### Anxiety Instruments Summary Table: For more information on individual instruments see below.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Anxiety Specific Instrument</th>
<th>Age Range</th>
<th>Assesses total anxiety and different anxiety subtypes</th>
<th>Both a parent and a child version</th>
<th>Applicable for both young children and adolescents</th>
<th>Widely used and validated in general population/other conditions</th>
<th>Used in ASD research</th>
<th>Used in Intervention Research</th>
<th>Norm referenced (has cut-off scores)</th>
<th>Not time consuming</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADIS</td>
<td>✓</td>
<td>6-17 years</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>Spence</td>
<td>✓</td>
<td>2.5-17 years</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>SCARED</td>
<td>✓</td>
<td>8+ years</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ECI-4</td>
<td>x</td>
<td>3-5 years</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>MASC</td>
<td>✓</td>
<td>4-19 years</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>DISC</td>
<td>x</td>
<td>6-17 years</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>CBCL</td>
<td>x</td>
<td>1.5-18 years</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>DASH-II</td>
<td>X</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ASD-CC</td>
<td>X</td>
<td>3-16 years</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>BISCUIT</td>
<td>X</td>
<td>17-37 months</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>BASC-2</td>
<td>X</td>
<td>3-21 years</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Descriptions of Individual Scales/Instruments

Anxiety Disorders Interview Schedule for DSM-IV–Child and Parent Versions

(ADIS; Silverman & Albano, 1996)

**Instrument format:** ADIS is a semi-structured interview. There is both a parent and a child version.

**Age range:** it was designed for children and adolescents aged 6–17 years.

**Description of the instrument:** When administering the child and parent interviews, DSM-IV anxiety symptoms are judged by the child and parent as either present (“yes”) or absent (“no”). The only difference between the two versions is that the parent version includes questions related to externalising disorders, and the child version uses the child-appropriate language and picture prompts for clarity. The assessment relies on diagnostic criteria provided by the current version of the DSM. In addition to screening for anxiety disorders, ADIS also screens for other psychological conditions common in childhood. The interview is quite lengthy, taking between 60 and 90 minutes to administer.

**Use in research/clinical practice:** This instrument has been widely used in the general and various clinical populations (Silverman, Saavedra, & Pina, 2001; Wood, Piacentini, Bergman, McCracken, Barrios, 2002; Lyneham, Abbott, & Rapee, 2007) and in 6 studies examining anxiety in ASD so far (Chalfant et al., 2007; Drahota et al., 20011; Sze & Wood, 2007; 2008; White et al., 2009; Wood et al., 2009). All of these studies used ADIS as an outcome measure for cognitive behavioural therapy (CBT).

The Spence Anxiety Scales (Spence, 1997; 1998)

**Instrument format:** Spence Scales are questionnaire measures. There is both a parent and a child version as well as a teacher form.

**Age Range:** There is a pre-school and a school/adolescent version.
**Description of the instrument:** The Spence Preschool Anxiety Scale provides an overall measure of anxiety and also assesses specific aspects of child anxiety, namely:

- generalised anxiety,
- social anxiety,
- obsessive compulsive disorder,
- physical injury fears and
- separation anxiety.

The scale consists of 28 scored anxiety items (Items 1 to 28) and one open-ended, non-scored item relating to the child's experience of a traumatic event. Parents are asked to report on the frequency of which an item is true for their child. Each item is rated on a 5-point scale from 0 'not at all true' to 5 'very often true'. The Spence Children's Anxiety Scale was developed to assess the severity of anxiety symptoms broadly in line with the dimensions of anxiety disorder proposed by the DSM-IV. It assesses six domains of anxiety including:

- generalised anxiety,
- panic/agoraphobia,
- social phobia,
- separation anxiety,
- obsessive compulsive disorder
- physical injury fears.

This measure consists of 44 items, 38 of which reflect specific symptoms of anxiety and 6 relate to positive, filler items to reduce negative response bias. Each item is rated on a 4-point frequency scale.

**Use in research/clinical practice:** SCAS scales have been used in 5 studies examining anxiety in ASD population (Chalfant et al., 2007; Gillott, Furniss & Walter, 2001; Greenway & Howlin, 2010; Russell & Sofronoff, 2005; Murris et al., 1998). SCAS was used for both determining the prevalence of anxiety disorders in an ASD population as well as outcome measure for CBT. Psychometric properties in an ASD population have not been evaluated.
Screening for Childhood Anxiety and Related Emotional Disorders (SCARED; Birmharer et al., 1997; 1999)

**Instrument format:** SCARED is a questionnaire measure. There is both a parent and a child version.

**Age Range:** It is appropriate for children aged 8 or older.

**Description of the instrument:** SCARED consists of 41 items that are answered by parents and children and takes approximately 15 minutes to complete. The statements relate to the common children's anxieties and are rated on a three-point Likert scale with a rating of "0" indicating the description is not true or seldom true, a "1" indicating the description might be true, and a "2" indicating that the description is true or often true. It gives a total score as well as domain scores in the areas of:
- somatic anxiety/panic,
- generalised anxiety,
- separation anxiety and social phobia.

