

The following pages provide details re BCFPI's psychometric qualities, as developed in early 2000. This was updated in a field trial involving ~ 60,000 intake interviews conducted in ~ 140 Ontario agencies, published in JCP&P in 2009. The 2009 abstracts are at <http://tinyurl.com/deajoy> and <http://tinyurl.com/dmehdt>

The material on these pages is from chapters 9 – 11 of the interviewer's manual, available on the web version under 'Support'

Chapter 9: Evaluating the BCFPI: Parent Interview

Item Selection

The questions employed in the BCFPI were selected from the Revised Survey Diagnostic Instruments developed in the context of the Ontario Child Health Study (Boyle et al., 1993a, 1993b). It was our opinion that the Revised Ontario Child Health Study (OCHS-R) provided the best available measurement tools and normative data for children in the Province of Ontario.

Our goal in developing the BCFPI was to compose a standardized interview tool that could be administered in approximately 30 minutes. To develop a brief interview, we narrowed the broad array of questions available in the Revised Ontario Child Health Study Scales to items that would be most useful for clinical screening, triaging, preliminary service planning, priority setting, and the description of the children seeking services. Next, we developed abbreviated versions of the longer scales used in the OCHS-R by selecting a smaller number of questions which provided the best measurement of each construct.

While rarer problems are of importance clinically, it is difficult to screen reliably for low prevalence disorders. The Ontario Child Health Study focused on the most prevalent clusters of childhood problems. While version 1 and 2 of the BCFPI are restricted to clusters of problems included in the Revised Ontario Child Health Study Scales, future versions will include additional scales which are important to service providers.

In considering potential questions for inclusion, we began with items that measured constructs of interest (e.g. anxiety management). Items that were rarely endorsed or applicable only to restricted age ranges were discarded (Streiner & Norman, 1995). For items describing clusters of child behaviour problems, we selected questions that mapped onto current descriptions of childhood problems as reflected in the DSM-IV. The BCFPI's final question sets were derived via factor and reliability analyses (Streiner & Norman, 1995).

Factor Analyses

The BCFPI Mental Health subscales described in Chapter 3 were derived via principal components factor analyses with varimax rotations (Tabachnick & Fidell,

1996) on a community sample of 1751 children from the Revised Ontario Child Health Study (OCHS-R) (Boyle, et al., 1993a,b). For the BCFPI child behaviour questions, factor analysis yielded 7 interpretable factors with eigenvalues greater than 1 in the population sample (Tabachnick & Fidell, 1996).

The BCFPI's basic factor structure was replicated in a consecutively referred clinic sample of 1896 children from the OCHS-R measurement study. In the clinic sample, 6 interpretable factors with eigenvalues greater than 1 were extracted. Note that, while the population sample yielded two Conduct factors (overt and surreptitious antisocial behaviour), the clinic sample yielded a single Conduct factor. To increase measurement reliability, a single 6 item Conduct factor was included in the BCFPI.

The BCFPI factor structure derived from the OCHS-R population and mental health clinic samples was replicated in a large field trial involving 10, 916 6 to 18 year old children referred to 74 children's mental health service providers in the Province of Ontario.

Table 1 illustrates the age distributions for the population, clinic and BCFPI field trial samples.

**Table 1
BCFPI Age Distributions**

<i>Age distribution</i>	<i>population</i>		<i>clinic</i>		<i>BCFPI field trial</i>	
	Sample n	%	Sample n	%	Sample n	%
6-12	1021	59.9	892	57.2	7371	67.5
13-18	684	40.1	668	42.8	3545	32.5

Tables 2 through 9 show the factor loadings for BCFPI Mental Health subscales in the OCHS-R measurement study's population and clinic samples. Factor loadings are listed in descending order for the population sample on which the BCFPI's subscales were based.

Factor loadings show the strength of the relationship between an individual item and the factor. Factor loadings might be thought of as a correlation between an individual item and the overall factor score. Items with higher factor scores provide a purer estimate of the construct thought to be measured by that factor (Tabachnick & Fidell, 1996). It has been suggested that questions with factor loadings above .71 provide an "excellent" measure of a construct. Those with factor loadings of .63 to .71 are "very good". Factor loadings from .55 to .62 are "good". Factor loadings from .45 to .54 are "fair" and those from .32 to .44 are "poor" (Tabachnick & Fidell, 1996). Note that most of the BCFPI's items show stronger factor loadings in the clinic sample, where items are more frequently endorsed and the range of scores is greater.

In allocating individual questions to the BCFPI's subscales, we required that: (1) factor loadings exceed .35 (Tabachnick & Fidell, 1996), (2) questions load higher on that scale than other scales, and (3) that questions be consistent with the structure of problems described in the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM-IV). Items with loadings of greater than .35 on more than one scale are noted below.

Regulating Attention, Impulsivity and Activity Level

Table 2 below presents the factor structure of the BCFPI's Regulating Attention, Impulsivity, and Activity Level subscale. All items show good to excellent factor loadings in both the population and clinic sample. The question "*distractible, has trouble sticking to an activity*" shows the strongest relationship to the general factor which we have named Regulation of Attention, Impulsivity, and Activity Level.

Note that one question, "*Impulsive, acts without stopping to think*", a central construct in current models of attention deficit hyperactivity disorder (Barkley, 1997), also shows a lower but significant loading on the BCFPI's Cooperativeness scale for population (.369), clinic (.361), and BCFPI field trial samples (.400).

Table 2
BCFPI Parent Report Factor Structure:
Regulating Attention, Impulsivity, and Activity Level

Regulating Attention, Impulsivity and Activity Level	Factor Loading		
	Population	Clinic	BCFPI Field Trial
BCFPI Question			
Distractible, has trouble sticking to an activity	.758	.804	.795
Jumps from one activity to another	.717	.783	.738
Has difficulty following directions or instructions	.675	.708	.687
Fidgets	.648	.672	.652
Fails to finish things he/she starts	.620	.634	.724
Impulsive, acts without stopping to think	.606	.557	.590

Cooperativeness

Table 3 shows factor loadings for the BCFPI's Cooperativeness subscale. In the population sample, 4 of 6 questions show a very good to excellent loading while 2 evidence a fair loading. All questions show very good to excellent factor loadings for the clinic and field trial samples.

