	37.1 (13)	48.6 (17)	11.4 (4)	2.9 (1)	0.0 (0)
	Post	40.0 (14)	51.4 (18)	5.7 (2)	2.9 (1)	0.0 (0)
BP (40) (%(n))	Pre	47.5 (19)	45.0 (18)	2.5 (1)	2.5 (1)	2.5 (1)
	Post	80.0 (32)	15.0 (6)	0.0 (0)	5.0 (2)	0.0 (0)

Note: Values are presented as % (n), calculated using the total number of participants per group at each time point. EDDS classifications were derived using the standard Eating Disorder Diagnostic Scale (EDDS) scoring criteria. One participant from each group had missing EDDS data and were excluded from the data analysis.

3.5.4 Psychosocial functioning

There were no significant differences between BP and CON across any of the psychosocial domains or grand mean (Δ range: 0.0 to -3.6; p = 0.294–0.897; Table 3.9).

Table 3.9 Changes in psychosocial functioning by group

Domain	**CON Pre** (Mean ± SD)	**CON Post** (Mean ± SD)	**Delta change (Δ) CON** (Mean ± SD)	**BP Pre** (Mean ± SD)	**BP Post** (Mean ± SD)	**Delta change (Δ) BP** (Mean ± SD)	***p*-value**
Relationship	32.3 ± 17.5	27.0 ± 16.4	-2.0 ± 14.1	26.7 ± 18.4	25.4 ± 14.9	-1.5 ± 10.0	0.875
Family	37.4 ± 17.5	32.2 ± 14.6	-3.4 ± 12.3	37.7 ± 6.0	35.9 ± 16.2	-1.6 ± 13.9	0.572
Work	23.8 ± 10.9	22.0 ± 10.3	0.0 ± 9.4	22.1 ± 11.5	18.1 ± 11.0	-3.6 ± 11.7	0.294
Friends	29.4 ± 10.5	28.0 ± 12.6	-1.2 ± 10.7	25.7 ± 15.5	24.2 ± 14.5	-1.5 ± 11.2	0.897
Self-Care	39.9 ± 15.0	38.0 ± 17.1	-0.8 ± 9.8	38.6 ± 18.7	35.5 ± 17.6	-3.1 ± 12.6	0.391
Education	28.2 ± 9.5	25.4 ± 14.9	-1.9 ± 9.3	25.6 ± 13.0	24.9 ± 13.3	-1.6 ± 11.6	0.894
Overall score	**32.0 ± 9.3**	**29.9 ± 10.6**	**-1.2 ± 7.3**	**30.0 ± 11.4**	**28.2 ± 11.1**	**-1.8 ± 6.5**	**0.697**

Note: CON (n=35; one participant excluded) and BP (n=41). Higher scores indicate greater psychosocial impairment. An overall IPF score was calculated by averaging all completed domains. The parenting domain was excluded due to incomplete reporting.

3.5.5 Fidelity

Because multiple Body Project groups were delivered across two years and by different peer educators, fidelity ratings were calculated separately for each group. Adherence (fidelity) and competency ratings were completed by at least one trained member of the research team across all four sessions. Sessions that were rated by multiple members were averaged.

For the 2024 delivery, Group 1 demonstrated a mean competency rating of 78.53 (SD = 5.95) and a mean adherence rating of 84.48 (SD = 10.51). Group 2 showed a mean competency rating of 80.16 (SD = 14.58) and a mean adherence rating of 87.93 (SD = 13.34).

Across the 2025 delivery groups, adherence to the intervention protocol remained high. Mean adherence scores ranged from 81.84 (SD = 18.73) to 94.74 (SD = 5.92), while mean competency ratings ranged from 82.39 (SD = 10.44) to 96.36 (SD = 5.54), indicating generally strong and consistent delivery quality across facilitators and groups.

When aggregated across all groups and delivery rounds, the overall mean adherence rating was 87.69 (SD = 12.70) and the overall mean competency rating was 84.99 (SD = 9.58), suggesting high fidelity to the Body Project script across the study.

3.6 Discussion

This study evaluated the effectiveness of the Body Project in reducing psychological risk factors for EDs and increasing well-being and body satisfaction among female tertiary students aged 18-30 years in Aotearoa NZ. Overall, participation in the Body Project was associated with significant reductions in key cognitive and attitudinal risk factors for EDs, alongside clinically meaningful increases in psychological well-being, compared with a control group. The strongest effects were observed for thin-ideal internalisation, body dissatisfaction, dietary restraint, and selected components of negative affect, as well as overall well-being. These findings are consistent with the programmes dissonance-based theoretical framework and align with the primary objectives of this study.

Rather than producing immediate changes in severe or overt ED behaviours, the findings suggest that the Body Project primarily operates by modifying upstream cognitive and emotional risk factors that are known to precede the development of disordered eating. This interpretation is consistent with prevention-focused models and is supported by longitudinal evidence showing that early reductions in risk factors are followed by later reductions in ED symptoms and onset (e.g. 4 years, Stice et al, 2020). Within a non-clinical tertiary population, the Body Project was effective in reducing modifiable cognitive and attitudinal risk factors for EDs, including body dissatisfaction and sociocultural appearance pressures, consistent with findings from studies of females aged 18-30 years of age (Hudson et al, 2021).

3.6.1 Effects on thin-ideal internalisation, body dissatisfaction, and dietary restraint

Participation in the Body Project resulted in substantial reductions in thin-ideal internalisation, relative to the control group, consistent with the programmes core dissonance-based theoretical framework. The intervention actively engages participants in critiquing and challenging culturally promoted

appearance ideals, which creates cognitive dissonance and encourages a rejection of the thin ideal over time. The magnitude and direction of change observed in this study closely mirror findings from previous Body Project trials conducted across a range of cultural contexts, including the US (Stice et al, 2020), Brazil (Dunker et al, 2025), Saudi Arabia (AlShebali et al, 2021), Turkey (Ergut & Keser, 2022), and China (Luo et al, 2021).

