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Evidence Check

Year 7 School-based health checks

An **Evidence Check** rapid review brokered by the Sax Institute for the ACT Government. February 2018.

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This report was prepared by:
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Year 7 School-based health checks

A rapid review of the evidence of school-based measures of weight status and social and emotional wellbeing

An **Evidence Check** rapid review brokered by the Sax Institute for ACT Health.
February 2018.
This report was prepared by Leah Brennan, Annemarie Hindle, Xochitl de la Piedad Garcia and Mary Glascott.

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ADHD	Attention Deficit Hyperactivity Disorder
BASC-2	Behaviour Assessment System for Children Second Edition
BDS	Birleson Depression Self-Rating Scale for Children
BMI	Body Mass Index
CARDIAC	Coronary Artery Risk Detection in Appalachian Communities
CES-DC	Center for Epidemiological Studies ¬Depression Scale for Children
CDC	Centre for Disease Prevention and Control
CDI	Children's Depression Inventory
CLASS	Children's Lifestyle and School-Performance Study
CRIES-8	Children's Revised Impact of Event Scale
EAT-26	Eating Attitudes Test (26 items)
EDE-Q	Eating Disorder Examination Questionnaire
EPOCH	Engagement, Perseverance, Optimism, Connectedness, Happiness
GHQ-12	General Health Questionnaire (12 items)
GUTS	Growing Up Today Study
FAD	McMaster Family Assessment Device
IOTF	International Obesity Task Force
KADS-6	Kutcher Adolescent Depression Scale (6 items)
NaSSDA	National Secondary Students' Diet and Activity
NCMP	National Child Measurement Programme
NHMRC	National Health and Medical Research Council
MFQ	Mood and Feelings Questionnaire
MDI	Middle Years Development Instrument
OSDUHS	Ontario Student Drug Use and Health Survey
PC-PTSD	Primary Care PTSD Screen
PERMA	Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment
PH-C	Physiological Hyperarousal Scale for Children
PI-ED	Paediatric Index of Emotional Distress
PSCY	Paediatric Symptom Checklist for Youths

RAASI	Reynolds Adolescent Adjustment Screening Inventory
RADS-2	Reynolds Adolescent Depression Scale – second edition
RCMAS	Revised Children's Manifest Anxiety Scale
RSE	Rosenberg Self-Esteem Scale
SAEBRS	Social, Academic, and Emotional Behavior Risk Screener
SALSUS	Scottish Schools Adolescent Lifestyle and Substance Use Survey
SCARED	Screen for Child Anxiety Related Disorders
SCAS	Spence Children's Anxiety Scale
SDQ	Strengths and Difficulties Questionnaire
SHAPES	School Health Action, Planning & Evaluation System
SHBQ	Self-Harm Behaviour Questionnaire
SIQ	Suicide Ideation Questionnaire
SPANS	NSW School Physical Activity and Nutrition Survey
UCLA-RI	University of California at Los Angeles Posttraumatic Stress Disorder Reaction Index
WHO	World Health Organization

1 Executive summary

Background

This review examined validated measurement tools that have been used for school-based screening and surveillance of weight status and social and emotional wellbeing of students aged 10–18 years. The review also examined validated measurement tools used in school-based settings to screen for risk factors of overweight or obesity and poor social and emotional wellbeing in the same age group. The findings of the review will be used to inform the development of a Year 7 Health Check to be used by schools in the Australian Capital Territory (ACT). The Year 7 Health Check will examine prevalence, distribution and patterns of adolescent health and wellbeing in the ACT. The information obtained will also help guide the development of school-based programs to address risk factors and the provision of information and referrals for those who may be at risk for overweight, obesity, or poor wellbeing.

Review questions

The review questions addressed in this review are:

- Section 1: What validated tools have been implemented for use in school settings that measure (a) weight status; and (b) emotional wellbeing, and/or social wellbeing?
- Section 2: What validated tools have been implemented for use in school settings that measure: (a) risk factors related to overweight/obesity; and (b) risk factors related to low emotional wellbeing and/or low social wellbeing.

Summary of methods

Both questions were addressed using one search method. The peer-reviewed and grey literature published between 2010 and December 2017 was searched. The final 91 documents included 56 peer reviewed publications and 35 grey literature publications. These included large-scale surveys (generally surveillance tools capturing a broad range of constructs) and individual scales (generally screening tools capturing a single construct).

Key findings

1a) What validated tools that measure weight status have been used in school settings?

The main measure of weight status used in school settings was body mass index (BMI). BMI is the recommended way to record weight status for surveillance and initial screening purposes because it is positively correlated with health risk and it is easier to obtain than other options. In Australia the predominant reference for assessing BMI cut points for overweight and obesity is the International Obesity Task Force BMI-for-age table published in 2000. Waist circumference was the second most common measure used; however, the data revealed that standardising the process of waist measures was challenging. Body fat percentage and waist-to-height ratio were less commonly used measurements.

1b) What validated tools that measure emotional wellbeing and/or social wellbeing have been used in school settings?

A large variety of validated measurement tools were used in school-based settings to assess emotional and social wellbeing. These tools examined a number of themes: general social and emotional wellbeing and psychological distress, mood, symptoms of post-traumatic stress, aggression and social adjustment, suicide/self-harm screening, family wellbeing, psychotic symptoms, and eating behaviours and body image. One or two measurement tools are recommended for each theme depending on the literature retrieved. Recommendations for selection of measurement tools were based on evidence of validity, Australian guidelines (if any) relating to the particular construct, the length or complexity of the measure, and licencing or cost arrangements (if known).

2a) What validated tools that measure risk factors related to overweight/obesity have been used in school settings?

A broad range of risk factors for overweight and obesity were retrieved by this review. The common obesity risk factors measured in large-scale studies were self-reported physical activity, active transport, sedentary screen time, sleep behaviours and food intake and some objective measures of fitness. The main groups of risk factors that were measured across individual studies were: physical activity which was measured using objective instruments (such as accelerometers); physical activity/sedentary time using self-report measures; and eating behaviours/food intake using self-report measures. Recommendations are made for measurement of each theme of risk for overweight and obesity.

2b) What validated tools that measure risk factors related to low emotional wellbeing and/or low social wellbeing have been used in school settings?

The most common risk factors for poor social and emotional wellbeing across large-scale studies were drug and alcohol use, sexual health, internet and social media use, physical health, culture, injuries and violence, school achievement and participation, spirituality and access to healthcare. Recommendations are made for potential large-scale surveillance. For individual scales the validation evidence was weak; however, the two recommended scales provide screening for risk and protective factors for wellbeing in family, academic, mental health and emotional contexts.

Ethical and logistical considerations

A variety of ethical and legal considerations arose within the literature in studies addressing school-based screening or surveillance of weight status or wellbeing. The main issues identified included: active versus passive consent to participate; consideration of potential harm versus benefit to those involved when undertaking the measurement; confidentiality of health information and data storage measures; service capacity of schools and local organisations to offer services to students identified as at risk of poor wellbeing, and; potential for false positives in screening. We recommend further technical advice regarding consent issues and offer recommendations to assist with other ethical and logistical considerations.

Conclusion

This review retrieved a broad range of validated measurement tools to assess overweight and obesity, and social and emotional wellbeing in students between the ages of 10 and 18 years. It also retrieved numerous

validated options for assessing risk factors for these issues. The primary and recommended measure of weight status is BMI. The recommended measures of social and emotional wellbeing cover a broad range of positive wellbeing constructs as well as constructs related to distress and difficulties that children and adolescents commonly experience. Measures of risk factors for both overweight and obesity, and poor social and emotional wellbeing are broad and often overlap with measures of wellbeing. The use of measures validated in school-based samples, ideally in the Australian context, will provide the most assurance that measurements accurately reflect the construct being assessed.

2 Background

This rapid review examines validated measurement tools that have been used for school-based screening and surveillance of weight status and social and emotional wellbeing of students aged 10–18 years. It also examines validated measurement tools that have been used for school-based screening and surveillance of risk factors for overweight or obesity and for poor social and emotional wellbeing in the same population. This review was commissioned by ACT Health to guide the development of a Year 7 Health Check. The Year 7 Health Check will be used to examine the prevalence, distribution and patterns of adolescent health and wellbeing in the ACT. This information will guide appropriate school-based programs to address risk factors for overweight and obesity and poor social and emotional wellbeing. In addition, the Year 7 Health Check will be used to identify students with overweight or obesity or with poor social and emotional wellbeing, or who are at risk for these issues. ACT Health will seek advice on developing appropriate mechanisms to assist these students by way of advice or referral.

Measuring both the weight status and social and emotional wellbeing of adolescents is important as adolescence is a period of rapid development across the physical, psychological, social, emotional, and neurological domains.[1] During this time, young people are exposed to a wide variety of new challenges on individual and environmental levels.

Adolescent overweight and obesity

Childhood and adolescent obesity is increasing throughout the world.[2] In 2012, one in four Australian children aged between 5 and 17 years were overweight or obese. Physical health consequences of adolescent overweight and obesity include an increased risk of developing asthma, type 2 diabetes, and high blood pressure.[3–5] Psychosocial health consequences include development of body image concerns and associated distress, disordered eating, low self-esteem, and bullying from peers.[6] Adolescents with overweight or obesity are more likely to remain overweight during adulthood and are at a higher risk of developing weight-related conditions such as cardiovascular disease and certain cancers).[7] Some risk factors for adolescent overweight and obesity are modifiable, for example, family eating behaviours, poor diet quality such as overconsumption of processed or fatty foods, inadequate physical activity, and excessive sedentary behaviour).[8] Therefore, tracking both weight status and risk factors for overweight and obesity early in adolescence will facilitate the provision of intervention programs to promote healthy weight.

Definition of overweight and obesity

Australian standard definitions for the measurement of overweight and obesity in children and adolescents at the population level are informed by the work of the International Obesity Taskforce (IOTF).[9,10] The child's BMI [weight(kg)/height(m)^2]is compared against age and sex specific cut-offs that then equate to adult BMI. These cut-offs were developed because BMI changes significantly with age throughout childhood. For example, the median BMI at age 1 is 17kg/m^2, 15.5 kg/m^2 at age 6, and 21 kg/m^2 at age 20.[11,12] These international BMI-for-age cut-offs were developed from data gathered from 97,876 males and 94,851 females from birth– 25 years of age from Brazil, Great Britain, Hong Kong, the Netherlands, Singapore, and the United States.The current table of BMI for age cut-offs is reproduced below from Cole et al., 2000[10] (see Table 1). Children with a BMI at or above the adult equivalent of 25kg/m^2 cut points are considered overweight and those with a BMI at or above the adult equivalent of 30kg/m^{2}cut points are considered obese.

Table 1. BMI for age cut-offs equating to overweight (BMI≥25kg/m^2) and obese (BMI≥30kg/m^2)[10]

Age (years)	Body mass index 25 kg/m^2		Body mass index 30 kg/m^2	
	Males	Females	Males	Females
2	18.41	18.02	20.09	19.81
2.5	18.13	17.76	19.80	19.55
3	17.89	17.56	19.57	19.36
3.5	17.69	17.40	19.39	19.23
4	17.55	17.28	19.29	19.15
4.5	17.47	17.19	19.26	19.12
5	17.42	17.15	19.30	19.17
5.5	17.45	17.20	19.47	19.34
6	17.55	17.34	19.78	19.65
6.5	17.71	17.53	20.23	20.08
7	17.92	17.75	20.63	20.51
7.5	18.16	18.03	21.09	21.01
8	18.44	18.35	21.60	21.57
8.5	18.76	18.69	22.17	22.18
9	19.10	19.07	22.77	22.81
9.5	19.46	19.45	23.39	23.46
10	19.84	19.86	24.00	24.11
10.5	20.20	20.29	24.57	24.77
11	20.55	20.74	25.10	25.42
11.5	20.89	21.20	25.58	26.05
12	21.22	21.68	26.02	26.67
12.5	21.56	22.14	26.43	27.24
13	21.91	22.58	26.84	27.76
13.5	22.27	22.98	27.25	28.20
14	22.62	23.34	27.63	28.57
14.5	22.96	23.66	27.98	28.87
15	23.29	23.94	28.30	29.11
15.5	23.60	24.17	28.60	29.29
16	23.90	24.37	28.88	29.43
16.5	24.19	24.54	29.14	29.56
17	24.46	24.70	29.41	29.69
17.5	24.73	24.85	29.70	29.84
18	25	25	30	30

Social and emotional wellbeing

Emotional and social wellbeing is another area of significant change during early adolescence. For most students in Australia, year 7 is commenced at a new school; this transition from primary to secondary school is an important time to monitor social and emotional wellbeing. Not only do students move from being the senior students within their primary school to the junior students within their new secondary school, but they need to make new friends, handle heavier academic work, and adjust to the novel structure of secondary school classes.[13] While the experience of secondary school transition is often exciting for students, it can simultaneously be challenging due to the inherent stress associated with environmental and social change. Research demonstrates that for some students, difficulty coping with the stress of the primary

to secondary transition can produce declines in school engagement such as lower attendance and participation, impaired academic performance and lower self-esteem[13,14] and wellbeing may suffer.

Original definitions of wellbeing often fall under one of two major classes: hedonic wellbeing and eudemonic wellbeing. Hedonic wellbeing is defined by happiness, life satisfaction, and the presence of positive affect as well as minimal experience of negative affect.[5,6] Measuring wellbeing within the hedonic tradition of wellbeing requires measuring of: life-satisfaction (that is, a person's cognitive judgement about how satisfied they are with their life); positive affect (such as happiness, optimism, joy); and negative affect (such as sadness, worry, anxiety).[17]

Eudemonic wellbeing is less concerned with happiness; rather, this view of wellbeing proposes that wellbeing is built on attainment of fundamental human needs, such as connectedness to others, sense of meaning, control and purpose, autonomy and accomplishment from developing ones' skills and attributes).[18-20]

Newer definitions of wellbeing build on earlier theories and research and arise from the positive psychology framework. Wellbeing in the context of positive psychology is focused on identifying variables that emphasise improved functioning, rather than variables which emphasise depleted functioning. A prominent positive psychology definition of wellbeing is the Flourishing Framework.[21] In the PERMA model, Seilgman (2011) maintains that Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment contribute to optimal functioning, and are therefore essential for wellbeing.

Although wellbeing and mental health are distinguishable constructs, they are intrinsically related. Wellbeing is generally concerned with normal functioning and quality of life, whereas positive mental health is usually concerned with the absence of mental illness. Wellbeing is built on a foundation of positive mental health. Research has consistently shown that poor mental health has far reaching consequences across many major life domains, which fundamentally diminishes wellbeing. Studies have shown that mental health issues in childhood and adolescence (for example, symptoms of depression, anxiety, significant psychological distress, conduct concerns) are associated with increased education drop-out[22] and negative outcomes in adulthood, including diminished economic, psychological and physical health.[23]

Screening and surveillance

Surveillance tools

Surveillance tools in the context of the current report are measurement instruments that examine the frequency and distribution of overweight, obesity, social and emotional wellbeing at a population level. Student health surveillance allows for the tracking of adolescent health and wellbeing, monitoring the need for population level interventions and the success of such interventions, as well as the development of school-level health and wellbeing policies.[24] Surveillance tools are designed to gather data that are reported at aggregate levels (for example, school-level, school district level, state-wide).[25]

Screening tools

Screening tools in this context, are measurement instruments used to identify adolescents at risk of overweight or obesity, or poor social or emotional wellbeing to enable referral or intervention to be provided.[26] The accurate identification of students who are or are not at risk of poor wellbeing requires the availability of reliable and valid cut-off scores. This allows us to maximise the likelihood of correctly identifying students who display risk factors for poor health or wellbeing, while minimising the likelihood of unnecessarily providing intervention for those with good health. Screening tools are therefore designed to report individual level data and can be used to inform the student and/or their parent or carer of their health and wellbeing status.[25]

Measurement validity

The validity of a measurement tool is established when it accurately and completely represents the construct it is attempting to measure.[27] A measurement tool must actually measure the construct it purports to measure (for instance, a depression scale must measure depression rather than anxiety), and the measure can be generalised beyond the immediate sample on which it was initially tested (for example, a youth screening tool validated in one school can be used across other school populations). However, validity is population and purpose specific. This means that a measurement tool found to be valid in one population or for one purpose cannot be *assumed* to be valid for other populations or purposes. Validity is also contingent on the reliability of the tool. This means that the measurement tool must produce very similar results across items, assessors, and time.[28] A valid measurement tool is also responsive to change within an individual's state (for example, having the ability to detect real change rather than minute fluctuations in item response).[28] The use of unpublished rating scales (that is, not published in a peer reviewed journal, usually without psychometric testing)[1] has been shown to significantly bias measurement results when compared to published scales. One systematic literature review found that one third of claims of treatment superiority in clinical trials would not have been made if published scales had been used.[29]

Using validated measurement tools is essential for gathering accurate information about student weight status, emotional wellbeing and social wellbeing, and associated risk factors. There are two broad forms of measurement tools that can be used to collect this data: a) objective measures, which involve direct measurement or observation of a variable, and b) subjective measures, which involve indirect measurement, often in the form of self-reported data.

Measurement of weight status

Wherever possible, objective measures of weight status (such as use of calibrated scales, height stadiometers, measured waist circumference) are preferred over self-report data. This is because self-reported weight tends to be underestimated, while self-reported height tends to be overestimated, resulting in an underestimation of BMI.[30]

Measurement of wellbeing

Self-report questionnaires are often used to measure emotional and social wellbeing, particularly in large-scale screening and surveillance surveys. These allow people to answer questions about their current psychosocial state that cannot be directly observed.

School based settings for screening and surveillance

The use of school settings for surveillance, screening and for the implementation of adolescent health programs is advantageous for several reasons. First, school settings increase the convenience of adolescent sampling. That is, use of school settings makes it more likely that more individuals, across a broad socio-demographic spectrum will have the opportunity to participate. This allows for a more accurate representation of adolescent weight and wellbeing status across a given area, allowing for the development of more tailored prevention and intervention programs. Second, schools also provide a setting for the implementation of prevention programs that specifically target the intended audience.

The following review questions were formulated by the commissioning agency to identify school-based measurement tools:

[1] Measurement scales published in peer-reviewed journals require psychometric properties (i.e., reliability and validity statistics) to be reported.

What validated tools have been implemented for use in school settings that measure:

1. Weight status, emotional wellbeing, and/or social wellbeing
2. Risk factors related to overweight/obesity, low emotional wellbeing and/or low social wellbeing?

3 Methods

To address both Question 1 and 2 we examined original, peer reviewed English language papers and grey literature published between January 2010 and December 2017. Question 1 considered validated measurement tools used in school settings to: (a) objectively assess weight status (that is, not self-reported weight), and (b) assess social and emotional wellbeing in students aged from 10–18 years.

Question 2 examined validated measures used to assess risk factors for: (a) overweight/obesity, and (b) poor social and emotional wellbeing.

Search strategy

For both Question 1 and 2 the following inclusion and exclusion criteria, as defined by the commissioning agency, were applied:

Inclusion criteria

- Objective measures of weight status of students aged 10–18 years
- Measures used to assess emotional or social wellbeing completed by students aged 10–18 years
- Conducted in school settings
- Measures completed by parents or carers were included if they were used to complement school-based student measures
- Published studies and grey literature originating in Australia, New Zealand, the United Kingdom, Canada or the United States2
- English language.

Exclusion criteria

- Diagnostic assessments (such as clinical interviews)
- Measures completed by teachers
- Abstracts, conference presentations, editorials, opinion pieces.

Peer review literature

Peer reviewed academic literature was searched using four electronic databases: Cochrane Library, ERIC, Medline, and PsycInfo. The key search terms used across all databases are summarised in Table 2. Where individual databases allowed for subject headings, these were included in the search terms. Comparable subject headings were used across databases where available. Table 2 also displays the subject headings used for the Medline database, as an example of search terms.

[2]Limitations were applied to studies retrieved from the USA. Only those that examined large-scale surveillance surveys or screening programs and studies assessing the psychometric properties of measurement tools were included.

Table 2: Key search terms and subject headings

Key search terms across all databases				
Population (Ages 10–18)	**Setting** (School-based)	**Purpose of tool** Screening/Surveillance	**Outcome 1** Measurement of weight status, overweight, obesity, or risk for overweight or obesity	**Outcome 2** Measurement of social or emotional wellbeing or risk for poor wellbeing
adolescen* OR teen* OR preteen* OR preadolescen* OR pre-adolescen* OR youth OR child*	school-based OR "school setting"	screen* OR surveillance	Weight OR overweight OR obesity OR obese OR BMI OR "body mass index" OR "waist circumference" OR "waist to hip ratio" OR "healthy weight"	psycho* OR emotional OR social OR mental OR behavioural OR behavioral N3 health OR wellbeing OR well-being OR "well being" OR Distress OR impairment* OR difficult* OR problem* OR risk* OR ill*
Examples of subject headings in Medline database				
(ZG "adolescent: 13–18 years") OR (ZG"child: 6–12 years") OR (MH "Adolescent") OR (MH "Child")	(MH "Schools")	None available	(MH "Body Weights and Measures")	(MH "Mental Health")

Study selection

The initial electronic database search was conducted by AH. It retrieved 1059 papers. These titles and abstracts were screened by AH and MG to assess eligibility for inclusion. Following this, AH and MG reviewed the full text of 396 papers. At full text review, 296 papers were excluded under the stated criteria. Disagreements about inclusion were discussed until consensus was reached. Given the large number of studies recovered from the US, it was determined that only: (a) large-scale studies and screening programs, and (b) studies assessing the psychometric properties of measurement tools would be included from the US. Where US papers reported data from the same large-scale screening study, information concerning measurement tools was extracted from the original large-scale screening measurement tool, often accessed via grey literature. This resulted in the inclusion of 56 peer reviewed papers in the final review.