**Use in research/clinical practice:** It has been used extensively with a neuro-typical population (Hale et al., 2005).

*Early Child Inventory-4 (ECI-4; Gadow & Sprafkin, 1997)*

**Instrument format:** ECI-4 is a questionnaire measure.

**Age Range:** it is appropriate for children aged 3-5 years.

**Description of the instrument:** it is a 108 item DSM-IV-referenced rating scale that assesses psychiatric symptoms; it has both a parent and a teacher version. Inventory items are rated as “never,” “sometimes,” “often,” or “very often” and provide both a categorical symptom count and symptom severity score. Specific symptoms assessed by the ECI-4 include:
- Attention Deficit Hyperactive Disorder,
- Oppositional Defiance Disorder,
- Conduct Disorder,
- Major Depressive Disorder,
- Dysthymic Disorder,
- PDD Symptoms,

Copyright ©Cardiff University 2013
sleep problems,
feeding problems,
reactive attachment disorder
tics.

The following anxiety disorders are assessed:
Generalized Anxiety Disorder,
Separation Anxiety Disorder,
Social Phobia,
Post-traumatic Stress Disorder,
Simple Phobia,
OCD.

**Use in research/clinical practice:** It has been used extensively and the internal consistency, test-retest reliability, and *convergent/divergent validity* with other scales are satisfactory (Gadow, Sprafkin, & Nolan, 2001; Sprafkin, Volpe, Gadow, Nolan, & Kelly, 2002).

---

**Multi-dimensional Anxiety Scale for Children (MASC; March, 1999)**

**Instrument format:** MASC is a questionnaire measure. There is both a parent and a child version.

**Age Range:** it is appropriate for children aged 4-19 years.

**Description of the instrument:** It was designed to provide a reliable and valid assessment of anxiety symptoms across multiple dimensions. It has both a parent and a child version. MASC provides the total anxiety score and also the scores for the following factors: somatic/panic,
general anxiety,
separation anxiety,
social phobia, and
school phobia.
Use in research/clinical practice: It has been used extensively in a typical population. Cronbach’s alpha for four subscales ranged from .74 to .85 (March et al., 1997). It has been shown to have a good inter-rater reliability (.88) and test-retest reliability (.93).

Wood et al. (2002) examined the MASC’s convergent validity with the Anxiety Disorders Interview Schedule: Child and Parent Versions (ADIS: Silverman & Albano, 1996) which is considered the gold-standard assessment tool for establishing the diagnosis of anxiety (Christener et al., 2007). It was found that MASC accurately predicted the elevated levels of social phobia, separation anxiety disorder, and panic disorder with the ADIS. MASC has been used in 6 studies examining anxiety in ASD (Bellini, 2004; 2006; Sze & Wood, 2008; White & Roberson-Nay, 2009; White et al., 2009; Wood et al., 2009). It has been used for examining the prevalence and structure of anxiety in an ASD population. Psychometric properties in an ASD population have not been evaluated.

*Diagnostic Interview Schedule for Children (DISC; National Institute of Mental Health, 1992; Ferdinand & Van der Ende, 1998)*

**Instrument format:** DISC is a highly-structured respondent based interview. There is both a parent and a child version.

**Age Range:** the parent version is appropriate for children aged 6-17 years, the child version is appropriate for children aged 11-17 years.

**Description of the instrument:** DISC was created to assess DSM-IV Axis I psychiatric disorders in the past year, in children and adolescents. It has a parent version (DISC-P) for parents of children aged 6–17, and a child version (DISC-C) to be administered to children aged 11–17. In this study, the DISC-IV-P was used to assess:

- anxiety disorders,
- mood disorders,
- schizophrenia and
- disruptive behaviour disorders.

DISC diagnoses are solely based on parent reports about the presence or absence of symptoms. Clinical observations of the interviewer are not used. The Anxiety Disorders section consists of 154 items and covers:
. simple phobia,
. social phobia,
. agoraphobia,
. panic disorder,
. separation anxiety disorder,
. avoidant disorder of childhood or adolescence,
. overanxious disorder and
. obsessive-compulsive disorder

Use in research/clinical practice: It has been used extensively in both research and practice. It possesses adequate test-retest reliability (Schwab-Stone et al., 1993), sufficient inter-rater reliability (Shaffer et al., 1993), and acceptable validity (Piacentini et al., 1993).