These global studies, summarised in Table 2.3, demonstrated that adaptations to delivery modality, cultural context, or language did not appear to compromise the intervention's core mechanisms. For example, online delivery in Brazil and Turkey (Dunker et al, 2025; Ergut & Keser, 2022) and culturally adapted modifications in Saudi Arabia (AlShebali et al, 2021) produced meaningful reductions in thin-ideal internalisation, body dissatisfaction, and eating-related cognitions. Similarly, adaptations for male or LGBTQ+ populations in the US demonstrated reductions in thin-ideal internalisation and dietary restraint comparable to traditional female-focused implementations (Brown et al, 2017; Brown & Keel, 2015). Together, these findings highlight the robustness and transferability of the Body Project's cognitive-dissonance mechanism and support its relevance in a NZ tertiary context alongside our studies findings.

Reductions in thin-ideal internalisation were accompanied by reductions in body dissatisfaction, particularly in weight- and shape-related domains. This pattern is consistent with sociocultural models of body image, which position internalisation of appearance ideals as a key antecedent of body dissatisfaction, suggesting that changes in body dissatisfaction are likely driven by shifts in underlying cognitive beliefs rather than occurring independently. In this context, the observed reductions in body dissatisfaction may reflect a re-evaluation of personal appearance standards, whereby participants place less importance on achieving unrealistic body ideals, thereby reducing the discrepancy between

perceived and ideal body image. This interpretation is supported by longitudinal evidence indicating that decreases in thin-ideal internalisation precede reductions in body dissatisfaction over time (Stice & Shaw, 2002; Stice et al., 2017).

Reductions were most pronounced in domains directly influenced by sociocultural appearance pressures, a pattern observed internationally across diverse cultural settings (AlShebali et al, 2021; Dunker et al, 2025; Ergut & Keser, 2022). Dietary restraint also decreased among Body Project participants, reflecting reductions in intentional restriction motivated by weight and shape concerns rather than severe disordered eating behaviours, aligning with the programme's prevention-focused approach.

3.6.2 Disordered eating risk and behaviour

Despite reductions in cognitive and attitudinal risk factors, more severe behavioural indicators of disordered eating remained low and largely unchanged, reflecting the non-clinical nature of the sample and limited baseline pathology. Shifts in ED risk classification among Body Project participants (Table 3.8) suggest early preventive effects, consistent with the programme's hypothesised pathway, where reductions in thin-ideal internalisation and body dissatisfaction precede later behavioural changes.

This pattern aligns with findings from international trials, which similarly report larger effects on cognitive and attitudinal risk factors than on overt disordered eating behaviours, with behavioural changes often emerging only over longer follow-up periods (AlShebali et al, 2021; Ergut & Keser, 2022; Hudson et al, 2021; Luo et al, 2021). One interpretation is that the intervention primarily targets the cognitive drivers of disordered eating, which may be more changed in the short term, whereas

behavioural patterns—particularly those that are habitual or reinforced over time—require longer duration or more intensive intervention to shift.

From a clinical perspective, these findings suggest that while the Body Project may not be sufficient as a standalone intervention for individuals with diagnosed eating disorders, it may have value as an adjunctive or early-stage intervention. For example, targeting thin-ideal internalisation and body dissatisfaction may complement more intensive treatments (e.g., cognitive behavioural therapy) by addressing underlying sociocultural risk factors that are not always the primary focus of clinical interventions.

The stability of ED risk classification in the control group supports the interpretation that observed changes are attributable to the intervention rather than natural variation. Collectively, these findings highlight the significance of early, prevention-focused interventions in producing meaningful shifts in risk status, even in the absence of immediate behavioural change. However, given the short follow-up period, it remains unclear whether these early changes will translate into sustained reductions in disordered eating or the emergence of behavioural effects over time, underscoring the need for longer-term evaluation.

3.6.3 Negative affect and psychological well-being

Changes in negative affect following the intervention were modest and did not indicate broad reductions in overall mood disturbance relative to the control group (Table 3.7). This pattern aligns with the Body Project's primary focus on body image–related cognitions rather than general emotional distress. This may suggest that the intervention primarily influences appearance-related, self-evaluative emotions, rather than broader mood states. While some reductions were observed in self-evaluative

negative emotions, such as dissatisfaction with the self, self-directed anger, and feeling blue, fear- or arousal-based emotions remained largely unchanged.

In non-clinical populations with relatively low baseline distress, such subtle shifts in self-referential affect may represent early indicators of enhanced cognitive-emotional processing, rather than clinically meaningful changes in overall mood, which could support longer-term resilience against body dissatisfaction and disordered eating.

Psychological well-being demonstrated a robust and clinically meaningful increase following Body Project participation in the present study, with the observed increase exceeding the established threshold for clinical relevance on the WHO-5 (≥5-point increase; World Health Organisation, 1998). While international trials such as Dunker et al. (2025) and Hudson et al. (2021) have reported increases in affective outcomes (e.g., self-esteem, body appreciation), these studies did not specifically assess general psychological well-being using the WHO-5 or equivalent measures. Therefore, our findings extend the existing literature by demonstrating that the Body Project can also yield broader increases in overall psychological well-being, in addition to reductions in body image-related risk factors.

3.6.4 Strengths of the study

This study had several notable strengths. The randomised controlled design enhanced internal validity and comparability between groups, while the use of multiple validated measures (e.g. WHO-5, IPF, EDDS) allowed for a comprehensive assessment of body image, eating-related risk factors, affect, and well-being. To our knowledge, this is one of the first quantitative evaluations of the Body Project among NZ tertiary students, providing important evidence for its feasibility and relevance within a culturally diverse university population. High attendance and low attrition among participants, as well as strong

retention of peer educators, supported the acceptability and sustainability of the programme. The involvement of multiple trained counsellors further strengthened intervention safety, fidelity, and credibility.

3.6.5 Limitations of the study

Several limitations should be acknowledged. Although the sample size was adequate to detect primary intervention effects, it limited the ability to explore subgroup differences, including ethnicity-related outcomes, which are particularly relevant in a diverse NZ context. The use of convenience and snowball sampling methods also limits the generalisability of findings to the wider population of NZ tertiary students. Reliance on self-report screening measures rather than formal DSM-5 based diagnostic interviews meant that some participants with undetected EDs may have been included in the study. Minor mismatches between programme and questionnaire language and the NZ tertiary context (e.g., references to “school work” rather than university study) caused confusion for some participants; proposed adaptations to address these issues are outlined in Appendix H. Practical challenges, including occasional session rescheduling, shortened catch-up sessions, and inconsistent homework completion, may have influenced engagement. Additionally, a small number of participants (n=9) contributed data to both study groups across different time points and were treated as independent observations, which may have implications for the assumption of independence. Finally, the absence of long-term follow-up limits conclusions about the durability of observed effects.