Grey literature

Grey literature was searched using two methods. First, 44 peer reviewed articles identified in the systematic search identified that data had originated from larger scale surveys. These surveys were therefore sought in the grey literature. Second, snowballing procedures were used. AH and MG examined the websites related to the large-scale government or health department studies identified in the systematic search and followed references and links provided in these studies and sites. Australian Federal and State Government websites were searched as were the relevant Departments of Education websites. Google was also searched for

variations of "*measuring wellbeing in students or schools*" and further links and references in any included studies or reports were examined.

Disagreements about inclusion were discussed with reference to the criteria until consensus was reached. Thirty-five publications retrieved via grey literature searching were included in the review. A flowchart of the complete literature selection process is included as Appendix 1. Overall, 91 references (peer reviewed and grey literature) were included in the review. A summary table of the retrieved large-scale surveys is included as Appendix 2 and a summary of the retrieved peer-reviewed studies is included as Appendix 3.

Data management

Where a peer-reviewed study or grey literature document did not report required questionnaire details (for example, number of items, administration time, validity evidence), this information was first sought via library data bases and internet sources. Where the information was unavailable via these methods, attempts were made to contact authors, administrators or publishers via email. Most contacts responded, but for various reasons they could not always provide the information sought. Unavailable information is listed as not recorded (for items, validity evidence, clinical cut-offs) or unclear (for licencing). Information obtained via direct contact is noted in the tables.

4 Findings

Findings have been presented according to the questions posed. Throughout this section, readers are referred to tables that contain detailed information about the measures presented.

In the cases of objective measures of weight status, these tables contain information on: the jurisdiction in which the measure was used; the age of the student group assessed; the manner in which the assessment was conducted (such as personnel and procedures) and the tools used; the calculation of weight status; determination of clinical cut-off for overweight and obesity; the proportion of students identified as falling within these groups, and; links to surveys or reports where available.

With respect to measures related to social and emotional wellbeing, tables contain: the name of the measure, details concerning the constructs measured, the number of items contained in the measure, administration time (where known), the method of delivery available (paper or online), the jurisdiction in which the measure was used and relevant web links. Tables also contain details to assist with interpreting the validity of measures; these details include the age groups for which the measure was originally developed in addition to the age groups of the samples used in the retrieved literature. We sought evidence of validation first in a school-based environment. Where this could not be located, we sought evidence for validation in the 10–18 years age group and following this, evidence for general validity. This information, together with the relevant validation references is presented in the tables. Where it is available, clinical cut-offs for high risk and distress are reported, as are the proportion of students identified as falling within this category.

Section 1 of these findings reports validated measures used to assess weight status and social and emotional wellbeing in school-based settings. Section 2 reports validated measures used to assess risk factors for overweight and obesity and poor social and emotional wellbeing.

Section 1

Question 1 (a): What validated objective tools that measure weight status have been used in school settings?

Weight status was measured in four different ways: (a) body mass index (BMI), (b) body fat, (c) waist circumference, and (d) waist to height ratio.

(a) Body mass index (Table 4)

The main objective measurement tool implemented in schools to measure weight status was body mass index (BMI). Fourteen peer reviewed studies[31–44] and six surveys retrieved via grey literature[45–50] used BMI to measure student weight status. In each of these 20 instances, the height and weight used to calculate BMI was measured using calibrated weight scales and either a free standing or wall mounted stadiometer or measuring rod by trained research staff, health assistants, field officers or registered school nurses. Some references provided more detailed information on the procedure used for measuring height and weight. In these cases, students were weighed in light clothing, without shoes.[33–35,40,43,45,50] With the exception of one study that employed a formula for measurement of weight in pounds[42], all studies calculated BMI using the formula kg/m^2. Across the retrieved references, the status of overweight or obesity was assessed against a number of different reference points. These reference points were the cut-offs or centile curves for childhood age developed by several different organisations. Two references — one Australian[47] and one

Canadian[45] — used the centile curves of the International Obesity Taskforce (IOTF) reported by Cole et al., in 2012[9] to determine cut off levels for overweight and obesity. Six references — five Australian[31–33,46,48] and one British[34] — used the IOTF cut-offs published in 2000.[10] Three British references[35–37] used the 1990 IOTF cut-offs for the UK.[11] Five references — one Australian[50] and four from the US[41–44] — used the Centre for Disease Prevention and Control (CDC) centile curves.[51] Three references — two Australian[38,39] and one British[40] used the World Health Organization(WHO) 2007[52] centile curves. Currently Australia uses the IOTF BMI-for-age cut-offs published in 2000 as the official childhood overweight/obesity cut-off levels.[10] The various cut-offs reported in the retrieved literature may result in the identification of differing prevalence of overweight and obesity within the samples.[3] Appendices 4 and 5 provide figures obtained from the WHO in which the WHO clinical cut-offs for overweight and obesity are compared to those used by the IOTF and the CDC.

(b) Body fat (Table 4)

Four references — three Australian[31,33,38] and one British[36] — used objective measures of body fat to examine weight status. In all cases, a bioelectric impedance analyser was used and measurements were performed by a trained researcher or independent assessor. Bioelectric impedance analysers determine total body water, extracellular fluid and intracellular fluid from impedance data. In the two studies that reported how body fat was calculated[31,33], the data collected were transformed into body fat percentages by the method reported in Lubans et al., (2011), but specific cut-offs were not reported.[53] One other study reported cut-offs for overweight and obesity as ≥85th and <95th centile of body fat, respectively.[36]

(c) Waist circumference (Table 4)

Five references (three Australian, two British) measured weight status by way of waist circumference.[34,36,38,39,47] All references reported using either an 'anthropometric tape' or a 'non-extendible steel tape'. In all cases measurements were taken by a trained researcher, independent assessor or field officer. A variety of descriptions about the procedure for measurement were supplied: midway between rib cage and superior border of iliac crest on gentle expiration[34]; to nearest 0.1 cm against the skin in line with umbilicus[38,9]; 4cm above the umbilicus[36]; at level of narrowest point between lower rib and iliac crest.[47] One reference reported cut-offs for overweight and obesity as ≥85th and ≥95th centile of waist circumference respectively.[36]

(d) Waist to height ratio (Table 4)

Four references reported waist-to-height ratio as a measure of waist status.[32,34,47,48] Three references reported using an 'anthropometric tape measure' or 'inelastic tape measure'. Two of the four studies reported the procedure for collecting the data for the waist measurement: midway between rib cage and superior border of iliac crest on gentle expiration[34], and at level of narrowest point between lower rib and iliac crest.[47] Three studies reported the method for measuring height and all these used a stadiometer or measuring rod.[34,47,48] Two studies reported cut-off levels for overweight and obesity. In these studies when waist divided by height was <0.5, it was considered to be low cardiometabolic risk, while scores ≥0.5 were considered to be at cardiometabolic risk.[32, 47]

[3] Refer to the Recommendations section pertaining to measurement of weight status for further explanation of these cut-offs.

Question 1 (b): What validated tools have been implemented in school settings for measuring social and emotional wellbeing?

A wide variety of validated measurement tools have been implemented in schools to examine social and emotional wellbeing. The first section below reports on the large-scale surveys implemented at state or national levels in any of the countries included in the search. We report these in a separate section because these surveys contain questions covering a wide variety of themes within social and emotional wellbeing. The remaining sections report on validated measurement tools that examine a specific aspect of social and emotional wellbeing.

Large-scale surveys of general social and emotional wellbeing (Table 5)

Nineteen large-scale surveys that measured general social and emotional wellbeing were identified in the search. Nine were conducted in Australia[46, 49,54–60], one in NZ[61], two in the UK[62,63], four in Canada[45,64–66], and three in the US.[67–69]

Of the nine Australian surveys, five covered a broad range of wellbeing dimensions, including general physical and mental health, happiness, sadness, optimism, pro-social behaviour, resilience, quality of life, family functioning, bullying, peer relationships and self-esteem.[46,49,54,56,57] Three examined wellbeing in the context of school belonging, engagement, and safety.[58–60] One examined wellbeing in terms of the effect of bullying.[55]

Surveys originating from jurisdictions other than Australia show similar areas of coverage; five are broad-based surveys covering general physical and mental health, substance use, sexual health, peer and family relationships, safety and violence, nutrition, harassment, self-esteem, and personality[45,66–69], three surveys address wellbeing in the context of substance use[63–65], while two examine wellbeing within the context of school engagement[61,62]

Most large-scale surveys included items adapted from validated measures, but typically do not use the validated tool in its entirety or have modified item wording. This may be problematic, given that single or multiple items used from validated measurement tools will not necessarily represent the construct measured in those tools in its entirety and will not retain the established validity. The large-scale surveys with the strongest validation evidence are those that are developed using a compilation of full-scale measurement tools with little modification to items or wording. The Middle Childhood Survey, the Middle Years Development Instrument (MDI), and the Survey of Wellbeing and Student Engagement (based on the MDI) have the most robust evidence of validity.[56,66,70–72] A recent review of the Survey of Wellbeing and Student Engagement in South Australia has resulted in some recommended changes to the survey. The proposed changes will mean that the survey contains mainly validated measures — for example, the EPOCH Happiness subscale[73], and the Emotion Regulation Questionnaire for Children and Adolescents[74] —and has the potential to include measures that may be developed specifically for the South Australian context that will then require validation (for instance, measures of student engagement). The review provides evidence for these recommendations.[54]

Individual Measurement Tools of Social and Emotional Wellbeing

General social and emotional wellbeing/psychological distress (Table 5)

Seven validated measurement tools were used across 15 papersto measure general wellbeing or levels of psychosocial distress. The General Health Questionnaire (GHQ-12), which has validation evidence in an Australian school-based adolescent sample[75] and in other Australian and Canadian adolescent samples[76–78]was used in four Australian[79–82] and one Canadian reference.[83] The GHQ-12 is a 12-item screening tool for identifying symptoms of possible non-psychotic and minor psychiatric disorders. The Strengths and

Difficulties Questionnaire (SDQ)[84] was used in four Australian[85–88] and three British references.[40,89,90] The SDQ has validation evidence in a European school-based adolescent sample[91] and in a British adolescent sample.[84,92]The SDQ is used as a behavioural screening tool for emotional symptoms, conduct problems, hyperactivity/inattention, peer relationships, and pro-social behaviour. The SDQ is a 25-item scale with a supplement of two questions to screen for self-harm/suicide and follow up questions for use after an intervention in order to assess changes. Other measurement tools used less frequently included the Rosenberg Self-Esteem Scale[40,83], the Paediatric Symptom Checklist for Youths (PSCY)[93], the Psychological Flourishing Scale[94], the Student Flourishing Profile[95], and the Self-Description Questionnaire.[96] With the exception of the Psychological Flourishing Profile that has validation evidence for undergraduate students[97], each of the remaining tools has demonstrated evidence of validity in school-based adolescent samples.[95,98–101]

Mood (symptoms of depressed mood and anxiety)

Symptoms of depressed mood and anxiety were measured using a wide variety of tools. Sixteen different measurement tools across 15 references examine depressive and anxious symptoms (see Table 6). The most common tool for measuring depressive symptoms was the Children's Depression Inventory – CDI (long and short form). The CDI was used twice with Australian students (short form)[101,102], and once with US students (long form).[103] The CDI long form has validation evidence in an Australian adolescent inpatient sample[104] and a US school-based adolescent sample.[105] Two other measures of depressive symptoms appeared more than once across retrieved references. First, the Center for Epidemiological Studies Depression Scale for Children (CES-DC) was used in one Australian (long form)[88] and one US reference (short form).[106] The CES-DC long form has validation evidence in US adolescent school-based and inpatient settings[105,107], while the short form has validation evidence for US adult community samples.[108] Second, the Reynolds Adolescent Depression Scale-2 (RADS-2) was used in one Australian (long form)[87] and one NZ reference (short form).[109] The long form has validation evidence in adolescent populations and the short form in a NZ school-based adolescent sample[110,111] Other measures of depressive symptoms included the Birleson Depression Self-Rating Scale for Children (BDS) and the Mood and Feelings Questionnaire (MFQ)[35,112], both of which demonstrate validity evidence in adolescent samples in school-based settings.[113,114] Finally, the Kutcher Adolescent Depression Scale (KADS-6) was also used and has evidence of validity in adolescent community samples.[115]

Two questionnaires assessed both depressive and anxious symptoms. The Pediatric Index of Emotional Distress[116] and the K61[17] were used in the UK and the US respectively. Both these references were psychometric assessments of the relevant questionnaires and therefore provided evidence of validity in their student samples.

The most common questionnaire for assessing anxiety symptoms in students was the Spence Children's Anxiety Scale (SCAS) which was used in two references from Australia[101,118] and one from the UK.[112] The SCAS has validation evidence from an Australian adolescent school-based sample.[119] The Screen for Child Anxiety Related Disorders (SCARED) was used in two US references[106,120] and has evidence of validation from a US adolescent inpatient sample.[121] The Profile of Mood States and the Multidimensional Perfectionism Scale were both used once each in Australian references[81,102], and both have evidence of validity from school-based adolescent samples.[122,123] The Physiological Hyperarousal Scale for Children (PH-C) and the Revised Children's Manifest Anxiety Scale (RCMAS) were both used once for US students.[103] The PH-C was used within a psychometric study and therefore provides evidence of validity within its sample of US adolescent students , while the RCMAS has validation evidence from a community sample.[124]

Post-traumatic screening questionnaires (Table 7)

Three measures that screened for symptoms of post-traumatic stress (PTSD) in students were identified across four references; two Australian[85,101], one UK[112], and one US.[106] The UCLA PTSD Reaction Index) (UCLA-RI) was used twice to screen for trauma symptoms in school students after flooding disasters in Queensland.[85,101] The UCLA-RI demonstrates validity evidence for adolescent samples from the US.[125] The Children's Revised Impact of Event Scale (CRIES-8) was used to screen for PTSD symptoms in students after a bombing. Evidence of validity for the CRIES-8 is available from adolescent hospital samples in the UK.[126] Finally, the Primary Care PTSD Screen (PC-PTSD) was used as a general population screener.[106] However, validation evidence for the PC-PTSD is limited to primary care adult samples in the US.[127]

Aggression and social adjustment questionnaires (Table 8)

Two validated scales measuring aggression and social adjustment were identified as having been used in school settings in two references from Australia[94]and the UK.[128] The Aggression Scale measures verbal and physical aggression and feelings of anger, and has validation evidence in a US school-based adolescent sample.[129] The Reynolds Adolescent Adjustment Screening Inventory (RAASI) examines psychological adjustment problems such as antisocial behaviour, anger control and emotional distress. This scale has validation evidence in an adolescent sample.[130]

Suicide screening questionnaires (Table 9)

Two measures were identified across two references that screened for suicidal ideation and deliberate self-harm in a school-based setting.[82,128] The Self-Harm Behavior Questionnaire (SHBQ) has validation evidence from a school-based adolescent sample in the US.[131] The Suicide Ideation Questionnaire has validation evidence for adolescents in a US school-based and a clinical setting.[132,133]

Family wellbeing questionnaires (Table 10)

One measure of family wellbeing was used in an Australian reference.[85] The McMaster Family Assessment Device (FAD) assesses aspects of effective and problematic family functioning. The FAD has validation evidence in Australian community and clinical adolescent samples.[134]

Psychotic symptoms (Table 11)

Two measures were used to screen for psychotic-like experiences in adolescents in Australia[56] and the UK.[135] Validation evidence from school-based adolescent samples in the UK is available for both these measures.[136,137]

Eating behaviours and body image questionnaires (Table 12)

Eight separate measures of eating related thoughts and behaviours, and body image were identified. Measures of eating related thoughts and behaviours included three used in Australia — the Eating Disorder Examination Questionnaire[102], the Dutch Eating Behaviour Questionnaire[102], and the Eating Disorder Inventory[102] — and one used in the US, the EAT-26.[138] Each of these tools assesses the degree to which eating related thoughts and behaviours may be disordered (for example, weight, shape, or eating concerns, drive for thinness, restricted eating, emotional eating, body dissatisfaction, ineffectiveness, interpersonal problems); each has evidence of validity in US and European school-based adolescent samples.[139–142] Measures related to body image included three used in Australia— the Physical Self-Description Questionnaire[33,94], the Sociocultural Attitudes Towards Appearance Questionnaire[102], and the Perceived Sociocultural Pressure Scale[102] — and one used in the UK, the Body Esteem Scale for Adolescents and Adults.[40] These tools assess general feelings about one's appearance, perception of body fat, perceived society pressure to be thin, and the degree to which one has internalized media messages concerning ideal body image. Each of these body image scales has validation evidence from Australian and US adolescent school-based samples.[143–146]

Section 2

Genetics plays an important role in risks of obesity, and in mental health and wellbeing.[147,148] In addition to the contribution of genetics, the risk factors for obesity and wellbeing in childhood and adolescence are complex and intertwined. For example, low physical activity and increased screen time[149], poor nutrition[149], and sleep quality[149,150], are risk factors for obesity, but also for poor mental health or wellbeing.[151,152] Poor mental health or wellbeing is itself a risk factor for obesity; however, the opposite relationship has also been established in the literature.[153,154]

Given these shared risk factors, the measures of risk factors for obesity retrieved from the search often overlap with the measures of risk factors for poor social and emotional wellbeing, which were also retrieved from the search. However, to enable us to answer the questions posed by the commissioning agency, we have presented the information relevant to the tools for measuring risk factors according to how they were used in the retrieved studies. For example, if a study used a sleep quality questionnaire to measure risk for poor wellbeing, we have reported this questionnaire in the section related to risk factors for poor wellbeing, even though it is also a risk factor for obesity. Conversely, if a study assessed the relationship between intake of high density calorie foods and obesity, we have presented the food intake questionnaire in the section pertaining to risk factors for obesity, even though it is also a risk factor for poor wellbeing.

Question 2 (a): What validated tools that measure risk factors for overweight and obesity have been used in school settings?

Large-scale surveys measuring risk factors for overweight and obesity (See Table 13)

Five large-scale surveys assessed a broad range of obesity related risk factors such as physical activity, active transport, sedentary behaviours, food intake, attitudes towards food, sleep behaviours, fitness, food marketing. Three of these surveys were conducted in Australia — ACT Year 6 Physical Activity and Nutrition Survey[46], NSW School Physical Activity and Nutrition Survey (SPANS)[47], and National Secondary Students' Diet and Activity (NaSSDA) survey[48] — and two in Canada — CLASS Student Survey and SHAPES Physical Activity Module.[45,155] Some of these surveys contain measurement tools validated in adolescent samples. For example, the SPANS contains the Adolescent Sedentary Activity Questionnaire, while others modify or develop measures specifically for that survey.

Individual measurement tools measuring risk factors for overweight and obesity (See Table 13)

Individual measurement tools examined risk factors for overweight and obesity across three main themes:(a) objective measures of physical activity or fitness, (b) questionnaires about physical activity and sedentary time, and (c) questionnaires about eating behaviours and food intake.

Objective measures of physical activity

The most common method to objectively examine physical activity or fitness was by way of an accelerometer (e.g. ActiGraph), used in five Australian studies.[31,33,36,38,39] Although validation evidence exists for the use of accelerometers to measure physical activity patterns[156], the correlations between accelerometer data and actual energy expenditure may be less robust.[157] Other objective measures of physical activity or fitness included a combined accelerometer and heart rate monitor (e.g. the ActiHeart)[35], the 20 metre shuttle run[32], the handgrip dynamometer[39], and a licensed fitness software package called FitnessGram®.[158] FitnessGram® has been used predominantly in American schools to track aerobic capacity, body composition, muscular strength, muscular endurance, flexibility, and activity assessment. FitnessGram has some validation evidence in US school-based adolescent samples.[53,159]

Self-report questionnaires of physical activity/sedentary time

The primary subjective measurement tool used for examining sedentary activity in adolescents in schools is the Adolescent Sedentary Activity Questionnaire which calculates minutes and hours spent in sedentary activity. This questionnaire has validation evidence in a sample of Australian students160 and was used in five Australian-based studies.[31–33,38,39] The Adolescent Physical Activity Recall Questionnaire was another measure used in an Australian student sample that enabled the calculation of physical activity in minutes and hours. This measure also has evidence of validity in an Australian school-based sample. Sixteen other measures were used once each across eleven references. These measures assessed either physical activity behaviours and attitudes (including active transport and involvement in sports)[32,39,94,161,162,] time in screen-based sedentary activities[94,161,163], or a combination of both.[34,102] Each of these measures demonstrated validity evidence in either student or community adolescent samples in Australia, the US or the UK.[160,164–180]

Self-report questionnaires of eating behaviours and food intake

One large-scale survey and four individual measures assessed food intake as a risk factor for obesity. The EAT2010 survey conducted in the US examines food consumption frequency, influences within the family on food intake, and weight status. It has validation evidence from a US school-based adolescent sample.[181] With respect to individual scales, two Australian studies used the Australian Child and Adolescent Eating Survey[31,33] Validation evidence for this measure is available for Australian school-based adolescent samples.[182] The Food Intake Questionnaire was used once in the UK and the Waterloo Eating Behaviour Questionnaire was used once in Canada, and both have evidence of validation for adolescents in school settings in their respective countries.[183,184]The Child Food Consumption Questionnaire was used in the Early Childhood Longitudinal Study; however, its validity evidence is unclear.[96]

Question 2 (b): What validated tools that measure risk factors for poor social and / or poor emotional wellbeing have been used in school settings?

Large-scale surveys for risk factors for poor social or emotional wellbeing (See Table 14)

Eleven large-scale surveys and eleven individual scales examined risk factors for poor social or emotional wellbeing. Large-scale surveys that examined risk factors for social and emotional wellbeing tended to focus on drug and alcohol related behaviours. Five large-scale surveys across Australia, the UK, Canada and the US focussed primarily on drug and alcohol use: Australian Secondary Students' Alcohol and Drug survey[185]; Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS)[63]; Ontario Student Drug Use and Health Survey (OSDUHS)[64]; Canadian Student Tobacco, Alcohol and Drugs Survey[65]; Kentucky Incentives for Prevention (KIP) survey.[186] Four additional large-scale surveys included a broader range of risk factors such as sexual health, internet use, social media, physical health, culture, injuries and violence, school achievement and participation, spirituality and access to healthcare; these were the Youth Risk Behaviour Surveillance System (US)[187,] National Survey of Australian Secondary Students and Sexual Health (Australia)[188,] NSW School Students Health Behaviours survey (Australia)[57] and the Youth 12 Survey (NZ).[189]

Two global risk factor screening tools were retrieved, both run in collaboration with the World Health Organisation. The Health Behaviour in School-Aged Children[190] and the Global School-Based Student Health Survey[191] gather data a broad range of data on health behaviours, risk and protective factors for student health and wellbeing.