*The Child Behaviour Checklist (CBCL; Achenbach & Rescorla, 2001)*

**Instrument format:** CBCL is a checklist. There are parent, child and teacher versions.

**Age Range:** it is appropriate for children aged 18 months–18 years. It has two versions, for children 18 months to 5 years; and 6–18 years of age.

**Description of the instrument:** The CBCL consists of 118 questions. The behavioural symptoms are divided into:
(a) Problem Subscales (Internalizing, Externalizing, and Total Problems),
(b) Syndrome Subscales (Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule-Breaking Behaviour, Aggressive Behaviour) and
(c) DSM-Oriented Subscales (Affective Problems, Anxiety Problems, Somatic Problems, Attention Deficit/Hyperactivity Problems, Oppositional Defiant Problems, and Conduct Problem).

The *CBCL* includes two different subscales that address anxiety: the Anxiety/Depressed Syndrome Subscale and the Anxiety Problems DSM-Oriented Subscale.
Pandolfi, Magyar, & Dill, 2009 reported the following Crobach’s alphas for the CBCL subscales in the 18 months - 5-year-old typically developing and ASD samples:

Emotionally Reactive = .73 (.67 for ASD) Anxious/Depressed = .66 (.63 for ASD)

Somatic Complaints = .80 (.49 for ASD)

Withdrawn = .75 (.73 for ASD)

Sleep Problems = .78 (.83 for ASD)

Attention Problems = .68 for both typical and ASD samples

Aggressive Behaviors = .92 (.89 for ASD)

Internalizing = .89 (.80 for ASD), and Externalizing = .92 (.90 for ASD).

**Use in research/clinical practice:** CBCL has been used in 5 studies examining anxiety in ASD (Hartley & Sikora, 2009; Juranek et al., 205; Kusikko et al., 2008; Sze & Wood, 2008, White & Roberson-Nay, 2009). These articles had broader scope than assessing anxiety alone.
Diagnostic Assessment for the Severely Handicapped-II (DASH-II; Matson, 1995)

**Instrument format:** It is a questionnaire that can be completed by parents or other caregivers.

**Description of the instrument:** DASH-II is a 84 item assessment instrument designed for the purpose of assessing psychopathology in children with severe and profound intellectual disability. It has the following 13 subscales for identifying psychiatric disorders:

- impulse control (17 items),
- organic problems (9 items),
- anxiety (8 items),
- mood disorders (15 items),
- mania (7 items),
- pervasive developmental disorders/autism (6 items),
- schizophrenia (7 items),
- stereotypies (7 items),
- self-injurious behaviour (5 items),
- elimination disorders (2 items),
- eating disorders (6 items)
- sleep disorders (5 items) and
- sexual disorders (3 items).

Each of the subscales is scored on three dimensions:

- frequency within the last two weeks (zero, 1-10, or over 10 occurrences),
- duration of problematic behaviour (less one 1 month, 1-12 months, or over 12 months) and
- severity within the last two weeks (cause no disruptions or damage, cause no damage but at least one disruption to other people, or caused injury or property damage at least once).
Use in research/clinical practice: Research has shown that DASH-II has a good inter-rater reliability (r = 0.86) and test-retest reliability (r = 0.84) (Matson, 1995). It gives an overall anxiety score and not scores for the separate anxiety subtypes.

*Autism Co-morbidity Interview–Present and Lifetime Version*  
*(ACI-PL; Leyfer et al., 2006)*

Instrument format: ACI-PL is a structured psychiatric parent interview.

**Age Range:** it is appropriate for children aged 5-17 years.

**Description of the instrument:** ACI-PL examines the presentation of various disorders in children with ASD. It was developed from the Kiddie Schedule for Affective Disorders and Schizophrenia (K-SADS; Ambrosini, 2000). ACI-PL assesses the presence of:

. depression,
. psychotic disorders,
. ADHD,
. disruptive disorders,
. oppositional adjustment disorders

and the following types of anxiety:
. panic disorders,
. separation anxiety,
. social phobia,
. specific phobia,
. generalized anxiety and
. OCD.
Use in research/clinical practice: Research has shown that ACI-PL has a good inter-rater agreement for obsessive-compulsive disorder (OCD) and ADHD (both had kappa = .70) as well as for major depressive disorders (.80). The criterion validity was investigated with ADHD and major depression diagnoses and for both disorders, sensitivity was 100% and specificity was 93%. Anxiety was not evaluated for either construct (Leyfer et al., 2006). Concurrent validity was established by comparing the OCD diagnosis on the ACI-PL (Leyfer et al., 2006) with questions related to compulsions on the ADI-R and a Spearman's correlation between the two subscales indicated a degree of correspondence (rho = .57).

ACI-PL has been used by three studies in ASD (Leyfer et al., 2006; Mazefsky et al., 2011; Mazefsky et al., 2012) that looked at anxiety prevalence. Psychometric properties in the ASD population have not been evaluated.