One question which shows a fair relationship to the Cooperativeness factor in the population sample ("*Blames others for own mistakes*") shows a lower but significant cross loading on the BCFPI's Regulation of Attention, Impulsivity, and Activity Level subscale for the population (.457) but not clinic or BCFPI field trial samples. Note

that this item corresponds closely to the diagnostic criteria for Oppositional Defiant Disorder in the DSM-IV.

Table 3
BCFPI Parent Report Factor Structure: Cooperativeness

Cooperativeness	Factor Loading		
BCFPI Question	Population	Clinic	BCFPI Field Trial
Argues a lot with adults	.745	.749	.782
Defiant, talks back to adults	.734	.783	.774
Angry and resentful	.625	.685	.688
Cranky	.615	.639	.653
Easily annoyed by others	.508	.626	.653
Blames others for own mistakes	.474	.644	.594

Conduct

Table 4 shows factor loadings for the BCFPI's Conduct subscale. Note that factor loadings are higher in clinic and field trial samples where these items are endorsed more frequently.

Factor analyses in the population sample and BCFPI field trial samples suggest that the Conduct subscale is composed of two factors: overt antisocial behaviour (*physically attacks people and uses weapons when fighting*) and surreptitious antisocial behaviour (*engages in vandalism and broken into a house, building or car*). A single Conduct factor emerges in the clinic sample. In the BCFPI field trial, the factor loading on the surreptitious antisocial behaviour scale is .803 for *broken into a house, building or car*, .541 for *steals things at home*, and .521 for *engages in vandalism*. One question in the clinic sample, *physically attacks people*, shows a cross loading on the BCFPI Cooperativeness subscale, (.485).

Table 4
BCFPI Parent Report Factor Structure: Conduct

Conduct	Factor Loading		
BCFPI Question	Population	Clinic	BCFPI Field Trial
Uses weapons when fighting	.704	.602	.788
Physically attacks people	.648	.476	.723
Destroys things belonging to others	.389	.535	.612
Steals things at home	.364	.583	.242*
Engages in vandalism	.207*	.783	.469
Broken into a house building or car	.084*	.631	-.055--*

* *These questions represent a second factor, surreptitious behavior.*

The Table below shows the factor structure of the BCFPI Conduct subscale in BCFPI field trials. This analysis yields two factors: Overt Antisocial Behaviour and Surreptitious Antisocial Behavior. Overt antisocial behaviour includes destroying things, attacking people, and using weapons. Surreptitious Antisocial Behaviour includes stealing things at home, vandalism, and breaking into houses or cars. The factor structure of this scale corresponds closely to the DSM-IV Conduct Disorder sub clusters, which include Aggression to People and Animals, Destruction of Property, Deceitfulness or Theft, and other Serious Rule Violations such as truancy. Interestingly, Vandalism loads on both factors.

Table 5
BCFPI Parent Report Factor Structure: Conduct-Field Trials

Conduct	Factor Loading BCFPI Field Trial	
BCFPI Question	Overt Antisocial Behaviour	Surreptitious Antisocial Behaviour
Uses weapons when fighting	.788	-.006
Physically attacks people	.723	-.001
Destroys things belonging to others	.612	.282
Broken into a house building or car	-.055	.803
Steals things at home	.242	.541
Engages in vandalism	.469	.521

Separation From Parents

Table 6 shows factor loadings for the BCFPI's Separation from Parents subscale. In the population sample, 4 of 6 items evidence very good to excellent factor loadings. Two items evidence fair factor loadings. In the clinic sample, all items evidence good to excellent factor loadings. In the BCFPI field trial, 5 of 6 items show good to excellent loadings.

One item, "*worries bad things will happen to loved ones*", shows a lower but significant cross loading on the BCFPI's Managing Anxiety subscale for the population (.387), clinic (.397), and BCFPI field trial samples (.402).

Table 6
BCFPI Parent Report Factor Structure: Separation from Parents

Separation from Parents	Factor Loading		
BCFPI Question	Population	Clinic	BCFPI Field Trial
Overly upset while away from loved ones	.760	.794	.750
Overly upset when leaving loved ones	.751	.778	.781
Complains of feeling sick before separating	.669	.644	.621
Worries about being separated from loved ones	.651	.714	.668
Worries bad things will happen to loved ones	.493	.565	.512
Scared to sleep without parents nearby	.457	.609	.625

Managing Anxiety

Table 7 shows factor loadings for the BCFPI's Managing Anxiety subscale. In the population sample, 4 of 6 items evidence good to excellent factor loadings and 2 showed fair factor loadings. All items evidenced good to excellent factor loadings in the OCHS-R clinic and BCFPI field trial samples. No cross loadings greater than .350 were noted for this scale.

Table 7
BCFPI Parent Report Factor Structure: Managing Anxiety

Managing Anxiety	Factor Loading		
BCFPI Question	Population	Clinic	BCFPI Field Trial
Is afraid of making mistakes	.739	.782	.723
Worries about doing the wrong thing	.735	.766	.733
Worries about doing better at things	.665	.741	.716
Worries about things in the future	.545	.591	.554
Is overly anxious to please people	.532	.601	.579
Worries about past behaviour	.476	.636	.614

Managing Mood

Table 8 shows factor loadings for the BCFPI's Managing Mood subscale. In the population sample, where Managing Mood questions were endorsed less frequently, 4 of 6 items show good to excellent factor loadings. In the OCHS-R clinic and BCFPI field trial samples, all items show good to excellent factor loadings.

In the population sample, three items, "*Unhappy sad or depressed*" (.481), "*Not as happy as other children*" (.396) and "*feels hopeless*" (.356), showed significant loadings on the Cooperativeness subscale.

In the clinic sample, only one question, "*feels hopeless*", showed a significant cross loading to the Managing Anxiety subscale (.455). No cross loadings with

Cooperativeness greater than .350 were noted in the clinic sample.

In the BCFPI field trials there were no cross loadings greater than .350.