Individual measurement tools for risk factors for poor social or emotional wellbeing (See Table 14)

Eleven individual scales measured risk for poor social and emotional wellbeing. The Behaviour Assessment System for Children Second Edition (Child Form) (BASC-2) was the most common measure of protective and risk factors and it was used in nine US based samples. The BASC-2 is a 139-item tool that assesses

behavioural and emotional strengths and challenges, maladaptive behaviours and educational concerns. There is a student, parent, and teacher response form. With the exception of two studies[103,192,], all the references using the BASC-2 were studies assessing its psychometric properties in school-based US samples and therefore provided validation evidence for use in this population.[193–199] Four other scales assessed risk across a broad range of areas such as family and school environment, academic competence, relationships, body image, or bullying)[88,00,01], or life satisfaction in relation to these areas.[202] Two assessed sleep quality as a risk factor for emotional wellbeing[94,118], one examined risk factors pertaining to the development of disordered eating[102] and a final three scales examined specific aspects of the ability to recognise and manage emotions or to understand others' mental states.[87,135] Excluding the BASC-2, school-based validity evidence could be found for adolescent samples for seven of these measures (see Table 14).

5 Recommendations

These recommendations are based on the literature identified in the current review. To make recommendations for the screening and surveillance of weight status, social and emotional wellbeing and associated risk factors in Year 7 students in ACT, Australia, we took into consideration the evidence pertaining to the validation of each measure, Australian guidelines (if any) relating to the measurement of particular constructs, the length or complexity of implementing various measurement tools, and the licensing arrangements (if known).

Measurement of weight status

BMI was the most common measurement used to screen for weight status. Using BMI is the current recommended approach to measure population level obesity.[203–205] As a measure of adiposity in children up to 18 years, BMI has been found to have high specificity but moderate sensitivity to detect excess weight.[206] Sensitivity is the degree to which a test can identify people with the condition of concern. For example, if a test has 95% sensitivity, then a person who does have the condition has a 95% chance of a positive result and 5% chance of a negative result. Put another way, out of 100 people with the condition, 95 would be correctly identified (have a positive result) and 5 would be 'missed' (that is, get a negative result). Specificity is the degree to which a test can differentiate people without the condition. If a test has 95% specificity a person without the condition will have a 95% chance of receiving a correct negative result and a 5% chance of a false positive result. In other words, out of 100 people that do not have the condition, the test will correctly produce a negative result for 95 of them, and incorrectly give a positive result for 5 of them. Meta-analysis demonstrates that BMI has a pooled sensitivity of 73% (CI: 0.67–0.79) and a pooled specificity of 93% (CI: 0.88–0.96) in children up to 18 years. This means that using BMI to detect obesity will capture children who do have this condition approximately 73% of the time but around one quarter of children who potentially have obesity will not be identified. However, BMI will be less likely to provide false positives because a child without obesity will be incorrectly classified with this condition in approximately 7% of cases.[206] [4] Accuracy in the measurement of height and weight is essential in order to obtain valid BMI data. Weight scales and stadiometers should be regularly calibrated, preferably before every measurement session.[207] All linear and circumference measurements should be reported in centimeters to one decimal point[207] and weight should be measured in kg to one decimal point.[208] This is consistent with WHO recommendations and data used by the Australian Bureau of Statistics.[207,209] Procedures for data collection should be standardised, recorded and reported. Students should be measured in light clothing with no shoes or socks and training should be provided to those collecting weight and height measures to ensure accuracy.2[07,210,211] Typically three measures are recorded and the average of the closest two is used.

Australia uses the IOTF childhood cut-points to determine cut-offs for population level classification of overweight and obesity and to determine the effectiveness of intervention and prevention strategies; these cut-points are reported in Cole et al., 2000.[10,212,213] IOTF cut-points were primarily developed to describe overweight and obesity. IOTF cut-points are designed as an epidemiological tool to enable international and national population based comparisons concerning overweight and obesity and are based on adult BMI cut-offs extrapolated back into childhood.[9,10,214] This is in contrast to the case in which the intention is to

[4]This meta-analysis grouped together studies with a variety of BMI cut-points. For example, included studies used BMI cut-off values of ≥95th percentile and ≥85th percentile; the CDC definitions; IOTF definitions. Moderate heterogeneity was observed across studies (I^2 = 48%), and the definition of BMI was one variable that explained heterogeneity.

administer treatment in clinical practice, for which the WHO or CDC centile curves are recommended in Australia.[215] The purpose of the WHO and CDC growth curves is to describe the expected developmental growth of children and young people from ages 0–20 years. The collection of WHO and CDC growth curves comprise not only BMI for age, but also length-for-age, weight-for-age, weight-for-length, head circumference-for-age, and weight-for-height growth curves. Although they use the same method of development, the CDC cut-offs differ somewhat from the WHO cut-offs. However, this is largely a result of the different populations on which the statistical analysis was based; the CDC curves are based only on data from the US.[216,217]

Given that their primary purpose is to track development, the WHO reference curves are recommended for use by health professionals in Australia (for example doctors and nurses), as one part of the diagnostic process for health risk related to all categories of weight status, that is, from underweight through to obesity.[218] In their surveillance and screening programs, other jurisdictions such as the UK) have used two different cut-off references. The UK has used the IOTF for surveillance BMI cut-offs and the WHO centiles when reporting BMI screening results to parents. If the intention is to provide parents with an indication of growth trajectory and potential health risk, then the use of the WHO cut-offs for parental reporting and the use of IOTF for surveillance reporting is one option.[5] If the intention is to provide parents with an understanding of how their child compares to others at a population level, it may be more appropriate to use the IOTF standards as the reported cut-off for both screening and surveillance. One consideration is the potential for confusion if two cut-points are used, one for parent reporting and one for any publically released surveillance results. In addition, it is important to note that families might find it confusing if they seek further information on the internet. On the one hand, the Australian Government Department of Health website[6] provides the full table of the IOTF classifications of childhood overweight and obesity, but only a link to the WHO clinical classifications. On the other hand, many childhood BMI calculators available on the internet base their results on the WHO or CDC centile charts.[7] Regardless of the cut-off used to report BMI screening to parents, appropriate information describing the meaning of the reported BMI, the classification system on which it is based, and the importance of consulting a health practitioner should be included.

In relation to the two different IOTF references cited by the Australian studies examined in this review (Cole et al., 2000 and Cole & Lobstein, 2012), the year 2000 IOTF cut-points are based on centile curves and provide age-equivalent BMI scores for overweight and obesity for girls and boys. For example, at age 10 a BMI of 19.8kg/m^2 in males is considered equivalent to an adult BMI of 25kg/m^2, while a BMI of 24kg/m^2 is considered equivalent to an adult BMI of 30kg/m^2. In the study that developed these cut points, prevalence of obesity (age-equivalent BMI of 30kg/m^2) ranged between 0.3% in the Netherlands to 4% in the US for girls and 0.3% in the Netherlands and 3.3% in the US for boys. In 2012, Cole et al.[9] reformulated these cut points to provide age-equivalent BMI centiles (e.g. 85th centile). This analysis found that for boys, overweight was classified on reaching the 90.5th centile and for girls at 89.3. Obesity was classified for boys at the 98.9thcentile and for girls at the 98.6th centile. The reformulation resulted in minor changes in IOTF prevalence estimates. Using data from the US, 0.1% fewer girls and 0.2% more boys were classified as overweight. For the category of obesity, 0.2% more girls were classified as obese while the prevalence of obesity for boys did not alter.[9]

[5] Given that the WHO reference curves provide that overweight is defined at ≥85th centile and obesity at ≥95th centile (compared to the IOTF of 90.5th and 98.9th respectively for boys, and 89.3rd and 98.6th respectively for girls), it is possible that a higher number of students will be identified as potentially experiencing overweight or obesity (See Appendix 4).

[6] http://www.health.gov.au/internet/main/publishing.nsf/content/health-pubhlth-strateg-hlthwt-obesity.htm

[7] For example, https://www.betterhealth.vic.gov.au/tools/body-mass-index-calculator-for-children

Given the moderate sensitivity of BMI as a measure of weight status, supplementary measures such as waist circumference could be considered. The retrieved research demonstrates the substantial disparity in procedures for measuring waist circumference.[34,36,38,39,47] The usefulness of waist circumference as an indicator of overweight and obesity would therefore rely on high levels of training and continuing procedural oversight to ensure reliable measurement.

Measurement of emotional and social wellbeing

To ensure that the construct to be assessed is being accurately measured, measures that have been validated in a school setting in Australian adolescent samples should be used wherever possible. It is only possible to be certain that a measure's original accuracy, meaningfulness and validity is retained when the measure is used in the manner in which, and with the population in which, it was validated. When a measure is used outside these parameters, it is not possible to guarantee its full accuracy, validity and meaningfulness.[27] This means that a measure validated for Australian students will only be useful as an accurate measure of wellbeing if the full scale is used without modifications to items or wording. Using measures in the manner in which they were intended legitimises the data that is gathered, the inferences that can be made and therefore the policy and interventions that are developed as a consequence.[27,219] Any alterations to validated scales, including reduction in the number of items would require validation studies prior to use.

Screening for social and emotional wellbeing also requires useful cut-off scores that can identify students who may be at risk of poor wellbeing. The nature of the cut-off score selected will influence the apparent prevalence of the condition identified. Low cut-off scores are generally used to indicate risk and will therefore identify higher rates of students. Higher cut-off scores are used to identify cases that are more likely to reflect the presence of a clinical disorder and will therefore identify fewer students. Not all the measures identified in this review have cut-off scores; for instance, the Flourishing scales do not identify levels of higher or lower functioning.

The 2015 Australian Child and Adolescent Survey of Mental Health and Wellbeing details the mental health and wellbeing experiences and concerns of children and adolescents in Australia.[220] Almost 14% of young Australians were assessed as experiencing a mental disorder in the past 12 months (that is, anxiety disorders, depressive disorders, problem eating behaviours, conduct disorders, or ADHD) with major depressive disorders having the greatest impact on daily functioning and ability to participate in school. One fifth of young Australians experience high or very high levels of psychological distress. Distress was almost twice as high in females (25.9%) than in males (14.8%). Ten percent of young people experienced being bullied every few weeks or more and an additional 24.3% experienced being bullied every few months or less often. Almost 11% of young people reported deliberate self-harm and 7.5% had seriously considered suicide. Levels of distress and other concerns tended to be higher in families with poor family functioning. One in six young people had used services for emotional or behavioural problems within the last 12 months.[220] Good mental health is a core component of wellbeing.[1] Good mental health increases the likelihood that children will grow to have healthy relationships, academic and employment opportunities, and engage in fewer risk and antisocial behaviours.[221,222] Screening for symptoms of poor mental health as well and positive wellbeing is therefore recommended in order to identify opportunities and offer students every chance for improved emotional and social wellbeing.

Given the current statistics regarding child and adolescent mental health and wellbeing, we recommend screening for the following constructs: symptoms of depression and anxiety including screening for suicidal ideation and deliberate self-harm; general levels of psychological distress and wellbeing and self-esteem; problematic eating behaviours; behavioural problems (such as anti-social behaviour); attention and focus issues, and peer relationships.

Measures retrieved within the present review that have validation evidence in school-based samples and would achieve these aims include:

General distress

The General Health Questionnaire (GHQ) (12 items) measures general mental health and the Strengths and Difficulties questionnaire (SDQ) (25 items) measures general emotional and behavioural functioning. The GHQ-12 is only available in a self-report format. Though the GHQ-12 is designed for adults, the user guide notes indicate that it has been successfully used in adolescent samples.[77] The two most common methods for scoring the GHQ-12 are: (a) binary scoring (range 0–12) and (b) Likert scoring (range 0–36).[80] GHQ binary scoring is used more commonly for case identification[77,] to categorically determine whether an individual is likely to be experiencing a mental health condition.[80] In contrast, Likert scoring assesses distress on a continuum, and is used to determine the severity of symptoms.[80] Likert scoring is the more frequently used scoring method, and has shown validation evidence in Australian populations[75,78] Additionally, using Likert scoring is beneficial as it produces a wider range and smoother distribution of scores. Cut-off scores for elevated distress are as follows: 1 or 2 for the GHQ-12 binary scoring method and 11 or 12 for the Likert scoring method.[77] Four studies used Likert scoring[79–82] and one study used binary scoring.[83] None of these studies adhered to author recommended cut-off scores for either scoring method, and with the exception of Martin et al., 2015[82], a psychometric study, did not elaborate as to why. It is encouraged that author recommended cut-offs are used as these have evidence of validation. As of March 2018, the GHQ requires purchase and costs AU$149.56 per 100 paper questionnaires.

The SDQ has the benefit that it also measures symptoms of ADHD (such as attention, focus, and distractedness) and the extent of peer relationships and pro-social behaviours, and that it has two supplemental questions that screen for suicidal ideation and deliberate self-harm. The SDQ yields five subscale scores (emotional symptoms, conduct problems, hyperactivity, peer problems and prosocial behavior) and a total difficulty score. Self-report[84] and parent[92] versions of the SDQ are available. Cut-off scores are outlined by the scale developers and differ based on whether a self-report or parent version is used. Table 3 displays these cut-off scores.

Table 3. Cut-off scores for the SDQ self-report and parent versions

	SDQ Version			
Subscale	Self-Report Cut-Off Scores		Parent-Report Cut-Off Scores	
	Borderline	Abnormal	Borderline	Abnormal
Emotional Symptoms	6	≥7	4	≥5
Conduct Problems	4	≥5	3	≥4
Hyperactivity	6	≥7	6	≥7
Peer Problems	4-5	≥6	3	≥4
Pro-social behaviour	5	≤4	5	≤4
Total Difficulty Score	16–19	≥20	14–16	≥17

Australian normative SDQ data is also available.[223] Most studies retrieved for this review either did not use cut-offs or did not report the source of the cut-offs used in their study.[40,85,87,88,90] Of the two studies that reported the cut-offs used, both adhered to the author-recommended cut-offs for the subscales used, the student self-report emotional symptoms subscale[89] and the parent version conduct disorder subscale.[86] We could not find any data that compared the prevalence estimates of abnormal symptoms between the youth self-report and the parent report version of the SDQ. However, the intercorrelations between self-report and parent versions in a community sample were, on average, of a medium effect size, (r = 0.37)[224] in a community sample.[84] This was higher than inter-rater correlations between self-report and teacher versions, which were, on average, of a small effect size (r = 0.24)[224] in a community sample.[84] This means that the self-report and parent report versions are more closely related than the self-report and teacher report versions.The SDQ is free to use under most circumstances and is available for download online. However, it is considered as 'not in the public domain' which means it cannot be altered in any way. Permission is required for electronic distribution and we recommend contacting the developers for permission for large-scale government use.

Symptoms of anxiety and depression

The K6 (6 items) and the Paediatric Index of Emotional Distress (PI-ED) (16 items) are measures that are able to screen for symptoms of both depression and anxiety. The K6 is free to use and is available for download online. The PI-ED requires purchase. As of March 2018, the cost is AU$174.96 for the Complete Kit (user manual and 100 questionnaires) and it must be administered by a psychologist.

Suicidal ideation and deliberate self-harm

We recommend the use of the SDQ's supplementary suicide/self-harm screening questions for their validity and brevity. However, an alternative recommendation is the 15-item Suicide Ideation Questionnaire (SIQ). The SDQ supplement is free with the same conditions as detailed above. The SIQ requires purchase. As of March 2018, the SIQ costs AU$88.00 for the user manual and AU$115.50 for 25 questionnaires. Although the SIQ has associated costs, it is recommended as a potential alternative to the SDQ supplement as it is shorter than the remaining option of the Self-Harm Behaviour Questionnaire(SHBQ). The SIQ also has clinical cut-off scores to guide the assessment of risk.

Positive wellbeing

The South Australian Survey of Wellbeing and Student Engagement contains selected subscales from the EPOCH Measure of Adolescent Wellbeing. Consideration could be given to using the EPOCH subscales (engagement, perseverance, optimism, connectedness, and happiness) to measure positive aspects of wellbeing.[73] Detail concerning the Survey of Wellbeing and Student Engagement is available online, but licensing arrangements are unclear and permission must be sought to use online information.[8] The EPOCH Measure of Adolescent Wellbeing, which comprises a significant portion of the scale, is freely available online for non-commercial and assessment purposes. Use must be registered.

Self-esteem

The ten-item Rosenberg Self-Esteem Scale (RSE) is recommended as a discrete measure of self-esteem. Given that the modified six-item version has received some validation evidence in a sample of Canadian high school students, this shorter version may also be an option. The Rosenberg Self-Esteem Scale is free to use and available online.

[8]Contact with survey administrators has been attempted via email. At the time of publication, licensing details have not been obtained.

Disordered eating behaviours

The Eating Disorder Examination Questionnaire (EDE-Q 6.0) (28 items) contains subscales that examine problematic eating related thoughts and behaviours in addition to a measure of body image. The Eating Disorder Examination Questionnaire is free to use and available online; however, permission is required for use outside of non-commercial research purposes.

Family functioning

McMaster Family Assessment Device (FAD) is the only measure of family functioning that was retrieved within this review and few child-specific measures of family functioning exist. The FAD contains 60 items and is unlikely to be able to be usefully incorporated in a student wellbeing survey. Consideration could be given to using FAD's twelve-item General Functioning sub-scale, which has shown evidence of validity.[225] The FAD is free to use and available online.

Antisocial behaviour or conduct problems

The Reynolds Adolescent Adjustment Screening Inventory (RAASI) (32 items) provides a comprehensive screen for psychological adjustment problems, antisocial behaviour, anger control, emotional distress, and a sense of positive self. The RAASI requires purchase and administration by a psychologist. As of March 2018, the RAASI costs AU$379.50 for the Introductory Kit (professional manual and 50 test booklets). The alternative retrieved measure screens for aggressive behaviour only. Although it is free to use, it is not recommended if comprehensive screening for antisocial behavioural problems is desired because it does not include emotional factors and positive sense of self, both of which are important in assessing wellbeing in this context.

The experience of bullying behaviours

The only questionnaire to specifically address bullying was the 37-item Australian Covert Bullying Survey. This survey was developed based on validated questionnaires and has received some reliability testing with moderate levels of reliability found; however, further validation evidence has not been able to be obtained. The Australian Covert Bullying Survey is available online; however, licensing arrangements are unknown.[9]

Measurement of risk factors for obesity and poor social and emotional wellbeing

A broad range of risk factors for obesity and poor social and emotional health were retrieved in this review. The common obesity risk factors that were measured in the Australian large-scale surveys included self-reported physical activity, active transport, sedentary screen time, sleep behaviours and food intake and some objective measures of fitness. One large-scale Australian study and one large-scale Canadian study demonstrate some evidence of validity in adolescent samples; both are potential options for measuring food intake and physical activity. These are the National Secondary Students' Diet and Activity (NaSSDA) survey[226] and SHAPES Physical Activity Module from Canada.[227] Licensing arrangements for the NaSSDA are unknown.[10] The SHAPES Physical Activity Module requires purchase.

In terms of individual scales, accelerometers (e.g. ActiGraph) are used consistently in studies with students in school-based settings. The cost of using these to screen at a population level may present a barrier to their use. As an alternative to objective measures, self-report measures that have received validation evidence are therefore recommended for use.

[9]Contact with survey administrators has been attempted via email. At the time of publication, licencing details have not been obtained.
[10] Ibid.

Physical and sedentary activity

The Adolescent Physical Activity Recall Questionnaire is recommended to measure physical activity and the Adolescent Sedentary Activity Questionnaire[160,165] is recommended to measure sedentary behaviour. Both these measures allow for calculation of total time in physical or sedentary activities and for comparison with the Australian Guidelines recommending at least sixty minutes of moderate to vigorous intensity physical activity every day and no more than two hours of electronic media use.[228] Consideration could also be given to a combined measure such as the GUTS Physical Activity and Screen time subscales validated in US children and adolescents in community settings.[172] The Adolescent Physical Activity Recall Questionnaire, Adolescent Sedentary Activity Questionnaire, and GUTS questionnaires are available online. The Adolescent Sedentary Activity Questionnaire is free to use; however, the licensing arrangements are unknown for the remaining two questionnaires.[11]

Food consumption and nutrition

With the exception of the Child Food Consumption Questionnaire that contains 19 items but has unclear validity evidence, all the retrieved measures of food intake are from 65–120 items long. In addition to vitamin supplementation, and some physical and sedentary activity, the Australian Child and Adolescent Eating Survey assesses the frequency with which individuals consume 120 different foods and has received validation evidence in school-based samples. The use of this survey is recommended because it assesses responses against the Nutrient Reference Values and the Australian Dietary Guidelines (for example, minimum recommended serves of food varieties and water per day, and limited saturated fat, sugar and salt) and generates a report when the online version is used.[229] However, given its length, consideration could be given to locating a suitable brief measure validated in community samples that is also able to assess consumption against national guidelines. The Australian Child and Adolescent Eating Survey requires purchase. As at March 2018, the survey costs AU$6.55 per survey (when 2000+ surveys are purchased).

Risk factors for emotional and social wellbeing

Large-scale surveys

The large-scale surveys gathered data mainly on factors such as drug and alcohol use, sexual health, internet use, social media, physical health, culture, injuries and violence, school achievement and participation, spirituality and access to healthcare. Only two large-scale surveys reported validation evidence: The Youth Risk Behaviour Surveillance System (US)[230] and the Health Behaviour in School Aged Children survey (global).[190] Both these measures cover a significant range of determinants of health and wellbeing and would be useful broad range screening and surveillance tools. The Youth Risk Behaviour Surveillance System is available online and is free to use. The Health Behaviour in School Aged Children survey requires permission for use.