**Autism Spectrum Disorders–Comorbid for Children (ASD-CC; Matson & Gonzalez, 2007)**

**Instrument format:** ASD-CC is a questionnaire measure.

**Age Range:** it is intended for children 3–16 years of age.

**Description of the instrument:** it was designed to evaluate symptoms of:
- co-morbid psychological disorders, particularly eating problems,
- ADHD,
- conduct disorder,
- tic disorder,
- OCD,
- and specific phobia (Matson et al., 2009).

It can be completed by either a parent or a child. There are 49 items on a 3-point Likert scale (0 = not different or no impairment, 1 = somewhat different or mild impairment, 2 = very different or severe impairment). (Time it takes to administer?)

**Use in research/clinical practice:** Matson & Wilkins (2008) conducted a factor model—a factor—and identified the following seven factors:
Tantrum Behaviour,
Repetitive Behaviour,
Worry/Depressed,
Avoidant Behaviour,
Under-Eating,
Conduct,
Over-Eating.

Matson & Wilkins (2008) also reported that ASD-CC had good internal consistency (.91), acceptable test-retest reliability (.51), and inter-rater reliability (.46). The factor model of ASD-CC and resulting subscales include only worry, which makes it less useful for assessing anxiety in ASD population. ASD-CC was used by four studies (Davis et al., 2011; Davis et al., 2012; Hess et al., 2010; Worley & Matson, 2011) that looked at levels of anxiety in ASD when compared to TD and non-ASD populations.

**Baby and Infant Scale for Children with Autistic Traits (BISCUIT; Matson, Boisjoli, & Wilkins, 2007)**

**Instrument format:** BISCUIT is a questionnaire measure.

**Age Range:** it is appropriate for very young children between 17 and 37 months of age.

**Description of the instrument:** BISCUIT was designed to screen for socio-emotional problems. It is divided into three sections:

Part 1 and Part 3 evaluate the symptoms of ASDs and externalizing symptoms respectively. Part 2 assesses co-morbid psychopathology.

Part 2 consists of 57 items that are rated on a 3-point scale (0 = not a problem or impairment/not at all, 1 = mild problem or impairment, 2 = severe problem or impairment).

The factor analysis conducted by Matson et al. (2009) indicated a 5 factor structure of the instrument consisting of:

Tantrum/Conduct Problems,
Inattention/Impulsivity,
Avoidance Behaviour,
Anxiety/Repetitive Behaviour and
Eating Problems/Sleeping.

Use in research/clinical practice: Matson et al. (2009) reported that Part 2 of the overall measure had an internal consistency coefficient of .96. Subscale alphas ranged from .92 for Tantrum/Conduct to .67 for Avoidance Behaviour. Cronach’s alpha for Anxiety/Repetitive Behaviour subscale was .81. Biscuit was used by 4 studies (Davis et al., 2010, Davis et al., 2011; Fodstad et al., 2010, Matson et al., 2010) that examined anxiety prevalence in ASD population.

Behavioural Assessment System for Children-2 (BASC-2; Reynolds & Kamphaus, 2004)

Instrument format: BASC-2 is a questionnaire measure. There are child, parent and teacher versions.

Age Range: it is appropriate for children and young people between 2 and 21 years.

Description of the instrument: BASC-2 includes norms and cognitive profiles for both children with ASDs and other disorders. There are three parent-rating forms that are age dependant:

for pre-schoolers (ages 2–5 years, inclusive), children (ages 6–11 years, inclusive) and adolescents (ages 12–21 years, inclusive)

Informants use a 4-point Likert scale (1 = never to 4 = always) to rate a host of 16 dimensions including:

Attention Problems
Aggression,
Anxiety
Conduct Problems,
Hyperactivity,
Depression,
Somatisation,
Withdrawal
Learning Problems,
Atypicality,
Adaptability,
Activities of Daily Living,
Functional Communication,
Leadership,
Social Skills,
Study Skills.

Both the Anxiety and Somatization subscales are related to anxiety constructs; the Anxiety subscale assesses emotional symptoms of fear, while the Somatization subscale taps into physiological features such as shortness of breath or nausea. There is also a child self-report version of this instrument that can be administered either in an interview form (with true/false responses) or in questionnaire format (with the same response options as in the caregiver version). There is also a teacher-report form.

**Use in research/clinical practice:** Achenbach et al. (2004) reported that BASC-2 had a high internal consistency (.85–.95) and a high inter-rater reliability (.70–.88) across subscales. Cronbach’s alpha was .84 for the Anxiety subscale, .85 for the Somatization subscale. BASC-2 was used by 5 studies (Bellini, 2004; Burnette et al., 2005; Lopata et al., 2010; Meyer et al., 2006; Solomon et al., 2008) that mainly compared levels of anxiety in ASD to levels of anxiety in other population.