Table 8
BCFPI Parent Report Factor Structure:
Managing Mood

<i>Managing Mood</i>	<i>Factor Loading</i>		
	<i>Population</i>	<i>Clinic</i>	<i>BCFPI Field Trial</i>
<i>BCFPI Question</i>			
No interest in usual activities	.745	.724	.725
Gets no pleasure from usual activities	.705	.752	.764
Has trouble enjoying his/her self	.632	.692	.739
Not as happy as other children	.568	.656	.696
Feels hopeless	.405	.570	.621
Unhappy, sad, or depressed	.343	.623	.681

The Table below shows the factor structure of the BCFPI's composite Managing Mood and Self Harm subscale. This analysis yields three factors: Depressed Mood, Suicidal Ideation, and Weight Loss. The item content and factor structure of this scale corresponds to five of the DSM-IV's nine Major Depressive Episode sub clusters: Depressed Mood, Diminished Interest, Recurrent Thoughts of Death, and Weight Loss. Two questions, *feels hopeless*, and *unhappy, sad, or depressed* cross load on the Suicidal Ideation factor.

Table 9
BCFPI Parent Report Factor Structure:
Managing Mood – Self Harm-Field Trial

<i>BCFPI Question</i>	<i>Factor Loading</i>		
	<i>Depressed Mood</i>	<i>Suicidal Ideation</i>	<i>Weight Loss</i>
Gets no pleasure from usual activities	.788	-.073	.192
No interest in usual activities	.749	-.093	.240
Has trouble enjoying his/her self	.737	.077	-.047
Not as happy as other children	.645	.271	-.130
Unhappy, sad, or depressed	.598	.388	-.080
Feels hopeless	.527	.418	-.032
Talks about killing self	.125	.723	.046
Deliberately harms self or attempts suicide	.052	.722	.187
Lost a lot of weight without trying	.183	.147	.468

Child Functioning

Table 10 shows the factor structure for the Child Functioning Scale. The population sample yields one factor for all 8 questions. In the OCHS-R clinic and BCFPI field trials (using an eigenvalue of .9) 3 interpretable factors emerged: (1) Child's Social Participation, (2) Quality of Child's Relationships, and (3) Child's School Participation, and Achievement. One question, *getting along with teacher*, loads on both quality of child's relationships and school participation and achievement subscales. This item, therefore, is used in computing both subscale t-scores.

Table 10
BCFPI Parent Report Factor Structure:
Child Functioning

Child Functioning	Factor Loading		
BCFPI Question	Population 1 factor	Clinic 3 factors	Field Trial 3 factors
Social Participation	*	1 st factor	1 st factor
Life has become less enjoyable	.772	.565	.746
Withdrawn or isolated him/her self	.758	.849	.802
Doing things less with other kids	.724	.832	.831
Quality of Child's Relationships		2 nd factor	2 nd factor
Being irritable or fighting with friends	.705	.797	.674
Getting along with his / her teachers	.684	.659	.501
Getting along with you and your partner.	.651	.707	.774
Child's School Participation & Achievement		3 rd factor	3 rd factor
Missing school	.736	.800	.797
With his / her grades going down	.727	.790	.787
Getting along with his / her teachers	.684	.431	.609

**all 8 items yield one component – solution not rotated*

Impact on Family

In the OCHS-R population, OCHS-R clinic & BCFPI field trial samples, using an eigenvalue of .9, two interpretable factors emerged: Family Activities and Family Comfort. Table 11 shows the factor structure for the Family Activities subscale.

In the OCHS-R population sample and the BCFPI field trial, one item, *prevented you from taking him/her out shopping*, cross loads on Family Comfort, (.511 & .384 respectively).

Table 11
BCFPI Parent Report Factor Structure:
Impact on Family – Family Activities

Impact on Family- Family Activities	Factor Loading		
	Population	Clinic	Field Trial
BCFPI Question			
behaviour prevented siblings from having friends, relatives or neighbours to your home?	.800	.789	.759
behaviour prevented you from having friends, relatives or neighbours to your home?	.771	.799	.814
behaviour made you decide not to leave him / her with a babysitter?	.464	.684	.686
behaviour prevented you from taking him / her out shopping or visiting?	.443	.683	.660

Table 12 shows the factor structure for the Family Comfort subscale. In the OCHS-R clinic and BCFPI Field Trial samples, the item, *friends, neighbours, relatives expressed concerns about your child's behaviour*, cross loads on Family Activities (.420 & .433 respectively).

Table 12
BCFPI Parent Report Factor Structure:
Impact on Family – Family Comfort

Impact on Family- Family Comfort	Factor Loading		
	Population	Clinic	Field Trial
BCFPI Question			
behaviour caused you to be anxious or worried about his / her chances for doing well in the future?	.795	.786	.720
quarreled with your spouse regarding child's behaviour?	.707	.752	.730
neighbours, relatives or friends expressed concerns about child's behaviour?	.678	.576	.576

Informant Mood

The Table below shows the Informant Mood Scale that was introduced in Version 3.2.6 of the BCFPI. The 6 questions included in BCFPI Informant Mood Scale were derived, with permission, from the Centre for Epidemiological Study of Depression Scale (Radloff, 1977). Norms for this scale are from parents, mostly mothers, participating in the Revised Ontario Child Health Study Scales norming study's population sample (Boyle et al., 1993). On the Informant Mood scale, higher t-scores reflect poorer functioning. The Table below shows OCHS-R population and

clinic sample factor loadings for the 6 items included in this scale. Factor loadings in the OCHS-R population sample range from good to very good. Factor loadings in the clinic sample range from good to excellent.

Table 13
BCFPI Parent Report Factor Structure: Informant Mood

Informant Mood	Factor Loading*	
	Population	Clinic
I felt depressed	.781	.824
I felt sad	.767	.810
I had trouble keeping my mind on what I was doing	.684	.739
I could not get going	.678	.706
My sleep was restless	.669	.706
I did not feel like eating; my appetite was poor	.614	.619

*1 factor - unrotated

Family Functioning

The Table below shows the BCFPI's Family Functioning Scale. On this scale, higher t-scores reflect greater family dysfunction. The Family Functioning scale was introduced in Version 3.2.6 of the BCFPI. The 6 questions included in BCFPI Family Functioning Scale were derived, with permission, from the McMaster Model of Family Functioning Family Assessment Device's General Functioning Subscale (Miller, Epstein, Bishop, & Keitner, 1983). Norms for this scale are from parents, mostly mothers, participating in the Revised Ontario Child Health Study Scales population sample (Boyle et al., 1993). The Table below shows that, in the OCHS-R population sample, factor loadings for 5 of 6 questions ranged from good to excellent. Factor loadings for all questions ranged from good to excellent in the OCHS-R clinic sample.