Individual measures

Many individual measures of risk factors also lacked validation evidence. The BASC-2 was used multiple times and has evidence of validity in student populations; however, its length and cost may preclude its use. Alternatively, both the Youth RADAR and the SAEBRS Student Report Scale have school-based evidence of validity, and are specifically designed as screening tools for risk and protective factors for wellbeing in spheres of family, academic, mental health and emotional functioning.[88,200] The Youth RADAR scale is free to use with permission. The SAEBRS Student Report Scale requires purchase, and pricing is unknown.

[11]Contact with survey administrators has been attempted via email. At the time of publication, licencing details have not been obtained

Logistical and ethical considerations

Consent to participate

Both opt-in (active consent) and opt-out (passive consent) processes have been used to obtain consent to participate in school-based screening programs across different jurisdictions. Under both conditions, parents or carers receive information regarding the data collection prior to program commencement. In the active consent condition, parents or carers must actively provide permission to allow the collection of data from their child. In the passive consent condition, parents or carers must actively decline their child's participation by notifying the school that they do not provide consent for data to be collected. Participation rates have been found to be higher under passive consent procedures for anthropometric data[231], nutritional data[232], and psychometric data[233] and provide a more accurate representation of population estimates. The UK's National Child Measurement Programme (NCMP) and the US-based Arkansas Act 1220 have passive consent provisions for the collection of BMI surveillance data.[234,235] These jurisdictions have actively sought parental involvement in the programs to increase confidence in the passive consent process through, for instance, a program hotline for questions and concerns as well as ongoing parental program evaluation in Arkansas, and a leaflet describing the overarching public health reasons for the data collection and details of the program in the UK. In contrast, West Virginia's CARDIAC screening program utilises an active consent process. This process has been associated with close to zero complaints from students, parents or schools.

Experts suggest that the use of passive consent procedures for the collection of population level weight status in Australian schools is unlikely to require specific legislation.[236,237] The Australian Early Development Index currently monitors early child development through schools using passive consent procedures[238], although the measures collected in this survey are by teacher report and do not require direct student participation. However, commentary on the introduction of weight status measurement in schools in Australia has acknowledged the difference between consent for surveillance measures and screening measures.[239] Surveillance poses less risk in terms of individual data privacy breaches as only non-identifiable data is collected. Screening requires that individuals can be identified to enable intervention or referral information when appropriate. The Australian National Statement on Ethical Conduct in Human Research includes provision for opt-out passive consent procedures in certain limited circumstances.[240] Given that the issues around the method of obtaining consent differ depending on whether the program is one of surveillance or screening, we recommend that expert legal opinion be sought regarding current legislative requirements pertaining to the collection of health data.

Measurement of weight status

Most research regarding the effectiveness of school-based weight status screening, and ethical issues relating to it, originates in the US. Weight screening is mandated in many US states, and most research was conducted between 2003 and 2009, when legislation was first enacted and controversies first arose. Since this time there have been fewer studies that examine the benefits or risks of school-based BMI screening programs. The most recent review concerning the effectiveness of US-based programs found no evidence for a reduction or stabilisation in childhood obesity due to the screening process, and not enough evidence exists to form conclusions about the risk of psychosocial harm.[241] We note that there is a randomised controlled trial currently underway in the US that is assessing the impact of school-based BMI screenings on weight status and potential psychosocial harm.[242] However, given that school-based screening for BMI has not yet established a beneficial effect on weight status outcomes and the psychosocial risks are unclear, experts suggest that consideration of the risk of harm to students in measuring BMI should be a priority.[243,244]

The potential risks of harm to individuals from screening for weight status (for example, distress, impacts on self-esteem, potential breaches of confidentiality and privacy) should be weighed against the potential benefits that the program is designed to achieve. Often, parents of children who are overweight or obese consider their children to be of normal or healthy weight. For example, one study found that 66% of parents selected a weight status category for their child that was not reflective of their child's actual measured BMI. Of the children experiencing overweight or obesity, 13% and 21% of parents respectively, believed their child was of healthy weight.[245] One potential benefit is that screening would enable parents and carers to receive up-to-date information about their child's weight status and implement positive strategies that may assist in improving weight-related health outcomes. In terms of reporting this information to parents and carers, consideration needs to be given to the manner in which weight status is expressed and the details provided around the meaning of BMI and healthy lifestyle behaviours. Evidence from the US suggests that parents often find the use of the term 'obese' offensive and upsetting.[246] In addition, some BMI reports have been assessed as difficult to understand with BMI and related health concerns poorly explained.[247] Nevertheless, parents and carers have reported favourable responses to the receipt of information regarding BMI status and healthy lifestyle changes, particularly when they are visually appealing with weight status explained with the aid of diagrams, where non-stigmatising language is used, and when the report includes concrete recommendations that are able to be implemented by the whole family[241,248] Despite the positive parental response, there is less evidence that this information leads to actual lifestyle change for the majority of parents or carers with children in the overweight or obese category.[245] Some studies have found a detrimental effect on parental behaviour when they receive information concerning their children's weight status. Regardless of the amount of anti-dieting material supplied with the school's report of student weight status, some families reported that they either intended to or did control children's weight through dieting practices rather than following what was recommended in the supplied materials (for instance, limiting screen time, increasing physical activity, and increasing fruit and vegetable intake).[249–251] In one study of 170 adolescent-parent dyads, parental encouragement to diet predicted increased weight status five years later.[252] In addition, dieting practices in pre-pubescent children can have detrimental impacts on growth[253] and may also lead to the development of disordered eating behaviours.[254,255]

Most papers have examined parent and carer perceptions of weight status screening, while fewer have reported on students' own feelings about engaging in the process of BMI screening and receiving the results. Parents are concerned that school-based weighing will cause their child embarrassment[256], increase weight based stigmatisation[251], reduce their self-esteem[246], or that confidentiality of health information will be difficult to maintain (for instance, due to the public nature of the school setting, or because privacy is not as secure as in the medical environment). In one study, 47.8% of parents who discussed the school-reported weight status with their child stated that the discussion made their child 'very uncomfortable' and a further 19.6% reported their child to be 'somewhat' uncomfortable.[251] Another study found that a small number of children in the healthy (3%) and overweight ranges (7%) reported 'not liking' or 'hating' the process of being measured and 5% of children in the healthy weight range and 10% of children in the overweight range stated they were not willing to go through the process again.[250][12] In contrast, a further study asked Grade 5 Canadian students how they felt about having their height and weight measured in private at school by school nurses and most students (94.1%) said they felt 'OK' or 'happy'.[257] However, studies of US-based

[12]Qualitative detail reported in Grimmet et al. (2008) concerning a range of comments from children in response to having their BMI measured at school:
"I think it's really cool coz it's a chance to talk about how I feel about myself and I can find out if I need to maybe do a little more exercise or eat a little bit healthier."
"I think that if there are rude children who think it's funny to tease someone about their weight then being weighed in school is a perfect opportunity."
"It was OK because other children didn't know what your weight was so they couldn't talk about it."
"Sometimes I feel a bit sad because I don't want anyone knowing my weight."

paediatricians find that patients raise concerns about school-based BMI screening in 60.4% of appointments and that these concerns relate to bullying and self-esteem.[258] The Australian National Eating Disorders Collaboration cautions that school-based BMI screenings may produce a culture of weight bias and stigmatisation. The Collaboration is concerned that for at-risk students, screening and monitoring can lead to body dissatisfaction, over-concern with weight and disordered eating.[259] We recommend obtaining further advice regarding current research on impacts of BMI screening on parental weight-control practices, adolescents' body image, self-esteem, dieting practices and prevalence of disordered eating.

Confidentiality of students' weight status measurement is another area that has challenged other jurisdictions. Parents have cited concerns around the ability of schools to manage health data with the same level of confidentiality as medical organisations. Confidentiality issues occur in both surveillance programs in which individuals are not identified (such as confidentiality and privacy during the measurement process) and in screening programs (for example, individual student data storage and parental notification). Some jurisdictions have reported successful management of confidentiality issues. Success in this area has tended to occur in jurisdictions in which funding is higher and more secure, and relationships with, and monitoring by state health departments are solid, such as Arkansas, US.[25] In contrast, parental notification was abandoned in Massachusetts in 2013 due to breaches of confidentiality resulting in bullying and negative body image.[260,261]

Measurement of emotional and social wellbeing

Screening for poor emotional and social wellbeing has the potential to identify youth in difficulty who would otherwise go unnoticed. It may also provide them with the opportunity for intervention at an early stage when benefit is likely to be high. For example, when evidence-based screening in not available, internalising symptoms of depression (such as low mood, feeling helpless or hopeless) are less likely to be noticed by parents, teachers and friends, and therefore students are less likely to be referred for assistance.[262,263] Another study found that student reports of self-harm behaviour were significantly greater than their parents were able to detect.[264] Despite the benefit of increased detection, research has highlighted a number of issues of concern in addition to the issues presented by the measurement of weight status. First, there are concerns over the capacity of schools to respond to the number of cases identified as 'at risk'.[13] Given the broad-based and standardised nature of school screening for psychosocial risk, a greater number of students who are identified as 'at risk'[14] will emerge when compared to more ad hoc approaches to risk identification across different schools.[262,265] Although this will positively impact individuals in that they will experience an opportunity for referral, support and intervention to which they may not otherwise have access[265,266], consideration must be given to the capacity of schools and local organisation to provide appropriately qualified assistance.

Second, concerns regarding false positives in screening for poor psychosocial wellbeing have been raised.[263] Identifying youth as 'at risk' when they are not truly experiencing distress may cause worry and concern for both students, and parents and carers. To reduce the likelihood of false positives, peer-reviewed questionnaires with evidence of validity should be used. Ideally, validation evidence should come from the population in which the tool is intended to be used (see the section below for a comprehensive discussion regarding validation issues).

Third, if questionnaires are administered in different environments and using different administration procedures (for example, at different times of day, or with a different preamble), the results may differ across schools. This will mean that aggregating data across areas will be less reliable.[267] In addition, some

[13] The term 'at risk' is used by the authors of the research being described.

measures of emotional and social wellbeing (such as RAASI or PI-ED) are required to be administered by suitably qualified professionals such as registered psychologists, which may limit their use within the broader context.

Given the above research, recommendations for ethical and logistical issues pertaining to the weight and wellbeing screening or surveillance processes are as follows:

- Students and parents should be informed of the reason for the measurements and the processes involved, for instance, how measurements are taken — whether physically or by questionnaire — when they will be taken, who will be conducting them, and the privacy that will be afforded
- With respect to measures of emotional and social wellbeing it should be stressed during the administration that there are no right or wrong answers, and issues of privacy and consent should be reiterated
- Weight status screening should be conducted in private for each student
- A standardised process for weight status measurement should be developed and should be consistent with existing protocols and NHMRC clinical guidelines[211,218,237]
- BMI screening should be conducted by independent screening officers or school nurses specifically trained in the standardised screening protocol, the psychological impact of overweight/obesity and issues around weight stigma. This training is especially important because research shows that some students find the measuring process distressing (the number varies depending on whether the child, parent, or paediatrician reports the concerns; please see summary above)[250]
- BMI screening processes should be regularly reviewed to ensure maintenance of the standardisation of measurement and appropriate student privacy.[268] Ideally, weight status and psychosocial screening and surveillance should have local coordination by health professionals and higher oversight by government health departments[237]
- With respect to weight status, measurement personnel should refrain from any comment about the student's weight, height or body.[207] Research shows that students will often ask if they are 'normal', comment "I'm big, aren't I?", or ask for their measurements and the procedure for calculating their BMI. It is essential that procedures be in place to manage such issues[269]
- If weight status and wellbeing screening is to be communicated to students and to parents and carers, it should be done so sensitively, in language and at a literacy level that will be understood, and in private.[268] All communication with students and parents about screening results should include information about evidence-based intervention and referral opportunities. Even if school staff are not responsible for this communication, all staff should receive training in this regard, given that students may be worried about results of the screening.[268] To protect both students and the school, training around the following issues will need to be considered for all school staff. First, awareness should be gained of one's own unconscious weight biases and the manner in which these affect: (a) behaviours that result in discrimination, and (b) everyday language that isolates and stigmatises individuals.[270,271] Second, training should help people to recognise how one's own eating or dieting practices, or own body-esteem issues may affect internal responses and therefore outward behaviours with respect to the screening process.[272,273] Third, training should relate to the potential distress that BMI and wellbeing surveillance and screening processes may cause, and the need to be vigilant to this possibility.[250,251,258] Fourth, training should impart the protocols to be followed if distress is noted. Finally, training should ensure that staff have strategies to deter classroom discussion of screening results so that students with weight-related concerns are not

isolated or stigmatised. Some resources for professional development for teachers are provided in Appendix 6:

- Weight status and wellbeing screening or surveillance programs should be regularly evaluated for unintended consequences. Parents and students should be asked directly about their experiences of the program soon after experiencing the process and at later time points[237]
- A screening program for emotional and social wellbeing must include a detailed plan for the organisations responsible for providing information, referrals and support services to students identified as requiring assistance. Project management should ensure that the appropriate referral pathways and qualified professionals are available to provide support so that all young people who are identified as displaying risking factors can access services if they so choose[262]
- The use of psychosocial screening tools validated in the population for which they are being used will increase the accuracy of measurement (for instance, false positives will be reduced), however it cannot guarantee that false positives will not occur. All students regardless of their screening results will benefit from the use of non-stigmatising language (for example, 'distress' rather than 'depression'), the provision of information demonstrating that emotional and social difficulties are not uncommon during adolescence and that support is available, the measurement of strengths as well as difficulties, and clear information pertaining to the meaning of screening for symptoms versus diagnosis.

Issues pertaining to measurement tool validity

When choosing a measurement tool with regard to psychometric properties that has validity and reliability, there are three main options: (a) selecting a measurement tool with evidence of validation in the target population, (b) selecting a measurement tool with evidence of validation in an alternate population, and (c) developing a new measurement tool for the purposes of a project. Each of these options will have different implications for establishing the psychometric adequacy of a measurement tool.

Option 1: *Selecting a measurement tool with evidence of validation in the target population*

The simplest option is to choose a tool that has been previously validated in the target population and setting of interest. For example, where researchers are interested in measuring the wellbeing of high school students, the measurement tool of choice is one with previous evidence of validation in adolescent samples within a school setting.

Option 2: *Selecting a measurement tool with evidence of validation in an alternate population*

As validation is population and purpose specific, a measurement tool cannot be assumed to be valid outside the population in which evidence of validity has been demonstrated.[275] For instance, researchers who used a measure of wellbeing only previously validated in adults could not assume it would also be valid for adolescents. The researchers would need to test the validity of the measurement tool in their target population. Testing the psychometric properties of an existing tool is a relatively straightforward process. Most often this can be achieved through two administrations of an online survey containing the measurement tool of interest and several other related measurement tools that have established validity. Additionally, a relatively small sample size can be used; a common rule-of-thumb is seven participants per item, with at least 100 participants in total.[28] Researchers can use demographic information, scores from the measurement tool of interest, and scores for comparator tools to investigate psychometric properties.

Option 3: *Developing a new measurement tool for the purposes of a project*
The most complex option is to create a new measurement tool for the purposes of a project. When developing a new tool, extensive procedures must be followed to ensure the psychometric adequacy of all measurement items. This often involves face-to-face interviewing with members of the target population and consultation with field experts, for instance, having pediatricians review items developed to measure children's health. Additionally, the normal procedures for validating a tool in a target population must also be undertaken (for instance, various statistical tests after the survey of a sample of the target population).[275]

Regardless of the option used to select or develop a measurement tool, it is recommended that established psychometric property guidelines are consulted. These are useful to guide the review of existing validation evidence and to facilitate new validation research. It is recommended that the COSMIN checklist[28] and the Terwee criteria[27] are referenced.

Table 4: Measures of weight status

Jurisdiction	Sample	Manner of measurement	Administrator	Calculation of weight status	Clinical cut-off	Proportion identified as at-risk based on tool criteria	Study/Survey
				BMI			
Australia (NSW)	Aged 5–16	Height measured using stretch stature method and portable stadiometers. Weight measured using portable scales	Field officers	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **Cole &Lobstein (2012)**[9]	23.9% overweight or obese	**NSW School Physical Activity and Nutrition Survey (SPANS)**[47]
Canada	Aged 10	Height measured to the nearest 0.1 cm. Weight measured to the nearest 0.1 kg on calibrated digital scales. Light clothing worn and shoes removed	Researchers	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **Cole &Lobstein (2012)**[9]	22.6% overweight, 10.9% obese (276)	**Children's Lifestyle and School–Performance Study (CLASS II)**[45]
Australia (NSW)	Aged 12–18	Height measured using stadiometers. Weight measured using portable digital scales	Trained research assistants	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **Cole et al. (2000)**[10]	27.9% overweight, 16.2% obese	**Dewar et al. (2013)**
Australia (NSW)	Aged 5–16	Height measured using stretch stature method and portable stadiometers to the nearest 0.1cm. Weight measured using portable scales to the nearest 0.1 kg	Field officers	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **Cole et al. (2000)**[10]	Aboriginal Australians: overweight or obese29.0%, non-Aboriginal Australians: overweight or obese22.7%	**Hardyet al. (2014)**[32]
Australia (NSW)	Aged 12–18	Height measured using stadiometers. Weight measured using digital scales. Light clothing worn and shoes removed	Trained research assistants	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **Cole et al. (2000)**[10]	26.1% overweight, 16.8% obese	**Lubanset al. (2012)**[33]
Australia (ACT)	Aged 11–12	Height measured using calibrated equipment. Weight measured using calibrated scales	Registered nurses	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **Cole et al. (2000)**[10]	25% overweight or obese	**ACT Year 6 Physical Activity and Nutrition Survey**[46]

Jurisdiction	Sample	Manner of measurement	Administrator	Calculation of weight status	Clinical cut-off	Proportion identified as at-risk based on tool criteria	Study/Survey
Australia	Aged 12–17	Height measured using portable stadiometers. Weight measured using digital scales	Trained researcher	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **Cole et al. (2000)**[10]	22.7% overweight or obese	**National Secondary Students' Diet and Activity survey (NaSSDA)**[48]
UK	Aged 14–18	Height measured using a calibrated measuring rod to the nearest 1cm. Weight measured using calibrated portable scales to nearest 0.1kg. Light clothing worn and shoes removed	Trained researcher	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **Cole et al. (2000)**[10]	NR	**Duncanet al. (2014)**[34]
UK	Aged 14–15	Height measured using height meters to the nearest 0.1cm. Weight measured using digital scales to the nearest 0.1 kg. Light clothing worn and shoes removed	Trained researchers	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **Cole, Freeman &Preece(1990)**[11]	17.3% overweight or obese‡	**Corder et al. (2015)**[35]
UK	Aged 9–10	Height measured using portable stadiometers to the nearest 1 mm. Weight measured using portable body composition analysers to the nearest 0.1 kg	Independent assessor	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **Cole, Freeman &Preece(1990)**[11]	8.7% overweight, 16.4% obese	**Lloyd et al. (2012)**[36]
UK	Aged 10–11	Height measured using free-standing stadiometers. Weight measured using standard scales	Trained personnel	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **Cole, Freeman &Preece(1990)**[11]	35.6% overweight or obese	**Pallanet al (2014)**[37]
US	Aged 5–12	Height and weight measured using calibrated equipment	Trained school nurses	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from:	17.6%, 17.6%, and 17.7% obese*	**Bailey-Davis et al. (2012)**[41]

Jurisdiction	Sample	Manner of measurement	Administrator	Calculation of weight status	Clinical cut-off	Proportion identified as at-risk based on tool criteria	Study/Survey
					United StatesCentres for Disease Control and Prevention (CDC) 2000[51]		
US	Aged 5–16	NR	Trained personnel	(weight in pounds)/(height in inches)^2 x 703 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **United StatesCentres for Disease Control and Prevention (CDC) 2000**[51]	20.60% obese	**Chen et al. (201[6])**[42]
US	Aged 10–11	Height measured using rod stadiometers. Weight measured using digital scales. Light clothing worn and shoes removed	Trained research staff	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **United StatesCentres for Disease Control and Prevention (CDC) 2000**[51]	18.8% overweight, 28.3% obese	**Cottrell et al. (2013)**[43]
US	Aged 6–17	Height measured using stadiometers. Weight measured using digital scales	Trained research staff	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **United StatesCentres for Disease Control and Prevention (CDC) 2000**[51]	15.6% overweight, 13.6% obese	**Paul (2014)**[44]
Australia (WA)	Aged 8–13	Height measured using portable stadiometers. Weight measured using calibrated digital scales. Light clothing worn and shoes removed	Researcher	Converted to age- and gender-specific BMI z-scores (BMI-z) using CDC 2000 reference data[51]	Centiles for childhood age cut-offs for overweight and obesity taken from: **United StatesCentres for Disease Control and Prevention (CDC) 2000**[51]	30% overweight, 16% obese	**Childhood Growth and Development Study**[50]
Australia (NSW)	Aged 12–14	Height measured using portable stadiometers. Weight measured using portable digital scales	Trained research assistants	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **World Health Organization growth reference centiles**[52]	21.1% overweight, 12.2% obese	**Smith et al. (2014)**[38]