3.6.6 Future directions

Future research should prioritise longer term follow-up to determine whether short-term improvements in cognitive and emotional risk factors are maintained and whether they translate into reduced ED onset over time. Culturally responsive adaptations that better reflect Māori and Pacific values may enhance

relevance and engagement. For Māori students, this could include integrating holistic concepts of Hauora and culturally grounded discussions of body image. For Pacific students, adaptations may reflect communal values, family influences, and culturally specific body ideals, alongside increased representation among peer educators. Future studies should also examine adaptations of the programme for male, transgender, and LGBTQ+ populations, where body image concerns and ED risk are prevalent but underrepresented in prevention research.

3.6.7 Conclusion

This study provides evidence that the Body Project is effective in increasing psychological well-being and reducing key cognitive and attitudinal risk factors for EDs among female tertiary students in Aotearoa NZ. Participation was associated with reductions in thin-ideal internalisation, body dissatisfaction, and dietary restraint, alongside increases in well-being. These findings support the Body Project as a theoretically grounded, prevention-focused intervention that targets modifiable risk factors central to ED development. Overall, the results suggest that the Body Project has value as an early intervention strategy within NZ tertiary settings and warrants further investigation using longer-term follow-up and culturally responsive adaptations.

4 Chapter 4: Conclusion

4.1 Overview and study aims

The present study implemented and evaluated the effectiveness of the Body Project within a NZ tertiary education setting. Specifically, the study examined whether participation in the Body Project intervention led to increases in body image satisfaction and well-being as well as reductions in thin-ideal internalisation, dietary restraint, and weight- and shape-related concerns compared with a control group. Through quantitative evaluation of these outcomes, this study provides evidence on the effectiveness of the Body Project within a NZ tertiary education context, where prevention research is currently limited.

4.2 Summary of key findings

From a quantitative perspective, participation in the Body Project was associated with significant and meaningful reductions in key cognitive and psychological risk factors for disordered eating. Relative to the control group, Body Project participants demonstrated substantial reductions in thin-ideal internalisation, body dissatisfaction, particularly in weight- and shape-related domains, and dietary restraint. Increases were also observed in measures of psychological well-being, indicating that the intervention influenced broader aspects of mental health beyond eating- and appearance-related cognitions.

These findings align closely with the cognitive-dissonance theory that underpins the Body Project. According to this framework, dissonance-based activities encourage participants to actively critique and challenge internalised societal appearance ideals, creating psychological discomfort between their existing beliefs and the counter-attitudinal behaviours required by the intervention. To resolve this discomfort, participants are theorised to reduce the value they place on unrealistic appearance

ideals, which subsequently leads to reductions in body dissatisfaction and eating-related risk factors, alongside increases in positive body image and well-being (Stice et al, 2007; Stice et al, 2020).

The pattern and direction of effects observed in this NZ tertiary sample are consistent with outcomes reported in international Body Project trials conducted among university students and young adults in the US (Hudson et al, 2021), China (Luo et al, 2021), Brazil (Dunker et al, 2025), and Turkey (Ergut & Keser, 2022). Although these studies vary in cultural context and delivery format, the consistent reduction in thin-ideal internalisation, body dissatisfaction, and dietary restraint across settings suggests that the core cognitive mechanisms targeted by the Body Project are robust and generalisable to diverse populations, including within the NZ tertiary context.

Although reductions were observed in dietary restraint, more severe behavioural indicators of disordered eating (e.g., binge eating and compensatory behaviours) remained low and largely unchanged across both groups. This pattern is consistent with findings from previous Body Project trials (e.g., Stice et al, 2019), which demonstrate the strongest and most reliable effects for cognitive and attitudinal risk factors, while behavioural outcomes are less consistently observed in non-clinical samples. Similar patterns have been reported in university-based trials evaluating body image and prevention outcomes (Hudson et al, 2021).

Importantly, while these findings are consistent with the Body Project literature, they also align with a broader public health and ED prevention evidence base. Across prevention research, interventions that target upstream sociocultural and cognitive risk factors—such as thin-ideal internalisation, appearance-based social comparison, and media influence—have consistently demonstrated effectiveness in reducing body dissatisfaction and disordered eating risk among young people. This includes media literacy programmes, cognitive-behavioural prevention approaches, and other universal prevention strategies delivered in educational settings.

More broadly, these findings support a socio-ecological understanding of ED prevention, which recognises that disordered eating is shaped not only by individual cognitions but also by wider cultural, social, and environmental influences. From this perspective, the Body Project can be understood as one component within a wider prevention system that includes health promotion initiatives, educational programmes, and broader societal efforts to reduce appearance-based pressures. The consistency of effects across different intervention approaches reinforces the importance of targeting upstream determinants of body image and eating behaviour as a key public health strategy. Collectively, this body of evidence supports the value of early, universal prevention approaches for reducing ED risk among young people.

4.3 Delivery format, feasibility, and contextual considerations

Although not a primary aim of the study, findings related to programme delivery provide important contextual insights. The intervention was delivered online via Zoom, enabling participation across geographically dispersed campuses and accommodating students balancing academic, employment, and personal commitments. High session attendance and low attrition rates indicated that online delivery was acceptable and feasible for this population.

Observed reductions in cognitive and attitudinal risk factors, alongside increases in well-being, were comparable to those reported in both in-person and virtual Body Project trials internationally (Luo et al, 2021; Dunker et al, 2025; Ergut & Keser, 2022), suggesting that online delivery does not compromise intervention effectiveness. These findings support the potential scalability of the Body Project within NZ tertiary institutions, particularly where logistical, time, and geographical barriers may limit access to in-person group interventions.