Table 14
BCFPI Parent Report Factor Structure: Family Functioning

Family Functioning (FAD)	Factor Loading*	
	Population	Clinic
We confide in each other	.777	.782
We express feelings to each other	.752	.735
We are able to make decisions about how to solve problems	.745	.776
In times of crisis we can turn to each other for support	.723	.753
We don't get along well together. (scoring is reversed)	.678	.721
Individuals (in the family) are accepted for what they are	.662	.710

*1 factor - not rotated

Reliability Analyses

Table 15 shows internal consistency scores (Cronbach's alpha) for the BCFPI's Mental Health subscales. These data are derived from the OCHS-R population, OCHS-R clinic samples, and BCFPI children's mental health center field trial samples. Cronbach's alpha represents the average of all possible split half reliabilities (correlating half of the subscale with the other half of the subscale). Cronbach's alpha scores should generally fall between .70 and .90 (Streiner & Norman, 1995). Scores above .90 suggest that the scale contains redundant questions and may describe a construct too narrowly. Scores below .70 suggest a more heterogeneous set of questions that reflect more than one construct (Streiner & Norman, 1995). Note that, since reliability is proportional to the number of items in a scale, composite Internalizing and Externalizing scales provide a more reliable measure of child functioning than the BCFPI's brief 6 item subscales (Streiner & Norman, 1995).

With the exception of Conduct problems (.56), which are too infrequent to measure reliably in community samples, Cronbach's alpha (internal consistency) scores in a community sample ranged from .75 to .83 for Mental Health Subscales. Internal Consistency scores for the BCFPI's Mental Health subscales in the OCHS-R clinic sample ranged from .73 to .85. In BCFPI field trials, internal consistency scores for 7 of 8 scales ranged from .77 to .86. One scale, Conduct, was at .68.

Table 15
BCFPI Parent Report Reliability Analysis:
Internal Consistency Scores
Mental Health Scales

BCFPI Scale	Cronbach's Alpha		
	Population	Clinic	BCFPI Field Trial
Regulating Attention, Impulsivity, and Activity Level	.83	.84	.82
Cooperativeness	.82	.85	.83
Conduct	.56	.73	.68
Total Externalizing Problems	.87	.88	.86
Separating from Parents	.75	.81	.78
Managing Anxiety	.77	.82	.77
Managing Mood	.78	.85	.84
Managing Mood + Self Harm (9 items)	.76	.83	.80
Total Internalizing Problems	.86	.88	.85

Table 16 shows internal consistency scores for the BCFPI's Child and Global Family Situation scales. Cronbach's alpha (internal consistency) scores in community samples were .86 and .69. Internal Consistency scores for Child and Global Family Situation subscales in the Revised Ontario Child Health Study clinic sample were .74 and .78. In BCFPI field trials, scores for Child and Global Family Situation

subscales ranged from .75 to .77.

Table 16 also shows internal consistency scores for the Informant Mood and Family Functioning scales introduced in Version 3.2.6 of the BCFPI. For Informant Mood the internal consistency scores are .79 for the population sample and .81 for the clinic sample. For the Family Functioning scale the reliability scores are .83 for the population sample and .94 for the clinic sample. Field trial analyses of the Informant Mood and Family Functioning scales are in progress.

Table 16
BCFPI Parent Report Reliability Analysis:
Internal Consistency Scores
 Functioning and Informant Mood Scales

<i>BCFPI Subscale</i>	<i>Cronbach's Alpha</i>		
	<i>Population</i>	<i>Clinic</i>	<i>BCFPI Field Trial</i>
Child Functional Impact	.86	.74	.75
Impact on Global Family Situation	.69	.78	.77
Informant Mood (CES-D)	.79	.83	--
Family Functioning (FAD)	.81	.84	--

Content Validity

The Content Validity (Streiner & Norman, 1995) of the BCFPI's child behaviour questions was ensured by selecting items that map onto the descriptions of common clinical problems in the Diagnostic and Statistical Manual of the American Psychiatric Association version IV (DSM-IV). For example, the BCFPI's Regulation of Attention, Impulsivity, and Activity Level subscale contains 3 items that are consistent with the DSM-IV's predominantly inattentive type of ADHD and 3 items describing the DSM-IV's predominantly hyperactive-impulsive type of ADHD.

Concurrent Validity

The BCFPI employs abbreviated 6 item versions of the Revised Ontario Child Health Study (OCHS-R) Survey Diagnostic Instrument's much longer scales. For example, the OCHS-R scale for Attention Deficit Hyperactivity Disorder is composed of 14 questions. Table 17 shows that the BCFPI's brief subscales correlate highly with the extended scales from the Ontario Child Health Study's (OCHS-R) survey diagnostic instrument.

Note that the correlation between the BCFPI's 6-item Managing Anxiety subscale and the OCHS-R's longer Overanxious Disorder scale is somewhat lower than other scales. This may reflect the fact that the OCHS-R scale included a series of questions regarding somatic concerns. In current diagnostic models (e.g. the DSM-IV) somatic concerns are not included in the description of generalized anxiety

disorders. Somatic concerns in the DSM-IV are included as symptoms of a separate disorder, Somatization Disorder. Somatic complaints were not, therefore, included in the BCFPI's Managing Anxiety Scale.

Table 17
Concurrent Validity of the BCFPI Parent Report:
Correlations with Ontario Child Health Study Scales

BCFPI Subscale	Correlation	
	Population	Clinic
Regulating Attention, Impulsivity, and Activity Level	.91	.91
Cooperativeness	.95	.95
Conduct	.81	.89
Total Externalizing	.96	.96
Separating from Parents	.95	.96
Managing Anxiety	.83	.84
Managing Mood	.75	.78
Managing Mood + Self Harm	.77	.82
Total Internalizing	.92	.92

Construct Validity: Developmental Differences

Child research suggests a series of conceptual predictions that provide a test of the construct validity of the BCFPI (Streiner & Norman, 1995). For example, longitudinal studies suggest that scores on measures of activity level, inattention, and impulsivity decline with age. In both population and clinic samples, total scores on the BCFPI's Regulation of Attention, Impulsivity, and Activity Level subscale are lower for adolescents than preadolescents.