Jurisdiction	Sample	Manner of measurement	Administrator	Calculation of weight status	Clinical cut-off	Proportion identified as at-risk based on tool criteria	Study/Survey
Australia (NSW)	Aged 12–14	Height measured using portable stadiometers. Weight measured using portable digital scales	Trained research assistants	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **World Health Organization growth reference centiles**[52]	21.3% overweight, 14.4% obese	**Lubans et al. (2016)**[39]
UK	Aged 11–16	Height measured using portable stadiometers to the nearest 0.1 cm. Weight measured using portable electronic scales to the nearest 0.1kg. Light clothing worn and shoes removed	Researchers	kg/m^2 Compared to centiles for childhood age	Centiles for childhood age cut-offs for overweight and obesity taken from: **World Health Organization growth reference centiles**[52]	18.5% overweight, 9.7% obese‡	**Lee et al. (2017)**[40]
Australia (VIC)	Aged 10–11, 13–14, 16–17	NR	NR	NR	NR	20.7% overweight, 6% obese	**Victorian Student Health and Wellbeing Survey – 'About You'**[49]
				Body Fat			
Australia (NSW)	Aged 13–14	Imp™ SFB7 bioelectrical impedance analyzer	Trained research assistants	Calculated according to **Lubans et al. (2011)**[53]	Cut-offs according to **Lubans et al. (2011)** but not specified in publication[53]	27.9% overweight, 16.2% obese	**Dewaret al. (2013)**[31]
Australia (NSW)	Aged 12–14	Imp™ SFB7 bioelectrical impedance analyzer	Trained research assistants	Calculated according to **Lubans et al. (2011)**[53]	Cut-offs according to **Lubans et al. (2011)** but not specified in publication[53]	26.1% overweight, 16.8% obese	**Lubans et al. (2012)**[33]
Australia (NSW)	Aged 12–14	Imp™ SFB7 bioelectrical impedance analyzer	Trained research assistants	NR	Cut-offs according to **Lubans et al. (2011)** but not specified in publication[53]	NR	**Smith et al. (2014)**[38]
UK	Aged 9–10	Estimated from leg-to-leg bioelectrical impedance Tanita SC330 portable body composition analyser	Independent assessor	NR	Cut-offs according to **McCarthyet al. (2006)**, where overweight ≥ 85th percentile and obese ≥ 95th percentile[277]	10.8% overweight or obese	**Lloyd et al. (2012)**[36]

Jurisdiction	Sample	Manner of measurement	Administrator	Calculation of weight status	Clinical cut-off	Proportion identified as at-risk based on tool criteria	Study/Survey
Waist Circumference							
Australia (NSW)	Aged 12–14	Measured using a non-extendible steel tape	Trained research assistants	Measured to the nearest 0.1 cm against the skin in line with umbilicus	Cut-offs according to **Lubans et al. (2011)** but not specified in publication[53]	NR	**Smith et al. (2014)**[38]
Australia (NSW)	Aged 12–14	Measured using a steel tape	Trained research assistants	Measured to the nearest 0.1 cm against the skin in line with the umbilicus	Cut-offs according to **Lubans et al. (2011)** but not specified in publication[53]	NR	**Lubans et al. (2016)**[39]
UK	Aged 14–18	Measured using an anthropometric tape measure	Trained researcher	Measured midway between rib cage and superior border of iliac crest with participants standing and at end of gentle expiration	NR	NR	**Duncan et al. (2014)**[34]
UK	Aged 9–10	Measured using a non-elastic flexible tape	Independent assessor	Measured 4cm above the umbilicus	Cut-offs according to **McCarthyet al. (2006)**, where overweight ≥ 85th percentile and obese ≥ 95th percentile[277]	21.3% overweight or obese	**Lloyd et al. (2012)**[36]
UK	Aged 5–16	Measured using a steel anthropometric tape	Field officers	Measured to nearest 1 mm at level of narrowest point between lower rib and iliac crest	Waist-to-height ratio was calculated as waist divided by height and categorised as < 0.5 (low cardiometabolic risk) or ≥ 0.5 (at cardio-metabolic risk)	NR	**NSW School Physical Activity and Nutrition Survey (SPANS)**[47]
Waist-to-Height Ratio							
UK	Aged 14–18	Waist measured using an anthropometric tape measure. Height measured using stadiometer	Trained researcher	Waist circumference measured midway between rib cage and superior border of iliac crest with participants	NR	NR	**Duncanet al. (2014)** [34]

Jurisdiction	Sample	Manner of measurement	Administrator	Calculation of weight status	Clinical cut-off	Proportion identified as at-risk based on tool criteria	Study/Survey
				standing and at end of gentle expiration			
Australia (NSW)	Aged 5–16	Waist measured using a steel anthropometric tape measure. Height measured using stadiometer	Trained field staff	Waist circumference measured to the level of the narrowest point between the lower rib and the iliac crest to the nearest 1 mm‡	Cut-offs according to **Browning, Hsieh & Ashwell (2010)**, where Low cardiometabolic risk <0.5or at cardio-metabolic risk ≥ 0.5[278]	Unhealthy ratio: 18.8% Aboriginal Australians, 12.0% non-Aboriginal Australians	**Hardy et al. (2014)**[32]
Australia (NSW)	Aged 5–16	Waist measured using a steel anthropometric tape measure. Height measured using stadiometer	Field officers	Waist circumference measured to the nearest 1 mm at level of narrowest point between lower rib and iliac crest	Cut-offs according to **Browning, Hsieh & Ashwell (2010)**, where Low cardiometabolic risk <0.5or at cardio-metabolic risk ≥ 0.5[278]	12.1% at cardiometabolic risk	**NSW School Physical Activity and Nutrition Survey (SPANS)**[47]
Australia	Aged 12-17	Waist measured using an inelastic tape measure. Height measured using stadiometer	Trained researcher	NR	NR	NR	**National Secondary Students' Diet and Activity survey (NaSSDA)**[48]

Key: NR = information not reported in present study. ‡Information sourced via contacting authors directly (email).*Obesity prevalence was relatively stable across the 3 school years with means of 17.6%, 17.6%, and 17.7% across the 2006–2007, 2007–2008, and 2008–2009 school years, respectively.

Table 5. Measures of general wellbeing and psychological distress

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study/URL Licensing
Large-Scale Studies of General Wellbeing and Psychological Distress								
ACT Year 6 Physical Activity and Nutrition Survey (ACTPANS)[46] General physical, mental wellbeing, and risk factors including: physical activity, nutrition, self-rated health, self-esteem, body image, and bullying	35 items 45 minutes	Paper	Aged 11–12	Unclear: Includes some items adapted from validated measures, including Moderate to Vigorously Physical Activity Screening Instrument; questions adapted from the Children's Leisure Activities Study Survey)	NR	NR	Australia (ACT)	Available online – licensing unclear
Victorian Student Health and Wellbeing Survey - 'About You'[49] Food intake, oral health, general health, health service access, sleep, sun protection, physical activity, sedentary behaviours, bullying and social exclusion, weight control and body image, life satisfaction, school-related wellbeing, sexual health, smoking, alcohol and drug use, family wellbeing, and peer relationships	105 items UK time	Online	Aged 10–11, 13–14, 16–17	Unclear: Includes some items adapted from validated measures, including Health Behaviour in School-aged Children (HBSC); the previous Victorian Adolescent Health and Wellbeing Survey (HowRU?) (49); Basic Psychological Needs Survey[279]	NR	NR	Australia (VIC)	Licensing unclear
Survey of Wellbeing and Student Engagement[54] Social and emotional wellbeing: happiness, optimism, life satisfaction, perseverance, emotional regulation, sadness, worry/anxiety, connectedness	63 items 25–45 minutes	Online	Aged 11–15	Unclear: Based on the Middle Years Development Instrument with the addition of the Perseverance and Engagement scales from the validated EPOCH	At-risk when usually responding 'disagree a little', 'disagree a lot', or 'almost never'	Happiness 14.6%, optimism 21.4%, life satisfaction 21.4%, perseverance 21.4%, emotional regulation 13.6%,	Australia (SA)	Available online – licensing unclear EPOCH scales freely

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study/URL Licensing
with adults at school, emotional engagement with teachers, peer belonging, cognitive engagement, friendship intimacy, sleep, and eating breakfast				Measure of Adolescent Well-Being and some schools added EPOCH optimism, relationships and happiness scales.[73] Also contains items from the Emotion Regulation for Children and Adolescents scale.[74] Was reviewed in 2015[54] at the state level and recommendations for modification made[72]		sadness 16.5%, worries 27.2%, connectedness with adults at school 10.7%, emotional engagement with teacher 1.0%, peer belonging 15.7%, cognitive engagement 7.8%, friendship intimacy 6.9%, sleep 15.0%, eating breakfast 8.0%		available with registration
Middle Childhood Survey[56] Social integration, prosocial behaviour, peer relationships, supportive relationships, empathy, emotional symptoms, conduct problems, aggression, attention, inhibitory control, hyperactivity-inattention, perceptual sensitivity, psychotic-like experiences, personality, self-esteem, daytime sleepiness and connection to nature Includes the Strengths and Difficulties Questionnaire	116 items UK time	Online	Aged 11	Evidence of validation in an Australian children sample aged 11 in a school setting[56]	NR	NR	Australia (NSW)	Licensing unclear

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study/URL Licensing
NSW School Students Health Behaviours Survey[57] Alcohol use, weight perception, injury, nutrition, physical activity, psychological distress, sedentary behaviour, substance use, sun protection, and tobacco use	96 items 45 minutes‡	Paper‡	Aged 12–17	NR	NR	NR	Australia (NSW)	Available upon request
Tell Them From Me - Student Survey[58] Sports and extracurricular activities, behaviour at school, learning and homework behaviour, teaching relevance and rigor, sense of belonging, interest and motivation, perseverance, positive relationships, effort, experience of being bullied, valuing school outcomes, skills and learning challenge, advocacy at school, positive teacher student relations, expectations for success, and positive learning climate	110 items (primary school) 170 items (secondary school)‡ 15–20 minutes	Online	Primary school survey: Aged 9–12 Secondary school survey: Aged 12–18	NR	NA‡	NA‡	Australia (NSW)	Requires purchase
Attitudes to School Survey[59] Learning confidence, resilience, motivation and interest, self-regulation and goal setting, attitudes to attendance, sense of belonging, voice and agency, transition experience, student safety, management of bullying, respect for diversity, having an	91 items UK time	Online	Aged 9–18	NR	NA‡	NA‡	Australia (VIC)	Licensing unclear

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study/URL Licensing
advocate, and experience of bullying								
National School Opinion Survey - Student Survey [60] Satisfaction with school, perception of school community, school safety, and perception of teacher performance	12 items UK time	Online	Aged 5–18	NR	NR	NR	Australia	Available online – licensing unclear
Australian Covert Bullying Prevalence Study[55] Internet use, observation of others being bullied, engaging in bullying behaviour, experiencing bullying behaviour from others, feelings of safety, and help-seeking	37 items UK time	Paper	Aged 9–15	Unclear: Items selected from a pool of previously validated and reliable scales developed by the Child Health Promotion Research Centre (CHPRC) at Edith Cowan University for children	NR	NR	Australia	Available online – licensing unclear
Me and My School (NZ)[61] Affective, behavioural and cognitive aspects of engagement at school	UK items UK time	Online or paper	Aged 8–15	NR	NR	NR	NZ	Requires purchase
Me and My School (UK)[62] Emotional difficulties (depressive/anxiety symptoms, sleep issues, friendship, teasing), behavioural difficulties (aggression, anti-social behaviour, bullying) and school climate (safety, community)	16 items < 10 minutes	Paper	Aged 8–15	Evidence of validation in an English children and adolescent sample aged 8–15 in a school setting[62,90]	≥ 10 emotional difficulties scale, ≥ 6 behavioural difficulties scale[90]	NR	UK	Available online – licensing unclear

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study/URL Licensing
Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS)[63] Tobacco use, alcohol use, drug use, contextual/family life, health and wellbeing Includes the Strengths and Difficulties Questionnaire	89 items UK time	Online or paper	Aged 11–18	NR	NR	NR	UK	Free to use – permission required
Middle Years Development Instrument[66] Physical health and wellbeing, connectedness, social and emotional development, school experiences and bullying, and use of after-school time	101 items UK Time	Online	Aged 8–14**	Evidence of validation in a Canadian child sample aged 9–10 in a school setting[66,70,71]	NR	NR	Canada	Requires purchase
Children's Lifestyle and School-Performance Study (CLASS) - Student Survey[45] Eating behaviour, attitudes towards health, physical activity, emotional/social well-being, body image, and physical capabilities	77 items UK time	Paper	Aged 10–11	NR	NR	NR	Canada	Available online – licensing unclear
Ontario Student Drug Use and Health Survey[64] Student drug use as well as risk and protective factors: mental health, physical health, gambling, bullying, and other risk behaviours (electronic device use, law breaking/anti-social behaviour, video game play, bullying)	105 items 45 minutes	Paper	Aged 12–18	NR	NR	NR	Canada	Available online – permission required

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study/URL Licensing
Canadian Student Tobacco, Alcohol and Drugs Survey[65] Tobacco product use, alcohol use, drug use, bullying, school connectedness, and well-being/mental health	65 items 30 minutes	Paper	Aged 12–18	NR	NA‡	NA‡	Canada	Free to use – permission required
California Healthy Kids Survey[67] Various modules including: school climate, drug free communities, social emotional health, alcohol and other drug use, resilience, and youth development	130 items* UK time	Online or paper	Aged 9–18	Evidence of validation in a US children and adolescent sample aged 6–18 in a school setting[67]	NR	NR	US	Requires purchase
Minnesota Student Survey[68] School climate, bullying, out-of-school activities, health and nutrition, emotional and mental health, relationships, and substance use	257 items 30–45 minutes‡	Online	Aged 10–11, 13–17	Unclear: Compilation of many items taken from many different sources. For example, many of the items come from the Youth Risk Behavior Survey (YRBS) through the Centers for Disease Control. Others are taken from validated scales, including from the Search Institute***	NA‡	NA‡	US	Licensing unclear
Social Emotional Health Survey (SEHS)[69] Emotional and social wellbeing including belief-in-self, belief-in-others, emotional competence, and engaged living	36 items < 10 minutes‡	Paper	Aged 13–18	Evidence of validation in a US adolescent sample aged 14–18 in a school setting[280]	Population norms available‡ (281)	NR	US	Available upon request

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study/URL Licensing
Individual Scales of General Wellbeing and Psychological Distress								
General Health Questionnaire (GHQ-12)[77] General psychological distress: screening device for identifying non-psychotic and minor psychiatric disorders to help inform further intervention.	12 items 2 minutes	Paper	Intended ages: Adolescents Aged 15–18[80] Aged 12–17[82] Aged 14–16[79,81] Aged 14–18[83]	Evidence of validation inAustralian and Canadian adolescent samples in school and inpatient settings[75–78]	Male distress ≥13 female distress ≥1882 ≥ 20 psychological distress[79,81] Psychological distress as reporting at least three of the 12 symptoms[83]	5.83% at-risk[79] 11.4% at-risk[81] NR[80,82]	Australia[79–82] Canada[83]	**Baksheev et al. (2011)**[80] **Martin et al. (2015)**[82] **Robinson et al. (2010)**[79] **Robinson et al. (2011)**[81] **Trinh et al. (2015)**[83] Requires purchase

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study/URL Licensing
Strengths and Difficulties Questionnaire (SDQ)[84] General psychological distress: behavioural screening of emotional symptoms, conduct problems, hyperactivity, inattention, peer relationships, and prosocial behaviour Has an impact supplement of an additional 2 questions on self-harm/suicide and a follow up questions for use after an intervention	25 items UK time	Online or paper	Intended ages: 4–17 Aged 11–16[40] Aged 8–15[90] Aged 11–18[88] Aged 12.5–17.75[87] Aged 13–15[89] Parents[85,86]	Evidence of validation in an English child and adolescent sample aged 8–13 in a school setting[84,91,92]	Emotional symptoms subscale: 7–10[89] Conduct disorder subscale: at risk ≥ 3, clinical ≥ 4[86] NR[40,85,87,90] Australian norms are available[223]	55.17% emotional symptoms subscale ≥ 4[#89] 19%[86] 13.1%[85] NR[40,87,88,90]	UK [40,89,90] Australia [85–88]	**Lee et al. (2017)**[40] **Patalay et al. (2014)**[90] **Burns &Rapee (2016)**[88] **Livheim et al. (2015)**[87] **Cooper et al. (2010)**[89] **Winther et al. (2014)**[86] **McDermott et al. (2012)**[85] Available online – permission required
Rosenberg's Self-Esteem Scale (RSE)[282] **Rosenberg's Self-Esteem Scale (RSE)- Modified** (Trinh, 2015)[83] Global self-esteem by measuring positive and negative feelings about one's self	10 items 2–3 minutes Modified: 6 items UK time[83]	Online	Intended ages: 13–65 Aged 11–16[40] Modified: Aged 14–18[83]	Evidence of validation in an Australian adolescent sample aged 11–17 in a community setting[98,99] Modified: UK	< 15 suggest low self-esteem[40] Modified: NR[83]	NR[40] Modified: NR[83]	UK[40] Modified: Canada[83]	**Lee et al. (2017)**[40] Available online – free to use Modified: **Trinh et al. (2015)**[83]

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study/URL Licensing
								Licensing unclear
Paediatric Symptom Checklist for Youths (PSCY)[283] Mental health symptoms and psychosocial dysfunction: school connectedness, sleep troubles, academic difficulties, anti-social behavior, depressive/anxiety symptoms, and somatic complaints	35 items 5 minutes	Paper	Intended ages: 9–15ǂ Aged 11–12[93]	Evidence of validation in US children and adolescents aged 9-14 in a school setting[283]	≥ 30 or if they indicated they had previously attempted suicide, or had recent suicidal ideation[93]	25% (8% with suicidal ideation) [93]	UK	**Sinclair& Holden (2013)**[93] Available online – licensing unclear
Psychological Flourishing Scale[97] Social-psychological prosperity: Social relationships, having a purposeful and meaningful life, being engaged and interested in one's activities, self-respect and optimism, feeling competent and capable	8 items UK time	Online	Intended ages: UK Aged 12–14[94]	Evidence of validation in a US adult sample of undergraduate students[97]	NR	NR	Australia	**Smith et al. (2014)**[94] Free to use
Student Flourishing Profile[95] Assess the degree to which individuals have developed the 'pillars' of good mental health to stay well and optimise quality of life: emotions, engagement, relationships, meaningfulness, accomplishment, and health	58–62 items UK time	Online	Intended ages: 11–18	Evidence of validation in Australian children and adolescents aged 11–18 in a school setting†[95]	NR	NR	Australia	Requires purchase

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study/URL Licensing
Self-Description Questionnaire[96] Friendship, academic performance, mood, and attitudes towards school	19 items UK time	Paper	Intended ages: 10–11	Evidence of validation in a US child sample aged 8–11 in a school setting[100]	NR	NR	US	**Early Childhood Longitudinal Study** Requires permission

Key: UK = Information unknown - not reported in publications and could not be sourced externally (e.g. online, author contact). NR = information not reported in present study. Unclear: Draws some items from previously validated questionnaires – see 41-page report regarding issues of validity. ‡Information sourced via contacting authors directly (email).*130 items for core module, items differ across modules. **Parent version also available.***Parent report version available for parents of 4–15 years. #Used as a screening tool for intervention study. †In press.