4.4 Fidelity and competency comparisons

Mean fidelity and competency ratings in the present study were consistently high and compared favourably with those reported in previous evaluations of the Body Project. Stice et al, (2017) reported mean fidelity ratings of 65.1 for peer-led groups and 75.2 for clinician-led groups. In contrast, mean adherence ratings across groups in the present study ranged from 81.84 to 94.74, indicating a substantially higher level of adherence to the prescribed Body Project script.

Competency ratings were also high across groups, with overall mean competency exceeding those reported for both peer educators and clinicians in the study by Stice et al, (2017). These findings suggest that peer educators in the present study were able to deliver the Body Project with a high degree of accuracy, organisation, and engagement. The consistently strong adherence and competency observed across delivery rounds indicate that the training and supervision provided to peer educators were sufficient to support high-quality implementation of the intervention. This supports the use of peer educators as a scalable and cost-effective approach to ED prevention, consistent with prior evidence highlighting the feasibility of peer-based intervention delivery (Akers et al, 2021; Stice et al. 2020).

4.5 Participant characteristics and cultural considerations

The study sample included students from a range of ethnic backgrounds, reflecting the diversity typically observed within NZ tertiary institutions for this age group. While the study was not designed to assess cultural differences in intervention effects, the presence of participants identifying as Māori, Pacific, Asian, and MELAA indicates that recruitment of a culturally diverse university sample is feasible within this context. However, the relatively small numbers of Māori and Pacific participants limited the ability to conduct subgroup analyses or draw conclusions regarding culturally specific intervention effects. Importantly, this study did not aim to achieve proportional representation of the NZ population overall, or to evaluate cultural adaptation. As such, findings

should be interpreted as demonstrating effectiveness at the aggregate level rather than across specific cultural groups.

The sample cannot be considered fully representative of the wider NZ population. In particular, the underrepresentation of Māori and Pacific students limits the generalisability of findings to these groups, who may experience different sociocultural influences on body image and eating behaviours. Additionally, as a self-selected sample of tertiary students, participants may have had greater interest in health or body image topics than the general population, further limiting representativeness.

The observed intervention effects suggest that the core dissonance-based mechanisms underpinning the Body Project may operate effectively across a multicultural student population, even in the absence of formal cultural adaptation. Nonetheless, prior research highlights the importance of culturally responsive prevention approaches, particularly for Indigenous communities, and future research in NZ should explicitly examine whether culturally tailored adaptations incorporating Māori and Pacific worldviews (e.g., whanaungatanga, collectivism, Te Whare Tapa Whā) would enhance engagement, relevance, and outcomes.

An illustrative example comes from research on the Body Project in Saudi Arabia, where the programme was culturally adapted to ensure acceptability and relevance for young Saudi women (AlShebali et al, 2023). These adaptations preserved the core dissonance-based principles while making the activities personally relevant and socially acceptable within that cultural context. The success of these adaptations, which produced significant reductions in eating pathology and body dissatisfaction, underscores that while the core mechanisms of the Body Project are robust, culturally informed modifications can enhance engagement and effectiveness in diverse populations.

4.6 Limitations

Several limitations should be considered when interpreting the findings. First, although the study was adequately powered to detect primary outcomes, the overall sample size limited the ability to explore subgroup differences, particularly by ethnicity. Māori, Pacific, and other minority groups were underrepresented, restricting conclusions regarding differential effects across cultural groups. The use of convenience and snowball sampling methods further limits the generalisability of findings to the wider population of NZ tertiary students, as participants may not be representative of the broader student population.

Second, participant eligibility was determined through self-report rather than formal DSM-5–based diagnostic assessment. While consistent with prevention research, this approach limited verification of the absence of diagnosable EDs at baseline. Although the EDDS was administered as an outcome measure, it was not used as a screening tool, meaning that some participants may have met diagnostic thresholds at study entry, but self-reported 'no' to the ED question. This could affect the interpretability of behavioural outcomes, as the intervention's effects might differ for participants with subclinical versus clinical symptoms. Future research should incorporate structured screening procedures to improve sample classification and clarify intervention effects.

Third, cultural and contextual relevance posed challenges. The Body Project was developed in the US, and some programme content and questionnaire terminology reflected American educational contexts. For example, references to "school work" over university work caused confusion among participants, and misinterpretation of certain psychosocial items such as the parenting domain ("do you live with children", vs "do you have children"), resulted in inconsistent data responses pre and post intervention, causing the whole domain to be excluded from the IPF data analysis. These issues highlight the importance of contextual adaptation when implementing international interventions

within NZ settings (or for other countries' contexts), particularly in ensuring clarity and cultural resonance.

An additional limitation relates to the partial overlap of participants across study groups. Nine participants who completed the control group in 2024 were re-recruited into the intervention group in 2025, and their data were treated as independent observations in the analyses. This may violate the assumption of independence, as repeated participation by the same individuals could introduce correlated responses across groups. As a result, variance estimates may be underestimated, potentially inflating the precision of effect estimates. While the number of overlapping participants was small relative to the total sample, this should be considered when interpreting the magnitude and robustness of the observed intervention effects.

Finally, practical constraints related to programme delivery may have influenced outcomes. Variability in attendance due to illness, academic pressures, and employment commitments resulted in smaller group sizes for some sessions. Session rescheduling extended delivery beyond the planned four-week period for some groups, and several participants attended shortened catch-up sessions (15 min), reducing exposure to core content. Homework completion was also inconsistent, which may have attenuated intervention effects given the central role of between-session activities in the Body Project model.

4.7 Recommendations and future direction

Building on the present findings, study limitations and the wider disordered eating prevention literature, several directions for future research and practice in Aotearoa NZ are recommended. Firstly, future NZ-based studies should prioritise larger-scale implementation designs that enable examination of culturally stratified outcomes, particularly among Māori and Pacific students. International Body Project research has demonstrated effectiveness across culturally diverse

populations, including adaptations and evaluations conducted in Brazil (Dunker et al, 2025), China (Luo et al, 2021), Saudi Arabia (AlShebali et al, 2021, Turkey (Ergut & Keser, 2022), and other non-Western contexts. However, these studies also highlight that cultural relevance and contextual fit may influence engagement and programme acceptability. In the NZ context, there is growing recognition that health interventions are more effective when they align with Indigenous and Pacific values and holistic models of well-being. Accordingly, future adaptations of the Body Project could be developed in partnership with Māori and Pacific communities, incorporating principles such as whanaungatanga, and frameworks such as Te Whare Tapa Whā.