Longitudinal studies, in contrast, suggest that depression scores increase with age. In both population and clinic samples, total scores on the BCFPI's Mood Management subscales are significantly higher in adolescents than preadolescents.

Construct Validity: Sex Differences

Previous studies suggest that boys score higher than girls on Externalizing problem scales. Girls, in contrast, score higher than boys on Internalizing scales. As expected, parents rate boys significantly higher than girls on the BCFPI's Regulation of Attention, Impulsivity, and Activity Level subscale. Girls, in contrast, are rated significantly higher than boys on the BCFPI's Separation Anxiety and Anxiety scales.

Construct Validity: Child Functional Impact

Correlational analyses showed a predictable relationship between child behaviour and functional impact scores with Mood Management scores in clinic samples most closely associated with greater impairment in Child Functioning and

Cooperativeness ($r = .52$) most closely linked into Child and Global Family Situation scores. Separation from Parents and Anxiety scores were associated with lower levels of child and family impairment.

Table 18
BCFPI Parent Report Construct Validity:
Correlation of BCFPI Subscales with
Child Functioning Scores

<i>BCFPI Subscale</i>	<i>Correlation with Child Functioning</i>	
	<i>Population</i>	<i>Clinic</i>
Regulating Attention, Impulsivity, and Activity Level	.322	.405
Cooperativeness	.349	.518
Conduct	.306	.363
Total Externalizing	.390	.540
Separating from Parents	.178	.155
Managing Anxiety	.184	.276
Managing Mood	.352	.613
Managing Mood + Self Harm	.374	.603
Total Internalizing	.292	.457

Construct Validity: Impact on Family

The BCFPI's child behaviour subscales are also linked to higher scores on the BCFPI Family Impact scale. In both clinic and population samples, total Externalizing scores are more closely related to impairments in Family Functioning than Internalizing scores. Regulating Attention, Impulsivity and Activity Level, Cooperativeness and Conduct Problems are more closely linked to Family Impairment than Separating from Parents and Managing Anxiety.

Table 19
BCFPI Construct Validity:
Correlation of BCFPI Subscales with Impact on Global Family Situation Scores

BCFPI Subscale	Correlation	
	Population	Clinic
Regulating Attention, Impulsivity, and Activity level	.509	.477
Cooperativeness	.589	.494
Conduct	.449	.496
Total Externalizing Problems	.631	.603
Separating from Parents	.237	.147
Managing Anxiety	.307	.044
Managing Mood	.503	.347
Managing Mood + Self Harm	.517	.348
Total Internalizing Problems	.431	.235

Table 20
Brief Child and Family Phone Interview Questions
Versus
OCHS-R Complete Scale Questions
Test-retest Correlations (1-3 Months)
for 6-11 and 12-16 Year Olds
Using Revised Ontario Child Health Study Population Sample

	Age 6-11		Age 12-16	
	BCFPI	OCHS-R	BCFPI	OCHS-R
Regulation of Attention	.78	.85	.78	.76
Cooperativeness	.72	.87	.78	.84
Conduct	.66	.71	.54	.79
Separation	.70	.65	.58	.55
Anxiety	.71	.65	.72	.73
Mood	.66	.65	.62	.64
Mean 6 Subscales	.71	.73	.67	.72

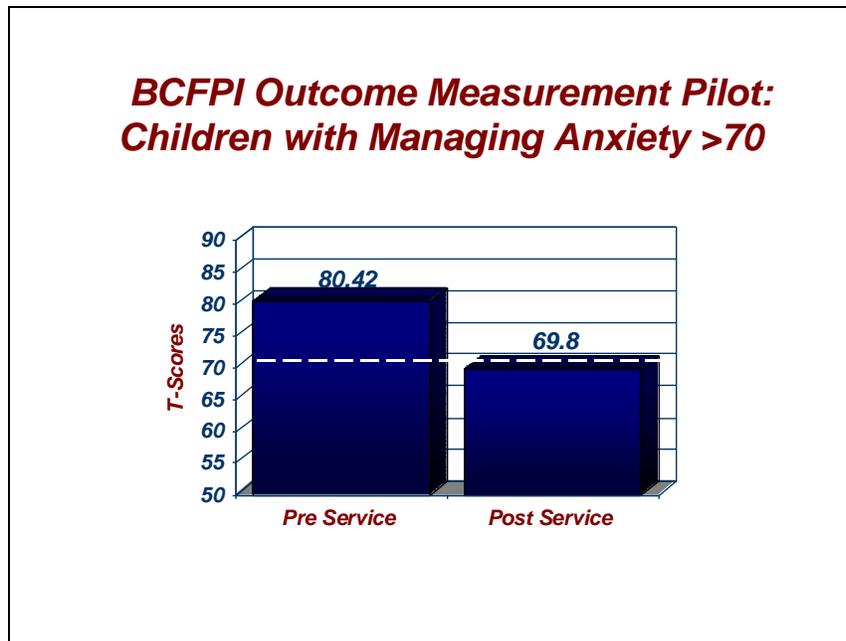
Sensitivity to Change

The test-retest analyses discussed above suggest that BCFPI scores are stable and reliable over a period of 1 to 3 months. Measuring service outcomes also requires that the BCFPI is sensitive to change resulting from successful interventions.

The Figure below shows that the BCFPI is sensitive to changes occurring as a result of treatment in children's mental health centres. The outcome data in the Figures below are based on a sample of children whose parents completed BCFPI telephone interviews before and after service in a variety of children's mental health settings. The Figure below presents average t-scores before and after treatment.

Change scores are computed by subtracting post service BCFPI scores from pretreatment scores. In Figure 1, we selected children who presented problems with Anxiety Management, which we defined as a BCFPI Managing Anxiety t-score of 70 or greater. Anxiety is a common referral problem, often complicates other disorders, such as ADHD or depression, and places children at risk for significant longer term negative outcomes.