Table 6. Measures of symptoms of depression and anxiety

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Children's Depression Inventory (CDI)[284] Emotional problems and functional problems: negative mood, negative self-esteem, ineffectiveness, and interpersonal problems **Children's Depression Inventory- Short Form (CDI-S)**[285] Depressive symptoms	27 items 15 minutes Short: 10 items 5–10 minutes	Paper	Intended ages: 7–17 Aged 11–18[103] Short: Aged 7–18[101] Aged 12–14[102]	Evidence of validation in a US children and adolescent population aged 9–18 in a school setting[105] and inpatient setting[104] Short: Evidence of validation in a Swedish children and adolescent sample aged 8–12 in a community sample[286]	≥ 19 Short: NR[101] Mean item score of .5 or greater‡[102]	20.15% (depressed or mixed anxious-depressed)[103] Short: 23.9%‡ [102]	US[103] Short: Australia[101,102]	**Laurent et al. (2011)**[103] Requires purchase Short: **Poulsen et al. (2015)**[101] **Wilksch et al. (2015)** [102] Requires purchase
The Center for Epidemiological Studies - Depression Scale for Children (CES-DC)[107] Behavioural depressive symptoms, cognitive depressive symptoms, and happiness **The Center for Epidemiological Studies - Depression Scale for Children - Short Form (CES-D-10)**[287] Depressive symptoms	20 items 15 minutes Short: 10 items 10 minutes	Online	Intended ages: 6–17 Aged 11–18[88] Short: Ages 16–20[106]	Evidence of validation in a US children and adolescent sample aged 9–18 in a school setting[105] and inpatient setting[288] Short: Evidence of validation in a US adult sample in a community setting[108]	≥ 15 Short: ≥ 10[106]	NR[88] Short: 52.1%[106]	Australia (NSW)[88] Short: US[106]	**Burns &Rapee (2016)**[88] Free to use Short: **Prochaskaet al. 2016**[106] Free to use

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Reynolds Adolescent Depression Scale-2 (RADS-2)[289] Depressive symptoms: dysphoric mood, anhedonia/negative affect, negative self-evaluation, and somatic complaints **Reynolds Adolescent Depression Scale — Short Form (RADS-SF)**[111] Depressive symptoms	30 items 10 minutes Short: 10 items 2–3 minutes	Paper	Intended ages: 13+ Aged 12.5–17.75[87] Short: Aged 13–18[109]	Evidence of validation in an adolescent sample[110] Short: Evidence of validation in a NZ adolescent sample aged 13–18 in a school setting[111]	NR* (87) Short: ≥ 28‡	100%** Short: NR	Australia[87] Short: NZ[109]	**Livheimet al. (2015)**[87] Requires purchase Short: **Lucassenet al. (2011)**[109] Requires purchase
Birleson Depression Self-Rating Scale for Children (BDS)[113] Depressive symptoms	18 items UK time	Paper	Intended ages: 8–14 Aged 8–13[112]	Evidence of validation in a US child and adolescent sample aged 7–12 in a school and clinical setting [113]	≥ 2[112]	6%	UK	**McDermott et al. (2013)**[112] Free to use
Mood and Feelings Questionnaire (MFQ)[290] Depressive symptoms	33 items 5–10 minutes	Paper	Intended age: 8–18 Aged 14.5[35]	Evidence of validation in a US children and adolescent sample aged 7–18 in a clinical and community setting[114]	>25[35]	NR	UK	**Corder et al. (2015)**[35] Free to use

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Positive and Negative Affect Scale for Children (PANAS-C)[291] Expressed emotion	27 items 5–10 minutes	Paper	Intended ages: 9–14 Aged 11–18[103]	Evidence of validation in the current sample; Evidence of validation in a children and adolescent sample aged 7–14 in a clinical setting[292]	Positive affect ≤ 39, negative affect ≥ 33[103]	NR	US	**Laurent et al. (2011)**[103] Free to use – permission required
Kutcher Adolescent Depression Scale (KADS-6)[293] Depressive symptoms	6 items UK time	Online or paper	Intended ages: 12–17 Aged 13-18[294]	Evidence of validation in a Canadian adolescent aged 14–18 in a school setting[115]	≥ 6	18.1%	Australia (SA)	**Blacket al. (2012)**[294] Free to use – permission required
Paediatric Index of Emotional Distress (PI-ED)[116] Anxiety and depression in children	16 items 5–10 minutes	Paper	Intended ages: 8-16 Aged 7–17[116]	Evidence of validation in the current study	Total ≥ 20 Depression ≥8 Anxiety ≥9[116]	NR	UK	**O'Connor et al. (2016)**[116] Requires purchase
K-6[295] Depressive and anxiety symptoms	6 items 1–2 minutes	Paper	Intended ages: UK Aged 11–18[117]	Evidence of validation in the current study	13+[296]	13.9%	US	**Peiper et al. (2015)**[117] Free to use – permission required
Spence Children's Anxiety Scale (SCAS)[297] Anxiety symptoms: separation anxiety, social	44 items 10 minutes‡	Paper	Intended ages: 8–12 Aged 12–17[118]	Evidence of validation in an Australian adolescent sample	Males ≥ 32, females ≥ 38[118] NR[101]	80.10%[118] NR[101]	Australia[101,118] UK[112]	**Blake et al. (2016)**[118]

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
phobia, obsessive compulsive, panic/agoraphobia, physical injury fears, generalised anxiety			Aged 7–18[101] Aged 8–13[112]	aged 13–14 in a school setting[119]	≥ 60[112]	5.70%[112]		**Poulsen et al. (2015)**[101] **McDermott et al. (2013)**[112] Free to use
Screen for Child Anxiety Related Disorders (SCARED)[298] Anxiety symptoms: somatic/panic, generalized anxiety, separation anxiety, and school phobia	41 items 15 minutes	Paper	Intended ages: 8–18 Aged 14–18[120] Aged 16–20[106]	Evidence of validation in a US children and adolescent sample aged 9–18 in an inpatient setting[121]	Panic/somatic ≥ 7, generalised anxiety ≥ 9, separation anxiety ≥ 5, social anxiety ≥ 8, school avoidance ≥ 3, total score ≥ 25[298]	Panic/somatic 27.7%, generalised anxiety 29.7%; separation anxiety 23.4%; social anxiety 27.6%; school avoidance 28.0%; total score 38.5%[120] 49.8%[106]	US[106,120]	**Haley et al. (2011)**[120] **Prochaska et al. (2016)**[106] Free to use
Profile of Mood States-A[299] Transient mood states across negative subscales (tension, depression, fatigue, confusion, anger) and positive subscales (vigor and esteem-related affect)	24 items 8–10 minutes	Online	Intended age: 13–17 Aged 14–16[81]	Evidence of validation in an UK adolescent sample, average age ~14, in a school and community setting[123]	Norms available upon purchase	NR	Australia (VIC)[81]	**Robinson et al. (2011)**[81] Purchase required

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Multidimensional Perfectionism Scale: Concern over mistakes subscale[300]	9 items UK time***	Online or paper	Intended ages: undergraduate students Aged 12–14[102]	Evidence of validation in an Australian adolescent sample aged 12–18 in a school setting[122]	Norms available upon purchase	NR	Australia[102]	**Wilksch et al. (2015)**[102] Purchase required
Physiological Hyperarousal Scale for Children (PH-C)[301] Bodily manifestations of autonomic arousal — related to anxiety	18 items 10 minutes‡	Paper	Intended ages: 11–18 Aged 8–17[103]	Evidence of validation in the current study	≥ 3[4103]	16.60% anxious, 5.93% depressed, 14.23% mixed anxious-depressed	US	**Laurent et al. (2011)**[103] Free to use - permission required
Revised Children's Manifest Anxiety Scale (RCMAS)[302] Anxiety symptoms: physiological anxiety, worry-oversensitivity, social concerns-concentration, and total anxiety	37 items 10–15 minutes	Paper	Intended ages: 6–19 Aged 8–17[103]	Evidence of validation in a children sample[124]	Total scale > 59, worry scale > 12	16.60% anxious, 14.23% mixed anxious/depressed group	US	**Laurent et al. (2011)**[103] Purchase required

Key: UK = Information unknown — not reported in publications and could not be sourced externally (e.g. online, author contact). NR = information not reported in present study.‡Information sourced via contacting authors directly (email). *Population norms available upon purchase. **Used in a selective program where all participants were selected on the basis of being high-risk children. ***Total scale = 45 items and 15 minutes.

Table 7. Measures of symptoms of PTSD

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
The UCLA PTSD Reaction Index (UCLA-RI)[303] Probable PTSD, especially following natural disasters	27–31 items UK time	Online or paper‡	Intended ages: 7–18 Aged 6–12[85] Aged 7–18[101]	Evidence of validation in a US children and adolescent sample[125]	40–59 'severe', > 60 'very severe' [85,101]	22.8%, severe or very severe symptoms[85] NR[101]	Australia (QLD) [85,101]	**McDermott& Cobham (2012)**[85] **Poulsenet al. (2015)**[101] Purchase required
Children's Revised Impact of Event Scale (CRIES-8)[126] Probable PTSD: intrusion and avoidance	8 items UK time	Paper	Intended ages: 7–18 Aged 8–13[112]	Evidence of validation in an adolescent sample aged 10–16 in a clinical setting[126]	≥ 17	47%	UK	**McDermott et al. (2013)**[112] Available online - free to use
Primary Care PTSD Screen (PC-PTSD)[304] Probable PTSD	4 Items UK time	Paper	Intended ages: primary care patients Aged 16–20[106]	Evidence of validation in a US adult primary care sample[127]	Endorse ≥ 3 items	19.2%	US	**Prochaskaet al. (2016)**[106] Available online - free to use

Key: UK = Information unknown - not reported in publications and could not be sourced externally (e.g. online, author contact). NR = information not reported in present study.‡Information sourced via contacting authors directly (email).

Table 8. Measures of aggression and adjustment

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
The Aggression Scale[129] Aggression: verbal aggression, physical aggression, and feelings of anger	11 items UK time*	Online or paper‡	Intended ages: 11–14 Aged 13–14[94]	Evidence of validation in a US adolescent sample aged 11–14 in a school setting[129]	NA‡	NA‡	Australia (NSW)	**Smith et al. (2014)**[94] Free to use – available upon request
Reynolds Adolescent Adjustment Screening Inventory (RAASI)[130] Psychological adjustment problems: antisocial behaviour, anger control problems, emotional distress, and sense of positive self	32 items 5 minutes	Paper	Intended ages: 12–19 Aged 15–18[128]	Evidence of validation in an adolescent sample[130]	Population norms available upon purchase	25% clinically relevant levels of adjustment problems	UK	**Brennan& McGilloway (2012)**[128] Requires purchase

Key: UK = Information unknown — not reported in publications and could not be sourced externally (e.g. online, author contact). NR = information not reported in present study. NA‡ = upon contact, authors specified that cut-offs were not applicable for this scale.

Table 9. Suicidal ideation and deliberate self-harm screening tools

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Self-Harm Behaviour Questionnaire (SHBQ) - Part A* [305] Non-suicidal self-injury (NSSI) and suicide attempts: intent, frequency, methods, and potential lethality of self-injurious behaviour	22 items 5–7 minutes	Paper	Intended ages: undergraduate students Aged 12–17[82]	Evidence of validation in a US adolescent sample aged 14–18 in a school setting [131]	NR	6% NSSI, 1.3% attempted suicide[82]	Australia (QLD)	**Martinet al. (2015)**[82] Licensing unclear
Suicide Ideation Questionnaire (SIQ)[306] Frequency of thoughts about suicide	15 items 10 minutes	Paper	Intended ages: 15–-18 Aged 15–18[128]	Evidence of validation in a US adolescent sample 14–17 in a school setting[133] and a clinical setting[132]	> 31	27%	UK	**Brennan& McGilloway (2012)**[128] Requires purchase

Key: NR = information not reported in present study. *Part A — intentional non-suicidal self-harm. Part B - suicide attempts. Part C — suicide threats. Part D — suicide ideation.

Table 10. Measures of family wellbeing and functioning

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
McMaster Family Assessment Device (FAD)[307] Family dysfunction: problem solving, communication, roles, affective responsiveness, affective involvement, behavioural control, and general functioning	60 items UK time	Paper	Parents*	Evidence of validation in an Australian adolescent sample aged 12–16 in a community and clinical setting[134]	≥ 2	28.3%	Australia (QLD)	**McDermott & Cobham (2012)**[85] Free to use

Key: UK = Information unknown - not reported in publications and could not be sourced externally (e.g. online, author contact). *Child self-report version also available.

Table 11. Screening tools for symptoms of psychosis

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Psychotic-Like Experiences Questionnaire for Children[56] Psychotic-like experiences	9 items UK time	Online	Intended ages: 9–11 Aged 11–12[56]	Evidence of validation in an English-children sample aged 9–11 in a school setting[136]	NR	66%*	Australia (NSW)	**Laurenset al. (2017)**[56] Licensing unclear
Adolescent Psychotic-Like Symptom Screener[137] Psychotic symptoms	7 items UK time	Paper	Intended ages: 11–13 Aged 10–13[135]	Evidence of validation in an Irish children and adolescent sample aged 11–13 in a school setting[137]	≥ 2	33.33%	UK	**Roddy et al. (2012)**[135] Licensing unclear

Key: UK = Information unknown - not reported in publications and could not be sourced externally (e.g. online, author contact). NR = information not reported in present study. *% of children reported at least one 'certainly true' response across the nine PLE items included in the questionnaire.

Table 12. Screening tools for disordered eating behaviours and body image

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Eating Disorder Examination - Questionnaire[308] Eating disorder symptoms: restraint, shape concern, weight concern, and eating concern	28 items 8–10 minutes	Online or paper	Intended ages: adolescents and adults Aged 12–14[102]	Evidence of validation in a UK adolescent sample aged 12–14 in a school setting[141]	Subscale or global score ≥4[308]	Shape and eating concern: 15% females, 2% males	Australia	**Wilksch et al. (2015)**[102] Free to use – permission required
Dutch Eating Behavior Questionnaire[309] Restraint over eating, emotional eating, and external eating	33 items 10 minutes	Online or paper	Intended ages: adults Aged 12–14[102]	Evidence of validation in a Swedish sample of girls aged 9–10 in a school setting(142)	Scoring template available upon purchase	NR	Australia	**Wilksch et al. (2015)**[102] Requires purchase
Eating Disorder Inventory[310] Eating disorder symptoms: drive for thinness, bulimia, body dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness, and maturity fears	91 items 20 minutes	Online or paper	Intended ages: 13–53 Aged 12–14[102]	Evidence of validation in an US adolescent sample aged 14–18 in a school setting[140]	NR	NR	Australia	**Wilksch et al. (2015)**[102] Requires purchase

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
EAT-26 (Eating Attitudes Test-26)[311] Eating disorder symptoms: dieting, bulimia, food preoccupation, oral control	26 items UK time	Online or paper	Intended ages: adolescents and adults Aged 14-18[138]	Evidence of validation in the current study; evidence of validation in an Irish adolescent sample aged 12–18 in a school setting[139]	Global score ≥ 20[311]	14.4% females, 3.8% males	US	**Haines et al. (2011)**[138] Free to use - permission required
Physical Self-Description Questionnaire[312] Perceived body fat, physical self-esteem, and global self-esteem	70 items UK time	Online or paper	Intended ages: 12–18 Aged 12–14[33,94]	Evidence of validation in an Australian adolescent sample aged 12–16 in a school-setting[143]	NR	NR	Australia (NSW)[33,94]	**Lubans et al. (2012)**[33] **Smith et al. (2014)**[94] Free for use
Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3)[313] Media internalisation, pressure, and retention of cultural information	9 items 1 minute	Online	Intended ages: 17–25 Aged 12–14[102]	Evidence of validation in an Australian adolescent sample aged 13–14 in a school setting[144]	NR	NR	Australia	**Wilksch et al. (2015)**[102] Free for use
Perceived Sociocultural Pressure Scale[314] Perceived social pressure (friends, family, partners, media) to be thin	10 items 1 minute	Online or paper	Intended ages: NR Aged 12–14[102]	Evidence of validation in a US high school sample in a school setting[146]	NR	NR	Australia	**Wilksch et al. (2015)**[102] Free for use - permission required

Body Esteem Scale for Adolescents and Adults[315] Body image: appearance, weight, and attribution (evaluations attributed to others about one's body and appearance)	23 items UK time	Online	Intended ages: 12–25 Aged 11–16[40]	Evidence of validation in a US adolescent sample aged 11–13 in a school setting[145]	NR	NR	UK	**Lee et al. (2017)**[40] Available upon request

Key: UK = Information unknown - not reported in publications and could not be sourced externally (e.g. online, author contact). NR = information not reported in present study.

Table 13. Screening tools for risk factors for overweight and obesity.

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Large-scale surveys: Risk factors for overweight and obesity								
ACT Year 6 Physical Activity and Nutrition Survey (ACTPANS)[46] General physical, mental wellbeing, and risk factors including: physical activity, nutrition, self-rated health, self-esteem, body image, and bullying	35 items 45 minutes	Paper	Aged 11–12	Unclear: Includes some items adapted from validated measures, including Moderate to Vigorously Physical Activity Screening Instrument; questions adapted from the Children's Leisure Activities Study Survey)	Consumption of fruit and vegetables based on the Australian Dietary Guidelines[316] Physical activity and screening time recommendations are taken from the Australian Government Guidelines [317]	22% overweight or obese 82% consume enough fruit each day 56% consume enough vegetables each day 19% obtain enough exercise each day 70% obtain enough exercise 4 days each week 53% exceed screen time recommendations on weekends, 30% on weekdays	Australia (ACT)	2015 report Available online – licensing unclear
NSW School Physical Activity and Nutrition Survey (SPANS)[47] Objective measures: cardiorespiratory	40 items UK time	Paper	Aged 5–16*	Unclear: Questions based on validated measures. Short food frequency questionnaire validated in	NR	NR	Australia (NSW)	2015 report Available online –

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
endurance (cardiorespiratory fitness), fundamental movement skills, and standing broad jump. Self-report measures: food intake, physical activity, school travel, family eating/sedentary behaviours, dental health, sleep behaviour, knowledge on recommendations for physical activity and sedentary behaviour				an Australian children sample aged 2–5 in a preschool setting.[318] A physical activity screening measure validated in a US adolescent sample aged 12–18 in a school setting.[319] Adolescent sedentary activities questionnaire validated in an Australian children and adolescent sample aged 11–15 in a school setting[160] Sleep Habits Survey validated in a US adolescent sample aged 14–20 in a school setting[320]				licensing unclear
National Secondary Students' Diet and Activity (NaSSDA) Survey[48] Food marketing exposure, food choices, and eating behaviour	UK items UK time	Paper	Aged 12–17	Evidence of validation in an Australian children and adolescent sample aged 0–17 in a community setting[226]	NR	NR	Australia	Research reports available Licensing unclear
Children's Lifestyle and School-Performance Study (CLASS) — Student Survey[45] Eating behaviour, attitudes towards health, physical activity, emotional/social well-being, body image, and physical capabilities	77 items UK time	Paper	Aged 10–11	NR	NR	NR	Canada	Research reports available Available online – licensing unclear

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
School Health Action Planning and Evaluation System (SHAPES) - Physical Activity Module[155] Physical activity and sedentary activity patterns: enabling factors within schools, social influences, and beliefs about opportunities for physical activity offered within the school environment	UK items 20 minutes	Paper	Aged 11–18	Evidence of validation in Canadian children and adolescents aged 11–18 in a school setting[227]	Recommendations for screen time and physical activity[321]	11.5% low activity, 33.8% excessive screen time	Canada	**Leatherdale &Papadakis (2011)**[322] Requires purchase
Objective measures of physical activity: Risk factors for overweight and obesity								
Actigraph (accelerometer) Physical activity	NA	NA	Aged 13[31,33] Aged 9–10[36] Aged 12–14[38] Aged 12–14[39]	Evidence of validation in a US adult and adolescent samples[156]	Sedentary: 0–299 minutes; light: 300–3580 minutes; moderate: 3581–6129 minutes; vigorous: ≥ 6130 minutes[36] NR[33,38,39]	NR	Australia[31,33,36,38,39]	**Dewar et al. (2013)**[31] **Lloyd et al. (2012)**[36] **Lubans et al. (2012)**[33] **Lubans et al. (2016)**[39] **Smith et al. (2014)**[38]
Actiheart Combined heart rate and movement sensing	NA	NA	Aged 14.5[35]	Evidence of validation in a UK children and adolescent	NR	NR	UK	**Corderet al. (2015)**[35]

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
				sample aged 12–15 in a community setting[323]				
20-metre shuttle run Cardiorespiratory endurance	NA	NA	Aged 5–16[32]	Evidence of validation in a Canadian young adult sample in a community setting[324]	According to FitnessGram manual[325]	65.5% Aboriginal Australians students adequately fit, 68.1% non-Aboriginal Australians students adequately fit	Australia (NSW)	**Hardy et al. (2016)**[32]
Handgrip Dynamometer Strength of hand and foreman	NA	NA	Aged 12–14[39]	Evidence of validation in European adolescents[326]	NR	NR	Australia (NSW)[39]	**Lubans et al. (2016)**[39]
FitnessGram[158] Aerobic capacity, body composition, muscular strength, muscular endurance, flexibility, and activity assessment	NA	NA	Intended ages: school-aged children and adolescents Aged 12–14[39]	Evidence of validation in a US children and adolescent sample aged 8–18 in a school setting[53,159]	"Healthy Fitness Zone" (HFZ) or "Needs Improvement" or "Needs Improvement - Health Risk"[325]	NR[39]	Australia (NSW)[39]	**Plowman et al. (2013)**[158] Requires purchase
	Self-report questionnaires of physical activity and sedentary behaviour: Risk factors for overweight and obesity							
Adolescent Sedentary Activity Questionnaire[160] Screen-based sedentary behaviours	11 items 5–10 minutes	Online or paper	Intended ages: adolescents Aged 13[31,53] Aged 5–16[32] Aged 12–14[38]	Evidence of validation in an Australian children and adolescent sample aged 11–15 in a school setting[160]	> 2 h/day[327]	Weekdays: 62.8% Aboriginal Australians exceeds recommendations, 47% non-Aboriginal Australians	Australia (NSW)[31–33, 38,39]	**Dewar et al. (2013)**[31] **Hardy et al. (2014)**[32]

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
			Aged 12–14[39]			Weekends: 81% Aboriginal Australians exceeds recommendations; 82.2% non-Aboriginal Australians exceeds recommendations [32] NR[31,33,38,39]		**Lubans et al. (2012)**[33] **Lubans et al. (2016)*****[39] **Smith et al. (2014)**[38] Available online – free to use
Motivation for School Sport[164] Autonomous motivation, controlled motivation, motivational regulation, and amotivation	20 items UK time	Paper	Intended ages: undergraduate students Ages 12–14[39]	Evidence of validation in adolescent sample aged 12–14 in a school setting[164]	NA‡	NA‡	Australia, (NSW)[39]	**Lubans et al. (2016)**[39] Licensing unclear
Adolescent Physical Activity Recall Questionnaire[165] Physical activity: participation in organised sports, games and other activities, and participation in non-organised physical activities	4 items 30 minutes	Paper	Intended ages: 13–15 Ages 11–16	Evidence of validation in an Australian adolescent sample aged 13–15 in a school setting[165]	≥60 min/day	Met daily PA recommendations: 61.4% Aboriginal Australians, 62% non-Aboriginal Australians	Australia (NSW)	**Hardy et al. (2014)**[32] Available online – free to use
Physical Activity Questionnaire for Older Children (PAQ-C)[328]	10 items# 20 minutes	Paper	Intended ages: 8–14 Aged 11–13	Evidence of validation in a US children and adolescent	Low composite scores indicate low physical activity	NR	Australia (VIC)	**Marks et al. (2015)**[161]

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Physical activity				sample aged 11–13 in a community setting[166]				Requires permission
Adolescent Behaviours Attitudes and Knowledge Questionnaire (ABAKQ)[329] Physical activity: active transport, school active environment, dietary intake, sedentary behaviour, body image, neighbour safety, and beliefs about nutrition	83 items UK time	Paper	Intended ages 12–18 Aged 11–13	Evidence of validation in an Australian adolescent sample aged 12–18 in a school setting[175]	NR	NR	Australia (VIC)	**Marks et al. (2015)**[161] Available online – licensing unclear
Children's Lifestyle and School-Performance Study (CLASS) Format - Screen Time[167] Sedentary and screen behaviour	UK items 15 minutes	Paper	Intended ages: 5–6, 10–12 Aged 11–13	Evidence of validation in an Australian children and adolescent sampled aged 5–6 and 10–12 in a school setting[167]	> 2 hours screen time per day	NR	Australia (VIC)	**Marks et al. (2015)**[161] Available online – licensing unclear
Motivation to Limit Screen-time Questionnaire (MLSQ)[168] Behavioural regulation regarding use of electronic screen time: autonomous motivation, controlled motivation, and amotivation	9 items UK time	Online	Intended age: 12–18 Aged 12–14	Evidence of validation in an Australian adolescent boy sample aged 12–18 in a school setting[168]	NA‡	NA‡	Australia (NSW)	**Smith et al. (2017)**[163] Licensing unclear