Secondly, incorporating researcher-verified screening protocols could be achieved through the use of structured diagnostic or semi-structured questionnaires administered by trained researchers or clinicians at baseline. For example, the EDDS could be formally scored and verified to ensure that all participants meet the intended inclusion criteria for prevention research, rather than potentially including individuals with diagnosable EDs. Alternatively, brief structured interviews or validated screening questionnaires could be used to cross-check self-reported eligibility. Implementing these procedures would reduce the likelihood of misclassification, whereby participants are incorrectly included or excluded based on self-report alone. This would enhance the accuracy of the sample, allowing clearer differentiation between prevention-appropriate participants and those requiring clinical intervention. Consequently, the interpretability of behavioural outcomes would increase, as changes observed could be more confidently attributed to the intervention rather than variability in baseline diagnostic status. In addition, researcher-verified screening could identify participants at higher risk who may benefit from referral to clinical services.

Culturally and contextually adapting the Body Project for NZ could involve several practical strategies. For example, some of the programme content could be modified to better reflect NZ cultural norms, values, and experiences**,** such as including examples and scenarios relevant to Māori,

Pacific, or other local students, or integrating references to locally popular media and social pressures. Similarly, questionnaires and self-report measures could be reviewed and adjusted to ensure that the language is culturally and contextually appropriate. This might involve rewording items that use terminology unfamiliar in NZ tertiary settings, or adding examples that reflect local lifestyle and social contexts (See Appendix H for proposed changes). Such adaptations would likely enhance participant engagement and the relevance of the intervention, increasing the likelihood that students internalise the dissonance-based activities.

Future implementations could also strengthen intervention fidelity by maintaining consistent group sizes, minimising abbreviated sessions, and systematically monitoring homework completion. Prior Body Project research indicates that engagement with between-session activities is a key contributor to intervention effects, as homework tasks reinforce dissonance processes and facilitate internalisation of session content (Stice et al, 2019). Studies examining delivery fidelity have also shown that deviations from standard group size or session structure can attenuate outcomes. Incorporating digital platforms, structured reflection tools, or automated reminders may support homework adherence and engagement, particularly in online or hybrid delivery formats that are increasingly used in tertiary settings.

Another future direction could be extending follow-up periods, this is critical for assessing the durability of intervention effects. Longitudinal Body Project trials have demonstrated that reductions in thin-ideal internalisation, body dissatisfaction, and ED risk can be sustained at 6-month, 12-month, and multi-year follow-up assessments (Stice et al, 2019; Hudson et al, 2021). These longer-term evaluations have been valuable in establishing the Body Project as an effective prevention programme rather than a short-term attitudinal intervention. Future NZ studies should adopt similar follow-up intervals (e.g., 6 and 12 months post-intervention) to determine whether observed

changes are maintained over time and to examine whether booster sessions enhance long-term outcomes.

Finally, future research could explore the implementation of the Body Project in younger populations (<18 years) in a NZ context. The programme has been validated for adolescents aged 15 years and older, and international studies have demonstrated effectiveness when delivered in secondary school settings, including reductions in thin-ideal internalisation and body dissatisfaction among mid-to-late adolescents (Stice et al, 2019; Hudson et al, 2021). In the NZ context, delivery through secondary schools, youth-focused community organisations, or culturally grounded community groups (e.g., church- or faith-based youth programmes) may provide accessible and developmentally appropriate pathways for early prevention. Such approaches have been used internationally to extend reach beyond tertiary environments and align with public health models that emphasise prevention.

4.8 Conflicts of Interest

No conflicts of interest were identified.

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Appendix

Appendix A: Ethical approval

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

20/06/2024

Dear: Prof Aj Ali

Re: Ethics Application - OM1 24/11 - Evaluation of The Body Project

Thank you for the above application that was considered by the Massey University Human Ethics Committee:

Ohu Matatika 1 at their meeting held on **Tuesday, 12 March 2024**

On behalf of the Committee I am pleased to advise you that the ethics of your application are approved.

Approval is for three years. If this project has not been completed within three years from the date of this letter, reapproval must be requested.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Professor Tracy Riley,
Acting Chair, Research Ethics Chair's Committee

Research Ethics Office, Research and Enterprise
Massey University, Private Bag 11 222, Palmerston North, 4442, New Zealand T 06 951 6841; 06 95106840
E humanethics@massey.ac.nz; animalethics@massey.ac.nz; gtc@massey.ac.nz

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

20/06/2024

Dear: Prof Aj Ali

Re: Ethics Application - OM1 24/11 - Evaluation of The Body Project

Thank you for the above application that was considered by the Massey University Human Ethics Committee:

Ohu Matatika 1 at their meeting held on **Tuesday, 14 May 2024**

On behalf of the Committee I am pleased to advise you that the ethics of your application are approved.

Approval is for three years. If this project has not been completed within three years from the date of this letter, reapproval must be requested.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Professor Tracy Riley,
Acting Chair, Research Ethics Chair's Committee

Research Ethics Office, Research and Enterprise
Massey University, Private Bag 11 222, Palmerston North, 4442, New Zealand T 06 951 6841; 06 95106840
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Appendix B: Participant information sheet

MASSEY UNIVERSITY
COLLEGE OF HEALTH
TE KURA HAUORA TANGATA

Evaluation of The Body Project

PARTICIPANT INFORMATION SHEET (STUDENTS)

Researcher Introduction
We are health and wellbeing researchers from Massey University. Prof Ajmol Ali has expertise in physical activity, Prof Rozanne Kruger and Ms Garalynne Stiles are dietitians and experts in nutrition, and Ms Maia Cavanagh is completing a MSc in Nutrition and Dietetics.

Invitation to Participate in Research Study
The Body Project is a programme designed for young women with body image concerns. It has been shown to have positive effects on improving body acceptance, with successful results worldwide. The programme helps participants challenge and explore what a healthy body means and looks like to them.

The main outcomes expected through the Body Project are:
1. The Body Project will be successfully implemented in females aged between 18-30 years old attending any tertiary institutions in New Zealand.