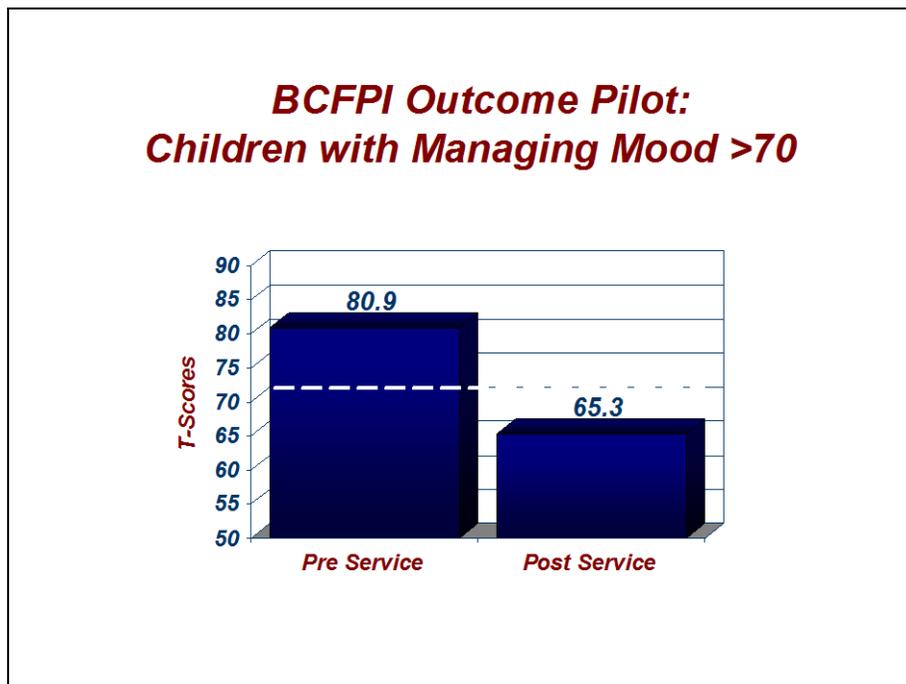
BCFPI Outcome Measurement Pilot – Managing Anxiety



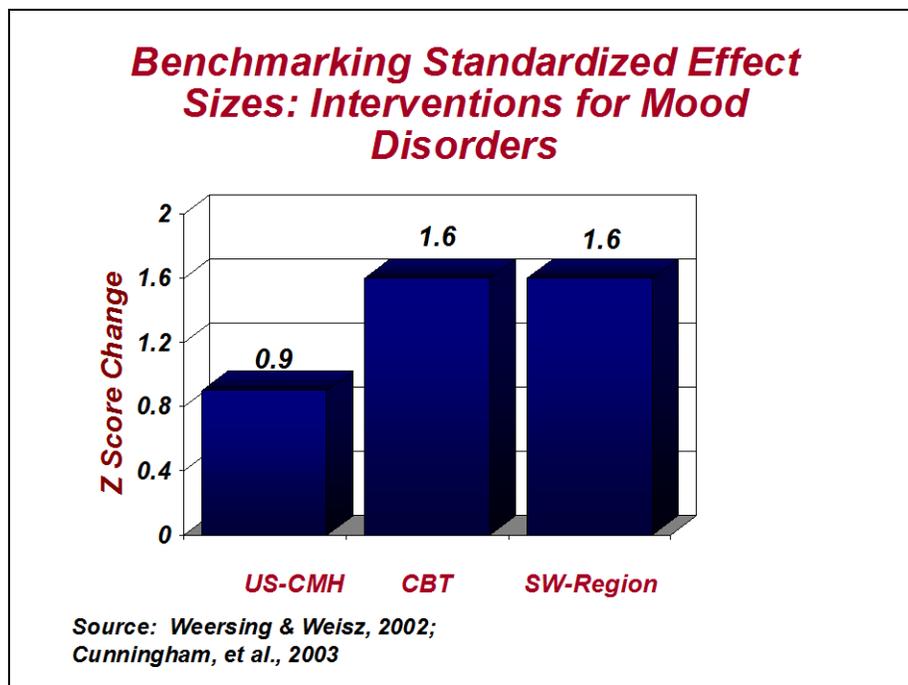
The Figure above shows that the BCFPI scores for children with high managing anxiety scores declined from a pre service score of 80.4 to a post serviced score of 69.8. Since t-scores have a mean of 50 and a standard deviation of 10, this is a mean reduction of 10.6 t-score points, or more than 1 standard deviation. It is generally agreed that a change of .2 standard deviations is a small effect size, a change of .4 standard deviations is a medium effect size, and a change of .8 is a large effect size. These data confirm that the BCFPI is sensitive to the large to very large service outcomes effect size improvements accomplished by these centres.

The figure below shows that the BCFPI's Managing Mood subscale is also sensitive to change. This figure shows children with t-scores greater than or equal to 70 on the BCFPI Managing Mood scale. On average, these children evidenced t-scores of 80.9 before receiving service. After service BCFPI t-scores declined to 65.3, a very large improvement of 15.6 t-score points.

BCFPI Outcome Measurement Pilot – Managing Mood



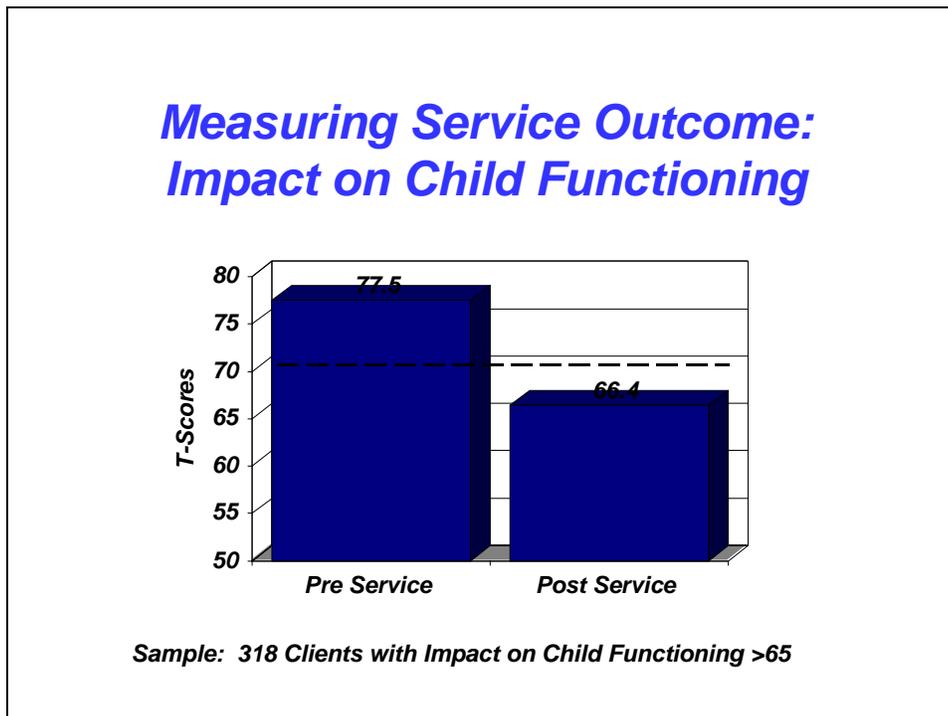
Benchmarking Standardized Effect Sizes – Interventions for Mood