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Screen Time Use in the Family Home[169] Sedentary and screen behaviour	9 items UK time	Online	Intended ages: adolescents Aged 12–14	Evidence of validation in a US adolescents and parents sample in a community setting[169]	Less than 2h screen time per day‡	NR	Australia (NSW)	**Smith et al. (2017)**[163] Licensing unclear
Pathological Video Gaming Scale[70] Pathological video gaming: video-game play, knowledge of game ratings, household rules for media use, school performance, attention difficulties, involvement in physical fights, and physical health	11 items UK time	Online	Intended ages: 8–18 Aged 12–14	Evidence of validation in a US children and adolescent sample aged 8–18 in a community setting[170]	≥ 6	NR	Australia (NSW)	**Smith et al. (2014)**[94] Licensing unclear
Physical Activity Behavioral Strategies[171] Self-efficacy, situations, social support, behavioural strategies, and outcome expectations	6 items UK time	Online	Intended ages: 12-18 Aged 12-14	Evidence of validation in an Australian adolescent students aged 12-18 in a school setting[171]	NA‡	NA‡	Australia (NSW)	**Smith et al. (2014)**[94] Licensing unclear
Growing Up Today Study (GUTS) — Physical Activity[172] Physical activity and sedentary behaviours/screen time	18 items UK time	UK	Intended ages: 9–14 Aged 12–14	Evidence of validation in a US children and adolescent sample aged 9–14 in a community setting[172]	NR	NR	Australia	**Wilksch et al (2015)**[102] Available online – licensing unclear

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Youth Physical Activity Questionnaire[173] Physical activity: sport, active activities outside school, physical education classes, and screen time in the previous week	151 items UK time	Online	Intended ages: 9–18 Aged 13–18	Evidence of validation in an English children and adolescent sample aged 4–5, 12–13, 16–17 in a school setting[173]	NR	NR	NZ	**Mandicet al. (2012)**[162] Available online – licensing unclear
Arab Teens Lifestyle Study (ATLS) Questionnaire[174] Lifestyle factors: physical activity levels, sedentary behaviours, sleeping hours, and dietary habits	47 items UK time	UK	Intended ages: 14–19 Aged 14–18[34]	Evidence of validation in the current study	*Physical activity:* two categories (active or inactive) based on a cut-off value for total METs-min/week of below or ≥ 1,680 MET-min/week (equiv. to 60 min of mod intensity physical activity) *Dietary habit:* Two categories based on the frequency of their intake for each respective food (41 days/week, <4 days/week) *Sedentary behaviour:* The American Academy of Pediatrics	25.5% inactive	UK	**Duncan et al. (2014)**[34] Available online – licensing unclear

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
					(AAP) guidelines of a maximum of 2 h/day			
1-Day Previous Day Physical Activity Recall (PDPAR)[176] Diary of previous physical activity, and includes questions about: screen time, eating, sleeping/bathing, transportation, work/school, spare time, play/recreation, and exercise/workout	Diary format UK time‡	UK	Intended ages: 5–18 Aged 9–10	Evidence of validation in a US adolescent sample aged 12–18 in a school setting[176]	NA‡	NA‡	UK	**Harrison et al. (2006)**[330] Available online – licensing unclear
Physical Activity Self-Efficacy[177] Social influences, self-efficacy (support seeking, barriers, positive alternatives), and beliefs (social outcomes, physical activity outcomes)	10 items UK time	UK	Intended ages: 10–11 Aged 9–10	Evidence of validation in a US children sample aged 10–11 in a school setting[177]	Lower scores indicate less self-efficacy	NR	UK	**Harrison et al. (2006)**330 Licensing unclear
Screen-Based Activity[178] Length of time spent doing screen-based activities on the previous weekday and Saturday	UK	Paper	Intended ages: 8–10 Aged 9–10	Evidence of validation in a US-children sample aged 8–10 in a school setting[178]	NR	NR	UK	**Kipping et al. (2008)**[331] Licensing unclear
A Day in the Life[179]	15 items UK time	Paper	Intended ages: 7–9	Evidence of validation in a UK-children sample aged	NR	NR	UK	**Kipping et al. (2008)**[331]

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Physical activities during the previous day			Aged 9–10	7–9 in a school setting[179]				Available online – permission required
Children's TV Viewing Habits Questionnaire[180] TV viewing/screen-based usage	23 items UK time	Paper	Intended ages: Parents of children aged 4–10 Aged 9–10	Evidence of validation in an English children sample aged 4–10 in a school setting[180]	NR	NR	UK	**Lloyd et al. (2012)**[36] Licensing unclear
Self-report questionnaires of eating behaviours and food intake: Risk factors for overweight and obesity								
EAT 2010 Student Survey[68] Weight status, weight-related behaviours, influences within the family/home environment on eating, food frequency, and physical activity	92 items 40–50 minutes‡	Paper	Adolescents**	Evidence of validation in an US adolescent sample aged 12–18 in a school setting[181]	NR	NR	US	Research reports available Free to use
Child Food Consumption Questionnaire[332] Food intake	19 items UK time	Paper	Aged 10–11	NR	NR	NR	US	**Early Childhood Longitudinal Study**[96] Requires permission

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Australian Child and Adolescent Eating Survey (Youth version of the Australian Eating Survey)[182] Dietary intake, sedentary behaviour, and vitamin supplement use	135 items 15 minutes	Online	Intended ages: 2–17 Aged 12–18[31] Aged 13[33]	Evidence of validation in an US children and adolescent sample aged 9–16 in a school setting[182]	NR	NR	Australia (NSW)[31,33]	**Dewar et al. (2013)**[31] **Lubans et al. (2012)**[33] Requires purchase
Food Intake Questionnaire[184] Dietary intake	NR	Paper	Aged 9–10	Evidence of validation in a UK children and adolescent sample aged 11–14 in a school setting[184]	NR	NR	UK	**Lloyd et al. (2012)**[36] Available online – licensing unclear
Waterloo Web-Based Eating Behaviour Questionnaire (WEB-Q)[333] 24-hour diet recall, weekly sleep habits, screen time, and physical activity	65 items 30 minutes	Online or paper	Aged 10–18	Evidence of validation in a Canadian children and adolescent sample aged 11–14 in a school setting[183]	NR	NR	Canada	**Gates et al. (2013)**[334] Requires purchase

Key: UK = Information unknown - not reported in publications and could not be sourced externally (e.g. online, author contact). NR = information not reported in present study.‡Information sourced via contacting authors directly (email).*Child questionnaire (year 6) and adolescent questionnaire (year 8 and 10) available. ** Includes student and family survey versions. ***Modified version of the Adolescent Sedentary Activity Questionnaire used in Lubans et al. (2016). #6 items used in the current study

Table 14. Screening tools for risk factors for poor social and emotional wellbeing

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Large-scale surveys: Risk factors for poor social and emotional wellbeing								
Australian Secondary Students' Alcohol and Drug Survey[185] Substance use including alcohol, tobacco, over-the-counter and illicit substances, use of health services for alcohol use, drug use, emotional problems, and behavioural problems	16 pages UK time	Online or paper	Aged 12–18	NR	NR	NR	Australia	Available upon request
Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS)[63] Tobacco use, alcohol use, drug use, contextual/family life, health and wellbeing Includes the Strengths and Difficulties Questionnaire	89 items UK time	Online or paper	Aged 11–18	NR	NR	NR	UK	Free to use – permission required
Ontario Student Drug Use and Health Survey(OSDUHS)[64] Student drug use as well as risk and protective factors: mental health, physical health, gambling, bullying, and other risk behaviours	105 items 45 minutes	Paper	Aged 12–18	NR	NR	NR	Canada	Free to use

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Canadian Student Tobacco, Alcohol and Drugs Survey[65] Tobacco product use, alcohol use, drug use, bullying, school connectedness, and well-being/mental health	65 items 30 minutes	Paper	Aged 12–18	NR	NA‡	NA‡	Canada	Available upon request
Kentucky Incentives for Prevention (KIP) Survey[186] Use of alcohol, tobacco, and other drugs. Factors related to potential substance abuse: peer influences, perception of risk, school safety, bullying, gambling, mental health, and relationship violence	62 items‡ 45–50 minutes	Online or paper	Aged 11–18	Unclear: contains original items and the validated Kessler 6[K6]	NA‡	NA‡	US	Requires purchase
National Survey of Australian Secondary Students and Sexual Health[188] Knowledge of STIs (HIV, Hepatitis, HPV), sexual behaviour and feelings, personal experiences, fertility, drinking and drug taking, technology use (social media and internet), sexuality and relationship education	UK items UK time	Online or paper	Aged 15–18	NR	NA	NA	Australia	Available upon request
NSW School Students Health Behaviours Survey[57]	96 items 45 minutes	Paper	Aged 12–17	NR	NR	NR	Australia (NSW)	Available upon request

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Alcohol use, weight perception, injury, nutrition, physical activity, psychological distress, sedentary behaviour, substance use, sun protection, and tobacco use								
Youth'12 survey[189] Ethnicity, culture, physical health, food, physical activities, substance use, sexual health, injuries and violence, home and family health, school achievement and participation, neighbourhood environment, spirituality, and access to healthcare	608 items UK time	Online	Aged 13–18	NR	NR	NR	NZ	Free to use – permission required
Youth Risk Behavior Surveillance System(YRBSS)[187] Health risk factors including: road-related safety, violence-related behaviour, bullying, suicidality, use of tobacco products, alcohol use, drug use, sexual behaviour, body image, diet, and physical activity	89 items 45 minutes	Paper	Aged 14–18	Evidence of validation in a US adolescent sample aged 14–18 in a school setting[230]	NR	NR	US	Free to use
Health Behaviour in School-Aged Children[190] Determinants of health: home and family life, school environment,	Items UK 45–70 minutes	Online or paper	Aged 11–16	Evidence of validation in a Canadian children	NR	NR	Global	Available upon request - licencing unclear

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
peer relationships (support, connectedness, communication), community participation and connectedness, physical activity and sedentary behaviour, sleep health, healthy eating, healthy weight, injury, mental health, spiritual health, substance use, sexual health, and bullying				and adolescent sample aged 11–16 in a school setting*				
Global School-Based Student Health Survey[191] Alcohol use, dietary behaviour, drug use, hygiene, mental health, physical activity, protective factors, sexual behaviours, tobacco use, violence and unintentional injury	58 items UK time	Paper	Aged 13–17	NR	NR	Country data available on WHO website**	Global	Available upon request
Individual Scales: Risk factors for poor social and emotional wellbeing								
Youth RADAR[88] Six risk/protective factors of mental health: family environment, academic competence, peer relationships, school connectedness, sporting interest and activity, and body satisfaction	30 items 10 minutes‡	Online	Aged 11–18	Evidence of validation in the current study	Lower scores - standard deviations used[88]	NR	Australia (NSW)	**Burns &Rapee (2016)**[88] Free to use – permission required

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
SAEBRS Student Report Scale (SAEBRS-SRS)[200] Screener for risk areas in social, academic, and emotional behaviours for students	20 items UK time	Online	Aged 12–14[200]	Evidence of validation in the current study	Behaviour < 37, academic behavioural < 10, emotional behaviour< 17, social behaviour< 13‡	NR	US	**von der Embse et al. (2017)**[200] Requires purchase
Behavior Assessment System for Children - Second Edition — Child Form (BASC-2)***[335] Behavioural and emotional strengths: adaptive/maladaptive behaviours, educational problems, and emotional problems	139 items 30 minutes	Paper	Intended ages: 2-22# Aged 11–14[195] Aged 13–18[197] Aged 6–12[194] Aged 14–18[193] Aged 14–18[198] Aged 8–11[192] Aged 11–18[103] Aged 9–15[199] Aged 13–18[196]	Evidence of validation in the current studies[103,192–199]	T scores: 61-70 elevated risk, ≥ 71 extremely elevated risk	NR[103,92–194,196] 12.54% elevated, 3.60% extremely elevated[195] 13.67% at-risk time 1, 11.7% at risk time 2[197] Sample 1: 10.2% elevated, 2.2%extremely elevated. Sample 2: 9.4% elevated, 3.4% extremely elevated. Sample 3: 13.2%	US[103,192–199]	**Chin et al. (2013)**[195] **Dever et al. (2015)**[197] **Dowdy et al. (2011)**[194] **Dowdy et al. (2016)**[193] **Harrell-Williams et al. (2015)**[198] **Kiperman et al. (2014)**[192] **Laurent et al. (2011)**[103]

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
						elevated, 3.3% extremely elevated[198] 18.9% elevated, 6.8% extremely elevated[199]		**Naser (2015)**[199] **You et al. (2014)**[196] Requires purchase
Universal Teacher and Student Report Screener[201] Risk indicators for negative social, emotional, and academic outcomes: inattention, problems with academic competence, social skill deficits, problems with peer relationships, internalizing problems, externalizing problems, bullying, and suicidal ideation	UK items 15 minutes	Online	Aged 5–18***	UK[#]	NR	NR	US	**Reinkeet al. (2017)**[201] Licensing unclear
Brief Multidimensional Students' Life Satisfaction Scale[336] Risk and protective factors for later life success: levels of life satisfaction globally and over five specific domains of family, friends, self, school, and living environment	6 items 1 minute	Paper	Aged 7–14[202]	Evidence of validation in the current study	Total score: low < 3.0, medium 3.0-4.2, high > 4.2	NR	US	**Greenwell (2012)**[202] Free to use

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Pittsburgh Sleep Quality Index (PSQI)[337] Sleep quality: latency, direction, efficiency, disturbances, and daytime dysfunction	9 items 5 minutes	Online or paper	Aged 10–11	Evidence of validation in a US adolescent sample aged 11–15 in a school setting	Global score > 4	80.10%	Australia (VIC)	**Blake et al. (2016)**[118] Free to use – permission required
Pediatric Daytime Sleepiness Scale[338] Daytime sleepiness	8 items† 3–4 minutes	Online	Intended ages: 11–15 Aged 12–14[94]	Evidence of validation in the current study	NR	NR	US	**Smith et al. (2014)**[94] Free to use – permission required
McKnight Risk Factor Survey[339] Risk and protective factors for the development of eating disorders	103 items^ UK time	Online or paper	Intended ages: 9–18 Aged 12–14[102]	Evidence of validation in a US children and adolescent sample aged 9–18 in a school setting[339]	Norms available	NR	Australia	**Wilksch et al. (2015)**[102] Free to use
The Avoidance and Fusion Questionnaire for Youth -Short Form[340] Psychological inflexibility: cognition fusion and experiential avoidance	8 items UK time	Paper	Intended ages: 8–50‡ Aged 12.5–17–75[87]	Evidence of validation in US adolescents sample aged 10–16 in a school setting[340]	NA‡	NA‡	Australia	**Livheim et al. (2015)**[87] Requires purchase

Name of measure Constructs measured	Item # Completion time	Mode of delivery	Sample	Validation	Clinical cut offs	Proportion identified as at-risk based on tool criteria	Jurisdiction	Study / URL Licensing
Penn Emotion Recognition-40 Test (Penn ER-40)[341] Recognition of emotional states	40 items UK time	Paper	Aged 10–13[135]	Evidence of validation in an Australian sample of university students in a community setting[342]	NR	NR	UK	**Roddy et al. (2012)**[135] Free to use – permission required
The Hinting Task[343] Theory of mind	10 vignettes UK time	Paper	Aged 10–13	Evidence of validation in a sample of adults in a UK clinical and community sample[343]	NR	NR	UK	**Roddy et al. (2012)**[135] Free to use – permission required

Key: UK = Information unknown - not reported in publications and could not be sourced externally (e.g. online, author contact). NR = information not reported in present study. ‡Information sourced via contacting authors directly (email).*Validation evidence in Appendix A of Health Behaviour in School-Aged Children report. **WHO country specific data can be found here. ***Teacher version also available. #Authors stated no validation evidence currently exists.†3 items used in the current study.^Current study used the weight related peer teasing subscale (8 items).

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Appendices

Appendix 1: Literature search process

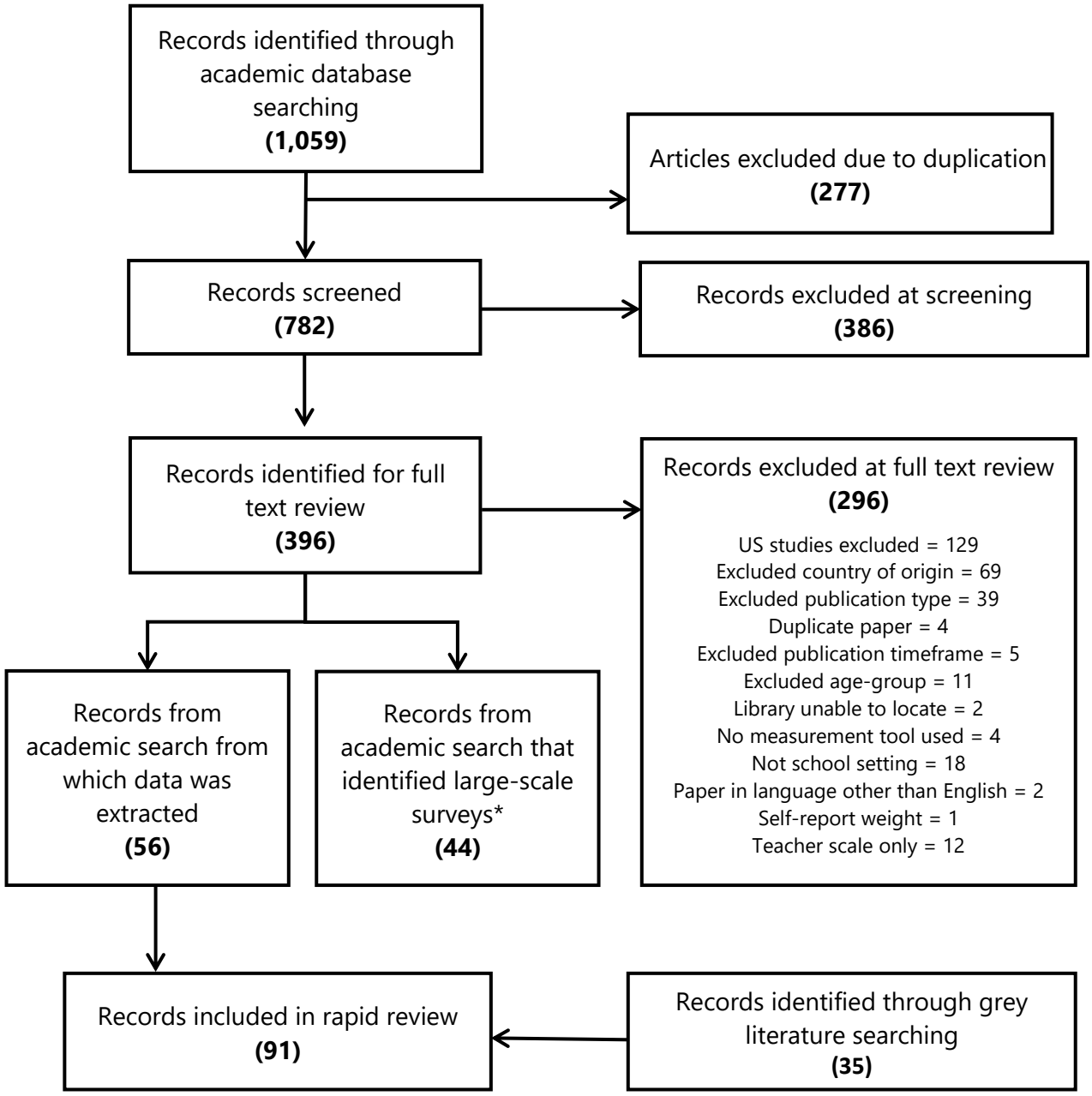

Figure 1. Flow diagram of rapid review search
*These records were retrieved from the systematic database search and informed the grey literature search. The records detailed multiple uses of data gathered from the same large-scale survey. The identified large-scale survey was therefore sought from the grey literature.