Participant Recruitment
We are collecting data from students enrolled in any tertiary institution in New Zealand. They must identify as females, and be aged between 18 and 30 years old . The Body Project will not be available for those who identify as males, those 17 years or younger or older than 30 years, or to those that are currently undergoing treatment for an eating disorder. Please note that this study is open to those who identify as female, and participants may include biological males.

We aim to recruit at least 80 students for this study.

Project Procedures and Participant Involvement

If you agree to take part, you will be randomly split into either the 4-session group (n=40), or the 1-session group (n=40). These are just two different forms of implementation of the study.

The 4-session group will be asked to take part in 4 x 1-hour sessions, spread across 4 weeks. Sessions will take place online, over Zoom. As participants will be split into groups of 5-7 people, the timing of these sessions will be agreed upon within the group. Each session will involve a series of verbal, written and behavioural exercises. The sessions will be led by the peer educator, a fellow student trained by the counsellors to lead the discussions.
You will be asked to fill out online questionnaires at the start of session 1 and end of session 4. These questionnaires will be discussing a variety of topics including body satisfaction, quality of life and dietary intake. Participants should allocate up to 30 minutes outside of the sessions to complete the questionnaires (4-session group: total time commitment of ~5 hours.)

The 1-session group will also be asked to fill out these same questionnaires, both before and after watching their session. Data from these questionnaires will be used for data analysis, but no personal, identifying information will be collected to ensure participant confidentiality is maintained throughout.

Te Kunenga ki Pūrehuroa

School of Sport, Exercise and Nutrition
Private Bag 102904, North Shore City 0745, New Zealand T +64 9 414 0800 www.massey.ac.nz

If you are in the 1-session group, you should allow 55 minutes for the session itself, plus up to 30 minutes for the questionnaires discussed above. If allocated to this group, you will get the opportunity to participate in the extended sessions at a later date, should you wish to do so. If anyone in the 1-session group wishes to take part in the 4-session group, this can be arranged.

We will provide koha (gift) of a **$20 voucher** for each student participant in Part A (at the end of the trial).

Benefits of participation
International research has shown that taking part in a preventative programme improves body satisfaction, and improves mood, reduces use of unhealthy weight control behaviours, and decreases binge eating and other eating disorder symptoms.

Participant's Rights
You are under no obligation to accept this invitation. Should you choose to participate, you have the right to:

- Decline to answer any particular question.
- Withdraw from the study at any time, even after you have signed a consent form (if you choose to withdraw you cannot withdraw your data from the analysis after the data collection has been completed).
- Ask any questions about the study at any time during participation.
- Be given access to a summary of the project findings when it is concluded.

Good Practice and Cultural Safety for Massey University Research
The study was discussed with Associate Professor Bevan Erueti (Associate Dean – Māori) and Professor Palatasa Havea (Dean Pacific) to ensure that both Māori and Pacific concepts and values are being included. All research will be performed in a culturally safe way that respects participants privacy and confidentiality. The concept of manaakitanga will be acknowledged by providing participants with a space where they can feel safe to share their experiences, knowing they will be respected and supported. The peer educators will be trained to build rapport with participants and perform a karakia at the start and end of each session.

Confidentiality
Data collected will be used for research purposes only. The findings may be submitted for journal publication and/or presentation at a conference. Numbers will be assigned to participants to ensure their identity is kept confidential. No names or identifying information will be available to anyone outside of the research team. Data will be kept confidential, stored on secure Massey OneDrive computers for 5 years. After this time, it will be disposed of by a member of the research team at Massey University.

Project Contacts
If you have any questions regarding this study, please do not hesitate to contact either of the following people:

Principal Researcher
Prof Ajmol Ali (School of Sport, Exercise and Nutrition, Massey University)
a.ali@massey.ac.nz
(09) 213 6414

Student researchers
Maia Cavanagh (School of Sport, Exercise and Nutrition, Massey University)

m.cavanagh@massey.ac.nz

Researcher	Contact details	Area of expertise
Prof Rozanne Kruger	r.kruger@massey.ac.nz	Nutrition
Garalynne Stiles	g.stiles@massey.ac.nz	Nutrition
Eric Stice	estice@stanford.edu	Department of Psychiatry and Behavioural Sciences, Stanford University, California.
Heather Shaw	Hshaw2@stanford.edu	Stanford University, Social Science Research Scholar

Should involvement in the Body Project bring up any personal struggles around body image and eating, students should not hesitate to contact their university's Health and Counselling team. Contact details for other free services available to students, can be found below:

Service	Contact Details	
Youthline	TXT 234	0800 376 633
1737	https://1737.org.nz	Call or TXT 1737

Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Ohu Matatika 1, Application OM1 24/11. If you have any concerns about the conduct of this research, please contact the Chairperson, Massey University Human Ethics Ohu Matatika 1, email humanethics1@massey.ac.nz

Appendix C: Participant recruitment poster 2024

Appendix D: Participant recruitment poster 2025

Requirements

- Only available for **women** ages **18-30**
- Enrolled in **any** tertiary institution in NZ
- **NO** prior eating disorder diagnosis

$20-$40 koha voucher

THE BODY PROJECT

MASSEY UNIVERSITY
TE KUNENGA KI PUREHUROA
UNIVERSITY OF NEW ZEALAND

Because You Deserve to Feel Amazing On Your Terms!

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Appendix E: Peer educator recruitment poster

Appendix F: Peer educator fidelity form

PEER BODY PROJECT
Session Adherence
Session 1

School ID:_____ Group #: _____

Rater:_____ Date of Rating:_____

100 = Perfect! Absolutely all material in the section was presented exactly as written (100%).
90 = Excellent. All key concepts and almost all material in the section were presented (95%).
80 = Very good. All key concepts were presented but some supporting material skipped (90%).
70 = Good. Most key concepts of the section were presented (8 0%).
60 = Fair. One key concept was not presented (70%).
50 = Mediocre. The majority of key concepts were presented but significant gaps (60%).
40 = Minimal adherence. The majority of key concepts were presented but poorly (50%).
30 = Poor. The majority of the key concepts were not presented (<50%).
20 = Very poor. Material of this section was mentioned only very briefly (10%).
10 = No adherence. The section was skipped entirely.