The BCFPI's Child Functional Impact scores are also sensitive to the interventions provided by children's mental health services. The figure below shows the impact of

children's mental health services on children who present with significantly impaired functioning. High scores on the BCFPI Child Functional Impact scales suggest that these children have difficulties in their interpersonal relationships with parents, teachers, and peers, a tendency to disengage from social and recreational activities, and a deterioration in school performance. This sample of 318 children was selected as having child functioning t-scores of 65 or greater. On average the t-pre service t-scores of this sample was 77.5. This declined to 66.4 following service, a change of 11 t-score points. The BCFPI is sensitive to these large improvements in child functioning.

Measuring Service Outcome: Impact on Child Functioning



Chapter 10: Evaluating the BCFPI: Adolescent Interview

The Brief Child and Family Adolescent Phone Interview:

- Begins with a narrative overview of **Basic Concerns**
- Asks **Mental Health** questions regarding common behavioural and emotional problems
- Determines the impact of these problems on **Youth Functioning**
- Asks questions regarding **Abuse**
- Collects information regarding **Substance Abuse**
- Gathers **Basic Demographic** information

The questions employed in the BCFPI's adolescent self report were selected from the Revised Survey Diagnostic Instruments developed for the Ontario Child Health Study (Boyle et al., 1993a,b). The items included on the BCFPI Adolescent Self Report are virtually identical to those employed in the Parent Report. This allows a direct comparison of perspectives of parents and adolescents on a standardized set of questions.

Tables 1 through 6 show the factor loadings for BCFPI Adolescent Self Report subscales in the OCHS-R measurement study's population and clinic samples. As in Chapter 9, factor loadings are listed in descending order for the population sample on which the BCFPI's subscales were based.

As noted above, factor loadings show the strength of the relationship between an individual item and the factor. Factor loadings might be thought of as a correlation between an individual item and the overall factor score. Items with higher factor scores provide a purer estimate of the construct measured by that factor (Tabachnick & Fidell, 1996).

It has been suggested that questions with factor loadings above .71 provide an "excellent" measure of a construct. Those with factor loadings of .63 to .71 are "very good". Factor loadings from .55 to .62 are "good". Factor loadings from .45 to .54 are "fair" and those from .32 to .44 are "poor" (Tabachnick & Fidell, 1996). Note that, like the Parent Report scale, most of the BCFPI's Adolescent Self Report items show stronger factor loadings in the clinic sample, where items are more frequently endorsed and the range of scores is greater.

In allocating individual questions to the BCFPI's Adolescent Self Report subscales, we required that: (1) factor loadings exceed .35 (Tabachnick & Fidell, 1996), (2) questions load higher on that scale than other scales, and (3) that questions be

consistent with the structure of problems described in the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM-IV).

Regulating Attention, Impulsivity, and Activity Level

Table 1
BCFPI Adolescent Self Report Factor Structure:
Regulating Attention, Impulsivity, and Activity Level

<i>Regulating Attention, Impulsivity and Activity Level</i>	<i>Factor Loading</i>	
	<i>Population</i>	<i>Clinic</i>
<i>BCFPI Question</i>		
Fail to finish things you start	.694	.632
Easily distracted, have trouble sticking to an activity	.648	.687
Jump from one activity to another	.623	.628
Have difficulty following directions or instructions	.606	.533
Are impulsive, act without stopping to think	.480	.458
Fidget	.259	.522

Cooperativeness

Table 2
BCFPI Adolescent Self Report Factor Structure: Cooperativeness

<i>Cooperativeness</i>	<i>Factor Loading</i>	
	<i>Population</i>	<i>Clinic</i>
<i>BCFPI Question</i>		
Argue a lot with adults	.660	.711
Are defiant, talk back to people	.629	.666
Are easily annoyed by others	.571	.555
Are cranky	.553	.542
Angry and resentful	.498	.558
Blame others for your own mistakes	.413	.295

Conduct

Table 3
BCFPI Adolescent Self Report Factor Structure: Conduct

<i>Conduct</i>	<i>Factor Loading</i>	
	<i>Population</i>	<i>Clinic</i>
<i>BCFPI Question</i>		
Destroy things belonging to others	.657	.496
Steal things at home	.594	.466
Damage school or other property	.473	.740
Physically attack people	.197	.551
Use weapons when fighting	.148	.679
Broken into someone else's house, building or car	No	.718

Separation from Parents

Table 4
BCFPI Adolescent Self Report Factor Structure:
Separation from Parents

<i>Separation from Parents</i>	<i>Factor Loading</i>	
	<i>Population</i>	<i>Clinic</i>
BCFPI Question		
Overly upset while away from loved ones	.815	.799
Overly upset when leaving loved ones	.788	.792
Feel sick when being separated from loved ones	.749	.757
Worry about being separated from loved ones	.645	.597
Worry bad things will happen to loved ones	.526	.533
Scared to go to sleep without your parents nearby	.303	.495