Appendix 2. Summary of included large-scale surveys

	Survey tool	Jurisdiction	Reference
1	ACT Year 6 Physical Activity and Nutrition Survey	AUS (ACT)	(ACT Health, 2018)
2	Attitudes to School Survey	AUS (VIC)	(Department of Education and Training, 2017)
3	Australian Covert Bullying Prevalence Study	AUS	(Cross et al., 2009)
4	Australian Secondary Students' Alcohol and Drug Survey	AUS	(White & Williams, 2016)
5	California Healthy Kids Survey	US	(Hansen, Pritchard, Melnic, & Zhang, 2016)
6	Canadian Student Tobacco, Alcohol and Drugs Survey	CAN	(University of Waterloo 2018)
7	Childhood Growth and Development Study	AUS (WA)	(Gibson et al., 2017)
8	Children's Lifestyle and School Performance Study (CLASS-II)	CAN	(Canadian Institutes of Health Research, 2018)
9	Early Childhood Longitudinal Study (ECLS-K)	US	(Institute of Education Sciences and the National Center for Education Statistics, 2018)
10	EAT 2010 student survey	US	(University of Minnesota, 2018)
11	FitnessGram	US	(Plowman & Meredith, 2013)
12	Global School-based Student Health Survey	Global	(World Health Organization, 2018)
13	Health Behaviour in School-Aged Children	Global	(HBSC, 2018)
14	Kentucky Incentives for Prevention (KIP) Survey	US	(Sanders et al., 2016)
15	Me and My School (UK)	UK	(Deighton et al., 2013)
16	Me and my school (NZ)	NZ	(New Zealand Centre for Education Research, 2018)
17	Middle Childhood Survey	AUS (NSW)	(Laurens et al., 2017)
18	Middle Years Development Instrument	CAN	(Schonert-Reichl et al., 2013)

	Survey tool	Jurisdiction	Reference
19	Minnesota student survey	US	(Minnesota Department of Education, 2018)
20	National School Opinion Survey - Student survey	AUS	(Australian Curriculum and Assessment Reporting Authority, 2018)
21	National Secondary Students' Diet and Activity survey (NaSSDA)	AUS	(Cancer Council Australia, 2018)
22	National Survey of Australian Secondary Students and Sexual Health.	AUS	(Mitchell et al., 2014)
23	NSW School Physical Activity and Nutrition Survey (SPANS)	AUS (NSW)	(Hardy et al., 2016)
24	NSW School Students Health Behaviours survey	AUS (NSW)	(NSW Government, 2018)
25	Ontario Student Drug Use and Health Survey	CAN	(Boak, Hamilton, & Adlaf, 2017)
26	Psychological flourishing scale	AUS	(Diener et al., 2010)
27	SHAPES Physical Activity Module	CAN	(Leatherdale et al., 2009)
28	Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS)	UK	(Scottish Government, 2017)
29	Social Emotional Health Survey (SEHS)	US	(Furlong et al., 2014)
30	Student Flourishing Profile	AUS	(Ditchburn et al., 2018)
31	Survey of Wellbeing and Student Engagement	AUS (SA)	(Government of South Australia, 2017)
32	Tell them from me - Student Survey	AUS (NSW)	(Willms, 2014)
33	Victorian Student Health and Wellbeing Survey, 'About You'	AUS (VIC)	(Department of Education and Training, 2015)
34	Youth'12 survey	NZ	(Clark et al., 2013)
35	Youth Risk Behavior Surveillance System (YRBSS)	US	(Kann et al., 2016)

Appendix 3. Summary of included peer reviewed studies

	Study Reference	Surveys	Jurisdiction
1	(Baksheev, Robinson, Cosgrave, Baker, & Yung, 2011)	General Health Questionnaire-12 (GHQ-12)	AUS
2	(Bailey-Davis et al., 2012)	BMI	US
3	(Black, Roberts, & Li-Leng, 2012)	Kutcher Adolescent Depression Scale-6 (KADS-6)	AUS (SA)
4	(Blake et al., 2016)	The Spence Children's Anxiety Scale (SCAS), The Center for Epidemiologic Studies - Depression Scale (CES-D), The Pittsburgh Sleep Quality Index (PSQI), Pediatric Daytime Sleepiness Scale (PDSS), Physical Activity	AUS (VIC)
5	(Brennan & McGilloway, 2012)	Reynolds Adolescents Adjustment Screening Inventory (RAASI), Suicide Ideation Questionnaire (SIQ)	UK
6	(Burns & Rapee, 2016)	Youth RADAR, Center for Epidemiological Studies Depression Scale for Children (CES-DC), Strengths and Difficulties Questionnaire (SDQ)	AUS
7	(Chen et al., 2016)	BMI	US
8	(Chin, Dowdy, & Quirk, 2013)	Behavioral and Emotional Screening System (BESS)	US
9	(Cooper et al., 2010)	Strengths and Difficulties Questionnaire (SDQ), Mood and Feelings Questionnaire-Child (MFQ-C)	UK
10	(Corder et al., 2015)	ActiHeart, BMI, Mood and Feelings Questionnaire,	UK
11	(Cottrell et al., 2013)	Physical activity, sedentary behaviour, Mood and Feelings Questionnaire (MFQ)	US
12	(Dever, Dowdy, Raines, & Carnazzo, 2015)	Behavior Assessment System for Children-2 (BASC-2) Behavioral and Emotional Screening System Student self-report form (BESS Student)	US
13	(Dewar et al., 2013)	BMI, Body fat, physical activity, Australian Child and Adolescent Eating Survey, Adolescent Sedentary Activity Questionnaire	AUS (NSW)

	Study Reference	Surveys	Jurisdiction
14	(Dowdy et al., 2011)	Behavior Assessment System for Children-2 (BASC-2) Behavioural and Emotional Screening System Student self-report form (BESS Student)	US
15	(Dowdy et al., 2016)	Behavior Assessment System for Children-2 (BASC-2)	US
16	(Duncan et al., 2014)	BMI, waist circumference, waist-to-height ratio, Arab Teens Lifestyle Study (ATLS) questionnaire	UK
17	(Gates, Hanning, Martin, Gates, & Tsuji, 2013)	Waterloo Web-based Eating Behavior Questionnaire (WEB-Q)	CAN
18	(Greenwell, 2013)	Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS)	US
19	(Haines et al., 2011)	Eating Attitudes Test (EAT-26)	US
20	(Haley, Puskar, & Terhorst, 2011)	Screen for Child Anxiety Related Emotional Disorders (SCARED)	US
21	(Hardy, O'Hara, Hector, Engelen, & Eades, 2014)	20-metre shuttle run, Adolescent Sedentary Activity Questionnaire, Adolescent Physical Activity Recall Questionnaire	AUS (NSW)
22	(Harrell-Williams, Raines, Kamphaus, & Dever, 2015)	Behavior Assessment System for Children-2 (BASC-2) Behavioral and Emotional Screening System Student self-report form (BESS Student)	US
23	(Kiperman, Black, McGill, Harrell-Williams, & Kamphaus, 2014)	Behavior Assessment System for Children-2 (BASC-2) Behavioral and Emotional Screening System Student self-report form (BESS Student)	US
24	(Laurent, Joiner, & Catanzaro, 2011)	Positive and Negative Affect Scale for Children (PANAS-C), Physiological Hyperarousal Scale for Children (PH-C), Children's Depression Inventory (CDI), Revised Children's Manifest Anxiety Scale (RCMAS)	US
25	(Lee, Guy, Dale, & Wolke, 2017)	Strengths and Difficulties Questionnaire (SDQ), Rosenberg's Self-Esteem Scale, BMI	UK
26	(Livheim et al., 2015)	Reynolds Adolescent Depression Scale-2 (RADS-2), Strengths and Difficulties Questionnaire (SDQ), Avoidance and Fusion Questionnaire for Youth - short form (AFQ-Y8)	AUS

	Study Reference	Surveys	Jurisdiction
27	(Lloyd, Wyatt, & Creanor, 2012)	Food Intake Questionnaire, Children's TV Viewing Habits Questionnaire, Physical Activity, Body Fat, BMI, Waist Circumference, Waist Girth	UK
28	(Lubans et al., 2012)	BMI, Body Fat, Australian Eating Survey, Adolescent Sedentary Activity Questionnaire (ASAQ), Physical Activity (Actigraph accelerometers)	AUS (NSW)
29	(Lubans et al., 2016)	BMI, Waist Circumference, Physical Activity (Actigraph accelerometers, 90-degree push-up test, Handgrip dynamometer), Adolescent Sedentary Activity Questionnaire (ASAQ), Motivation for school sport	AUS (NSW)
30	(Lucassen et al., 2011)	New Zealand Youth '07 survey, Reynolds Adolescent Depression Scale, Short Form (RADS-SF)	NZ
31	(Mandic, Bengoechea, Stevens, de la Barra, & Skidmore, 2012)	Youth Physical Activity Questionnaire, New Zealand Youth '07 Survey.	NZ
32	(Marks, Barnett, Strugnell, & Allender, 2015)	Physical Activity Questionnaire for Children (PAQ-C), Children's Leisure Activities Survey (CLASS), Adolescent Behaviours Attitudes and Knowledge Questionnaire (ABAKQ)	AUS (VIC)
33	(Martin, Thomas, Andrews, Hasking, & Scott, 2015)	Self-Harm Behaviour Questionnaire (SHBQ), General Health Questionnaire-12 (GHQ-12)	AUS
34	(McDermott, Duffy, Percy, Fitzgerald, & Cole, 2013)	Children's Revised Impact of Event Scale (CRIES-8), Birleson Depression Self-Rating Scale for Children (BDS), Spence Children's Anxiety Scale (SCAS)	UK
35	(McDermott & Cobham, 2012)	Family Assessment Device (Self-reported) (FAD), PTSD Reaction Index (PTSD-RI), Strengths and Difficulties Questionnaire (SDQ)	AUS
36	(Naser, 2015)	Behavior Assessment System for Children-2 (BASC-2) Behavioral and Emotional Screening System Student self-report form (BESS Student)	US
37	(O'Connor, Ferguson, Carney, House, & O'Connor, 2016)	Paediatric index of emotional distress (PI-ED)	UK
38	(Pallan, Adab, Sitch, & Aveyard, 2014)	BMI z-scores	UK
39	(Patalay, Deighton, Fonagy, Vostanis, & Wolpert, 2014)	Me and My School, Strengths and Difficulties Questionnaire (SDQ)	UK

	Study Reference	Surveys	Jurisdiction
40	(Paul et al., 2014)	BMI	US
41	(Peiper, Clayton, Wilson, & Illback, 2015)	K6, Kentucky Incentive for Prevention (KIP) Survey	US
42	(Poulsen, McDermott, Wallis, & Cobham, 2015)	UCLA Posttraumatic Stress Reaction Index (UCLA-RI), Spence Children's Anxiety Scale (SCAS), Children's Depression Inventory-Short version (CDI-S)	AUS
43	(Prochaska, Le, Baillargeon, & Temple, 2016)*	Center for Epidemiologic Studies Depression Scale (CES-D-10), Screen for Child Anxiety Related (SCARED), Primary Care PTSD Screen (PC-PTSD) Disorders	US
44	(Reinke et al., 2017)	Universal Teacher and Student Report Screener	US
45	(Robinson et al., 2010)	General Health Questionnaire — 12 (GHQ-12)	AUS
46	(Robinson et al., 2011)	Profile of Mood States	AUS
47	(Roddy et al., 2012)	Adolescent Psychotic-Like Symptom Screener (APSS), Penn Emotion Recognition-40 Test (Penn ER-40), The Hinting Task	UK
48	(Sinclair & Holden, 2013)	Paediatric Symptom Checklist for Youths (PSCY)	UK
49	(Smith, Morgan, Plotnikoff, Dally, Salmon, Okely, Finn, & Lubans, 2014)	BMI, Body Fat Percent, Waist Circumference, Physical Activity (Actigraph accelerometers), Adolescent Sedentary Activity Questionnaire	AUS (NSW)
50	(Smith et al., 2017)	Adolescent Sedentary Activity Questionnaire (ASAQ), Motivation to Limit Screen-time Questionnaire (MLSQ), Screen time use in the family home	AUS (NSW)
51	(Smith, Morgan, Plotnikoff, Dally, Salmon, Okely, Finn, Babic, et al., 2014)	Physical Self-Description Questionnaire (PSDQ), Psychological flourishing scale, Pathological video gaming scale, The aggression scale, Pediatric Daytime Sleepiness Scale, Physical activity behavioural strategies	AUS (NSW)
52	(Trinh, Wong, & Faulkner, 2015)	General Health Questionnaire-12 (GHQ-12), Rosenberg Self-Esteem Scale, Center for Epidemiologic Studies Depression (CES-D)	CAN

	Study Reference	Surveys	Jurisdiction
53	(von der Embse, Iaccarino, Mankin, Kilgus, & Magen, 2017)	SAEBRS Student Report Scale (SAEBRS-SRS)	US
54	(Wilksch et al., 2015)	Eating Disorder Examination - Questionnaire (EDE-Q), Child Depression Inventory — Short Form, Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3), McKnight Risk Factor Survey, Multidimensional Perfectionism Scale, Project EAT, GUTS — Screen Time and Physical Activity	AUS
55	(Winther, Carlsson, & Vance, 2014)	The Strength and Difficulties Questionnaire (SDQ)	AUS
56	(You et al., 2014)	Social Emotional Health Survey (SEHS), Behavioral and Emotional Screening System Student Form (BESS)	US

Appendix 4. WHO versus IOTF cut-offs for overweight and obesity for boys aged 5 to 19 years

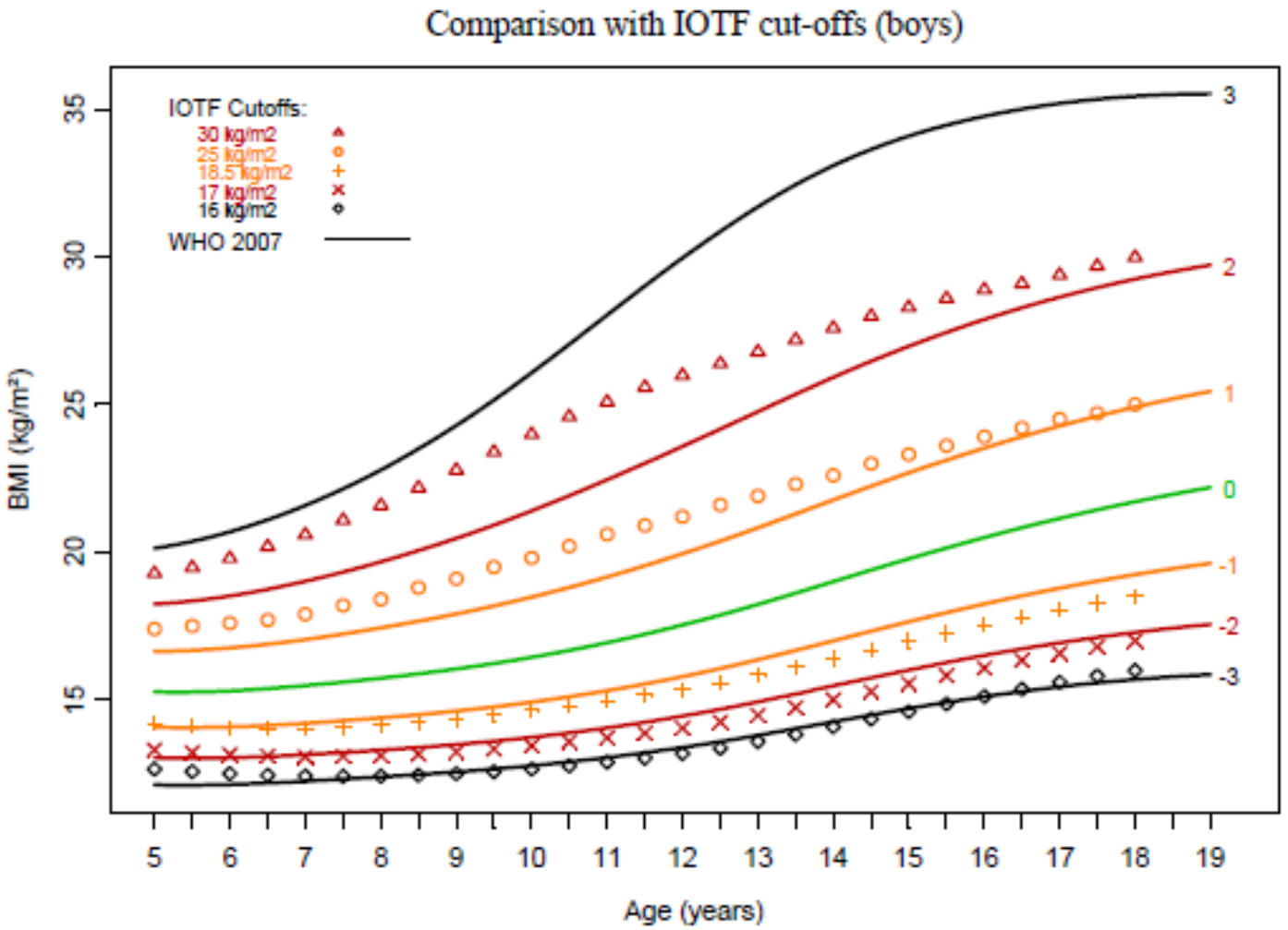

Figure taken from The World Health Organisation: WHO Growth Reference Data for 5–19 Years http://www.who.int/growthref/who2007_bmi_for_age/en/[345]

Appendix 5. WHO versus CDC cut-offs for overweight and obesity for boys aged 5 to 19 years

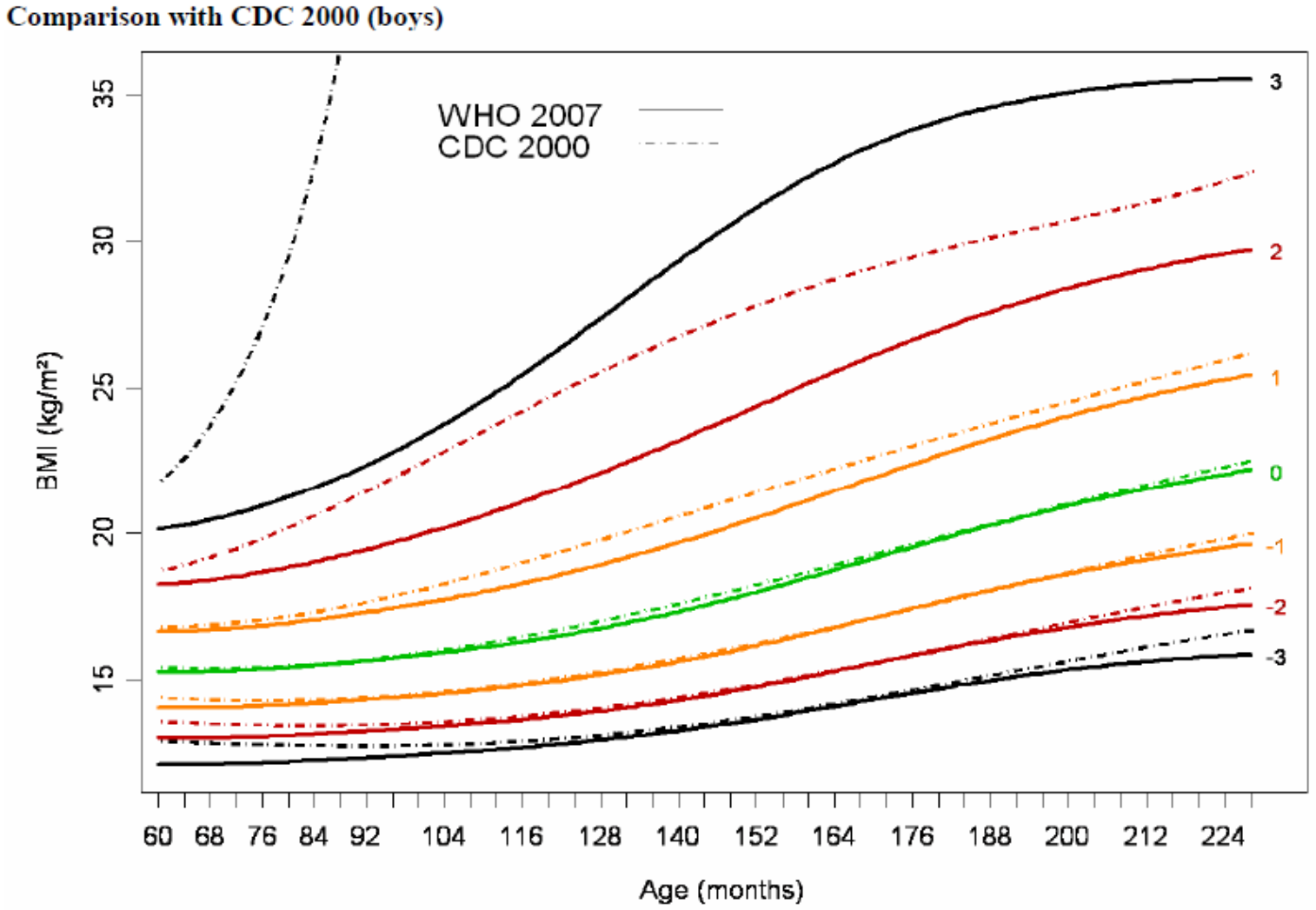

Figure taken from The World Health Organisation: WHO Growth Reference Data for 5-19 Years http://www.who.int/growthref/who2007_bmi_for_age/en/[345]

Appendix 6: Resources for professional development for teachers

Body Sensitivity Training Protocol

Gibbs et al., (2008) developed a Body Sensitivity Training Protocol for teachers that was funded by the Victorian State Government as part of the *"Go for your life"* Campaign. The training was developed for teachers in the context of a school-based child health promotion and obesity prevention study. The training protocol was based on the evidence-based hypothesis that there is a potential for teachers' own negative weight and body image attitudes, beliefs, and behaviours to be modelled and therefore transferred to students. The content of the program involved interactive tasks and group discussions exploring: (a) the research showing the extent of body image concerns in children and how this impacts physical activity, eating behaviours and mental health; (b) self-exploration of one's own negative stereotypes of people experiencing overweight or obesity; (c) examining media language and images that contribute to body dissatisfaction; (d) acceptable and unacceptable social expectation of people experiencing overweight or obesity; (e) evidence-based approaches to overweight and obesity that are health promoting and positive and do not target children experiencing overweight or obesity, and; (f) having one's own height and weight recorded and reported to provide insight into what the children involved in the screening process may experience.[274]

Rudd Center

The Rudd Center's Weight Bias and Stigma online training modules found at http://www.uconnruddcenter.org/weight-bias-stigma;

Obesity Action Coalition

The Obesity Action Coalition's resources on People-first language at http://www.obesityaction.org/weight-bias-and-stigma/people-first-language-for-obesity;

Better Health Company

The Better Health Company's "*Talking with Parents about Children's Weight*" online professional development program was developed for the Western Australian Department of Health and has a separate stream for teachers (cost involved). It can be found at http://www.talkingaboutweight.org/.

"Food for Thought"

"Food For Thought" is a training program (developed by Headspace and funded by the Victorian Government) for teachers that is designed to increase knowledge of, and ability to recognise and act in relation to body image concerns and disordered eating. See http://www.foodforthought.org.au/
Victorian Centre of Excellence in Eating Disorders & the Eating Disorders Foundation of Victoria

The Victorian Centre of Excellence in Eating Disorders and the Eating Disorders Foundation of Victoria

These organisations have published "*An Eating Disorders Resource for Schools*" that contains a school audit checklist to enable the creation of a positive school environment for the prevention of eating disorders (p. 66). This may be helpful to inform training concerning issues relating to weight and body image that may arise. https://www.kidsmatter.edu.au/sites/default/files/public/EatingDisorderResourceSchools.pdf