Rating	**Segment/Content**
_____	Introduction (10 min)
_____	Voluntary commitment and overview (3 min)
_____	Definition and origin of the appearance-ideal (20 min)
_____	Costs associated with pursuing the appearance-ideal (20 min)
_____	Assign home exercises: (1) letter to adolescent girl, and (2) mirror self-affirmation exercise (5 min)

PEER BODY PROJECT
Session Adherence
Session 2

School ID:_____ Group #: _____

Rater:_____ Date of Rating:_____

100 = Perfect! Absolutely all material in the section was presented exactly as written (100%).
90 = Excellent. All key concepts and almost all material in the section were presented (95%).
80 = Very good. All key concepts were presented but some supporting material skipped (90%).
70 = Good. Most key concepts of the section were presented (8 0%).
60 = Fair. One key concept was not presented (70%).
50 = Mediocre. The majority of key concepts were presented but significant gaps (60%).
40 = Minimal adherence. The majority of key concepts were presented but poorly (50%).
30 = Poor. The majority of the key concepts were not presented (<50%).
20 = Very poor. Material of this section was mentioned only very briefly (10%).
10 = No adherence. The section was skipped entirely.

Rating	**Segment/Content**
_____	Reinforce voluntary commitment (2 min)
_____	Letter recording and debriefing (20 min)
_____	Mirror exercise debriefing (12 min)
_____	Role plays to discourage pursuit of thin-ideal (20 min)
_____	Assign home exercise: (1) Rewind response and (2) Top-10 list (5 min)

PEER BODY PROJECT
Session Adherence
Session 3

School ID:_____ Group #: _____

Rater:___ _____Date of Rating:_ _____

100 = Perfect! Absolutely all material in the section was presented exactly as written (100%).
90 = Excellent. All key concepts and almost all material in the section were presented (95%).
80 = Very good. All key concepts were presented but some supporting material skipped (90%).
70 = Good. Most key concepts of the section were presented (8 0%).
60 = Fair. One key concept was not presented (70%).
50 = Mediocre. The majority of key concepts were presented but significant gaps (60%).
40 = Minimal adherence. The majority of key concepts were presented but poorly (50%).
30 = Poor. The majority of the key concepts were not presented (<50%).
20 = Very poor. Material of this section was mentioned only very briefly (10%).
10 = No adherence. The section was skipped entirely.

Rating	**Segment/Content**
_____	Reinforcing voluntary commitment (2 min)
_____	Rewind Response exercise debriefing (10 min)
_____	Quick comebacks to appearance-ideal statements (10 min)
_____	Reasons for signing up for this group (10 min)
_____	Behavioral challenge (10 min)
_____	Top 10 list debriefing (15 min)
_____	Assign home exercises (1) Do one experiment relating to personal body image concerns, and (2) Do two body activism exercises (3) Write a letter to your younger self (3 min)

PEER BODY PROJECT
Session Adherence
Session 4

School ID: _____ Group #: _____ _____

Rater:_____ _____ Date of Rating:_

100 = Perfect! Absolutely all material in the section was presented exactly as written (100%).
90 = Excellent. All key concepts and almost all material in the section were presented (95%).
80 = Very good. All key concepts were presented but some supporting material skipped (90%).
70 = Good. Most key concepts of the section were presented (8 0%).
60 = Fair. One key concept was not presented (70%).
50 = Mediocre. The majority of key concepts were presented but significant gaps (60%).
40 = Minimal adherence. The majority of key concepts were presented but poorly (50%).
30 = Poor. The majority of the key concepts were not presented (<50%).
20 = Very poor. Material of this section was mentioned only very briefly (10%).
10 = No adherence. The section was skipped entirely.

Rating	**Segment/Content**
_____	Reinforcing voluntary commitment (2 min)
_____	Behavioral challenge debriefing (10 min)
_____	Body activism debriefing (10 min)
_____	Letter to a younger self debriefing (10 min)
_____	Benefits of the Group/Closure Discussion (10 min)
_____	Self-affirmation exercise (10 min)
_____	Other home exercise: (1) Self affirmation exit exercise (5 min)
_____	Closure (3 min)

Appendix G: Peer educator competency form

GROUP LEADER COMPETENCE ASSESSMENT

School ID:_____Group #: _____ Session _____

Rater: Date of Rating:

Instructions: Review the entire intervention session, first rating for protocol adherence using the appropriate Session Adherence form. Then complete the ratings for general competence.

General Competence Ratings

1. Leaders express ideas clearly and at an appropriate pace SCORE = _____

100	Superior	Leaders are unusually articulate and express ideas in way that all group members understand. Perfect pace.
90		
80	Excellent/Above average	Ideas are expressed in very clear manner. Pace follows needs of group members.
70		
60	Good/Average	Ideas are expressed in a clear manner and at a pace which is easy to follow.
50		
40	Fair/Below Average	Ideas are expressed in clear manner or pace is appropriate but not both.
30		
20	Poor	Leaders are difficult to follow and session proceeds at an uncomfortable pace.
10		

2. Leaders are organized SCORE =

100	Superior	Session runs seamlessly.
90		
80	Excellent/Above average	Leaders appear very organized and well-prepared.
70		
60	Good/Average	Leaders appear organized and well-prepared in session.
50		
40	Fair/Below Average	Leaders appear marginally organized or prepared in session.
30		
20	Poor	Leaders appear disorganized or ill-prepared in session.
10		

3. Leaders keep group members on task during session SCORE =

100	Superior	Leaders are unusually skillful at keeping group on topic, expertly deflecting several attempts by different members to go off-topic.

90		
80	Excellent/Above average	Leaders very skillfully keep members on task. No off-topic discussion.
70		
60	Good/Average	Leaders keep members on task, tactfully limiting discussions off the topic. Less than 1 minute of off-topic discussion.
50		
40	Fair/Below Average	Leaders occasionally allow discussion to stray from the task at hand, but this is a small problem; 1-2 minutes of off-topic discussion.
30		
20	Poor	Leaders frequently allow discussion to stray from the task at hand, and off-topic discussion is a major problem.
10		

4. Leaders attempt to provide approximately equal speaking time for all members SCORE =

100	Superior	Leaders do an unusually skillful job of handling very outspoken and/or very quiet group members.
90		
80	Excellent/Above average	Leaders do an excellent job of promoting equal speaking time for all.
70		
60	Good/Average	Leaders tactfully promote approximately equal speaking time for all group members.
50		
40	Fair/Below Average	Leaders either tactfully draw out quiet individuals or avoid domination of the group by a few outspoken members but not both.
30		
20	Poor	Leaders allow domination of the group by a few outspoken members and fail to draw out quiet members.
10		

5. Leaders solicit feedback SCORE =

100	Superior	Leaders do an unusually good job of soliciting feedback from all group members to ensure that material is clearly understood by all.
90		
80	Excellent/Above average	Leaders are especially adept at eliciting and responding to verbal and nonverbal feedback throughout the session.
70		
60	Good/Average	Leaders elicit feedback from all group members and ask enough questions to be sure that members understand the material.
50		
40	Fair/Below Average	Leaders elicit feedback from some members but do not ask enough questions to be sure that all members understand the material.
30		
20	Poor	Leaders do not ask for feedback to determine member's

understanding of, and response to, the session.

10

6. Leaders listen and understand SCORE =

100	Superior	Leaders are extremely perceptive and emphatic. Unusually good listening skills.
90		
80	Excellent/Above average	Leaders seem to clearly understand the members and are adept at communicating this understanding through appropriate verbal and nonverbal responses. Excellent listening and empathic skills
70		
60	Good/Average	Good listening skills, as indicated by ability to respond to subtle communications.
50		
40	Fair/Below Average	Leaders are usually able to reflect or rephrase what the members explicitly said but failed to respond to more subtle communication. Limited ability to listen and empathize.
30		
20	Poor	Leaders repeatedly failed to understand what the members explicitly said and thus consistently missed the point. Poor empathic skills
10		

7. Leaders communicate acceptance and respect SCORE =

100	Superior	Leaders convey an unusually high level of genuine acceptance and respect of each and every group member.
90		
80	Excellent/Above average	Leaders clearly and consistently communicate acceptance and respect to all group members (acceptance should not be confused with approval of the person's behavior).
70		
60	Good/Average	Leaders communicate acceptance and respect to the group.
50		
40	Fair/Below Average	Leaders are inconsistent in communicating acceptance and respect.
30		
20	Poor	Leaders fail to communicate acceptance and respect and may be perceived as judgmental, harsh, disrespectful, or condescending.
10		

8. Leaders are enthusiastic SCORE =

100	Superior	Leaders do an unusually good job of being genuinely enthusiastic about the course. They are infectious in their enthusiasm.
90		
80	Excellent/Above average	Leaders convey a very enthusiastic attitude about course and likelihood of improvement.
70		

60	Good/Average	Leaders convey a positive attitude about course and likelihood of improvement.
50		
40	Fair/Below Average	Leaders either (a) convey neither lively, positive attitude nor a tired, angry, or negative attitude, or (b) leaders vary from a lively, positive attitude to a tired, angry, or negative attitude.
30		
20	Poor	Leaders appear tired, angry, and/or lethargic, or convey a negative attitude about course and likelihood of improvement.
10		

9. Leaders are warm SCORE =

100	Superior	Leaders convey a high degree of genuine warmth and interest in all group members.
90		
80	Excellent/Above average	Leaders convey warmth and interest in all group members.
70		
60	Good/Average	Leaders convey warmth and interest in group as a whole.
50		
40	Fair/Below Average	Neutral. Leaders are neither warm nor cold.
30		
20	Poor	Leaders appear detached and aloof, uninterested in group members.
10		

10. Leaders skillfully handled any special problems arising during the session SCORE =

100	Superior	Leaders were extremely skillful at handling several unusual problems.
90		
80	Excellent/Above average	Leaders were very skillful at handling a special problem/situation.
70		
60	Good/Average	Leaders were moderately skillful at handling a special problem.
50		
40	Fair/Below Average	Leaders' response to a problem was minimally adequate.
30		
20	Poor	Leaders could not deal adequately with special problems that arose during session.
10		
NA	Not Applicable	No special problems arose during the session.

If problems arose, please explain:

11. Overall tone of the session SCORE =

100	Superior	Tone of session is perfect -- engaged, fun, focused, and productive.
90		
80	Excellent/Above average	Tone of session is very positive.

70		
60	Good/Average	Tone of session is generally “up.”
50		
40	Fair/Below Average	Tone of session is neutral or varies considerably
30		
20	Poor	Tone of session is generally “down.”
10		

12. Overall Rating of Peer Educator Competence SCORE =__

100	Superior, one of the best!
90	
80	Excellent/Above average
70	
60	Good/Average
50	
40	Fair/Below Average
30	
20	Poor
10	

Appendix H: Proposed terminology changes to IPF to suit a New Zealand context

Several items from the IPF questionnaire caused confusion among participants due to terminology that did not align well with the NZ context. Proposed wording changes are outlined below to improve clarity and accuracy of responses.

Parenting

In the original questionnaire, the term *children* was interpreted inconsistently. Some participants responded "yes" because they lived with or had regular contact with siblings or other children, rather than having parenting responsibilities themselves. However, the intent of the item was to capture individuals with parental or primary caregiver roles.

Proposed clarification:

"In this section, *children* refers only to individuals for whom you had parenting or primary caregiver responsibilities."

Revised item:

"Do you have children for whom you had parenting or primary caregiver responsibilities, and with whom you lived or had regular contact during the past 30 days?"

• Yes • No

Education (including distance learning)

The education item also caused confusion, particularly due to wording that appeared more applicable to school-aged settings. Some participants answered "yes" at baseline and "no" post-intervention despite continued enrolment, indicating misunderstanding of the item's scope. In the NZ context, participants were university students rather than school students.

Proposed clarification:

Replace references to "school" with "tertiary education" and explicitly include university study.

Revised item:

“Have you been involved in a formal educational experience (e.g., university, polytechnic, or other tertiary study, including distance learning) during the past 30 days?”

• Yes • No

These terminology adjustments are intended to improve comprehension, reduce misclassification, and ensure responses more accurately reflect participants’ circumstances within a NZ tertiary student population.