Managing Anxiety

Table 5
BCFPI Adolescent Self Report Factor Structure:
Managing Anxiety

<i>Managing Anxiety</i>	<i>Factor Loading</i>	
	<i>Population</i>	<i>Clinic</i>
BCFPI Question		
Are afraid of making mistakes	.770	.803
Worry about doing the wrong thing	.690	.708
Worry about things in the future	.622	.609
Are overly anxious to please people	.619	.640
Worry about doing better at things	.586	.626
Worry about past behaviour	.547	.602

Managing Mood

Table 6
BCFPI Adolescent Self Report Factor Structure:
Managing Mood

<i>Managing Mood</i>	<i>Factor Loading</i>	
	<i>Population</i>	<i>Clinic</i>
BCFPI Question		
Get no pleasure from your usual activities	.712	.188
No interest in your usual activities	.664	.108
Not as happy as other children	.651	.596
Have trouble enjoying yourself	.582	.498
Are unhappy, sad, or depressed	.540	.626
Feel hopeless	.517	.556

Reliability Analyses

Table 7 shows internal consistency scores (Cronbach's alpha) for the Adolescent Self Report's Mental Health subscales. As noted in Chapter 9, Cronbach's alpha represents the average of all possible split half reliabilities (correlating half of the subscale with the other half of the subscale). Streiner and Norman (1995) suggest that Cronbach's alpha scores fall between .70 and .90. Scores above .90 suggest that the scale contains redundant questions and may describe a construct too narrowly. Scores below .70 suggest a more heterogeneous set of questions that reflect more than one construct (Streiner & Norman, 1995). Note that, since reliability is proportional to the number of items in a scale, composite Internalizing and Externalizing scales provide a more reliable measure of child functioning than brief 6 item scales (Streiner & Norman, 1995).

With the exception of conduct problems (.61), which are too infrequent to measure reliably in community samples, Cronbach's alpha (internal consistency) scores in a community sample ranged from .70 to .80 for Mental Health Subscales of the Adolescent Self Report. Internal Consistency scores in the OCHS-R clinic sample ranged from .72 to .83.

Table 7
BCFPI Adolescent Self Report Reliability Analysis:
Internal Consistency Scores

BCFPI Subscale	Cronbach's Alpha	
	Population	Clinic
Regulating attention, impulsivity, and activity level	.70	.72
Cooperativeness	.74	.72
Conduct	.61	.73
Separating from parents	.80	.82
Managing Anxiety	.79	.81
Managing Mood	.78	.83

Table 8 shows internal consistency scores for the BCFPI's Adolescent Report on Child Functional Impact scale. Cronbach's alpha (internal consistency) scores were .80 in the community sample and .74 in the clinic sample.

Table 8
BCFPI Adolescent Self Report Reliability Analysis:
Internal Consistency Scores

BCFPI Subscale	Cronbach's Alpha	
	Population	Clinic
Child Functional Impact	.80	.74

Concurrent Validity

The BCFPI Adolescent Self Report employs abbreviated 6 item versions of the Revised Ontario Child Health Study (OCHS-R) Survey Diagnostic Instrument's much longer scales. For example, the OCHS-R scale for Attention Deficit Hyperactivity Disorder is composed of 14 questions. Table 9 shows that the BCFPI's brief Adolescent Self Report subscales correlate highly with the extended scales from the Ontario Child Health Study's (OCHS-R) survey diagnostic instrument.

Table 9
Concurrent Validity of the BCFPI Adolescent Self Report :
Correlations with Ontario Child Health Study Adolescent Scales

<i>BCFPI Subscale</i>	<i>Correlation</i>	
	<i>Population</i>	<i>Clinic</i>
Regulating Attention, Impulsivity, and Activity Level	.867	.852
Cooperativeness	.921	.913
Conduct	.819	.873
Total Externalizing	.943	.939
Separating from Parents	.956	.957
Managing Anxiety	.841	.849
Managing Mood	.746	.757
Managing Mood + Self Harm	.794	.821
Total Internalizing	.916	.928

Construct Validity: Child Functional Impact

Correlational analyses showed a relationship between adolescent self reports of behavioural and emotional problems and measures of personal functioning. As for parental reports, Mood Management, Mood Management + Self Harm, and Cooperation with Others scores are most closely associated with self reported functional impairment. Regulating Attention, Impulsivity, and Activity Level scores are associated with moderate levels of functional impairment.

Table 10
BCFPI Adolescent Self Report Construct Validity:
Correlation of BCFPI Adolescent Subscales with
Adolescent Child Functional Impact Scores

BCFPI Subscale	Correlation	
	Population	Clinic
Regulating attention, Impulsivity, and activity level	.488	.411
Cooperativeness	.575	.510
Conduct	.396	.264
Total Externalizing	.616	.501
Separating from parents	.373	.405
Managing Anxiety	.425	.431
Managing Mood	.601	.605
Managing Mood + Self Harm	.641	.631
Total Internalizing	.575	.582

Chapter 11: Evaluating the BCFPI: Teacher Interview

The Brief Child and Family Teacher Phone Interview:

- Begins with a narrative overview of **Basic Concerns**
- Asks **Mental Health** questions regarding common behavioural and emotional problems
- Determines the impact of these problems on **Child Functioning**
- Collects information regarding **pro-social behaviour** in the school setting
- Provides information on the availability of **in-school support programs**
- Gathers ratings of the child's **academic functioning**

The questions employed in the BCFPI's Teacher Report were selected from the Revised Survey Diagnostic Instruments developed for the Ontario Child Health Study (Boyle et al., 1993a,b). The items included on the BCFPI Teacher Report are virtually identical to those employed in the Parent and Adolescent Report, except for one new item on the Conduct scale, "*cuts classes, skips school*". This allows a direct comparison of perspectives of parents and adolescents on a standardized set of questions.

Tables 1 through 5 show the factor loadings for BCFPI Teacher Report subscales in the OCHS-R measurement study's population and clinic samples. As in Chapter 9 and 10, factor loadings are listed in descending order for the population sample on which the BCFPI's subscales were based.

As noted above, factor loadings show the strength of the relationship between an individual item and the factor. Factor loadings might be thought of as a correlation between an individual item and the overall factor score. Items with higher factor scores provide a purer estimate of the construct thought to be measured by that factor (Tabachnick & Fidell, 1996).

Tabachnick and Fidell (1996) suggest that questions with factor loadings above .71 provide an "excellent" measure of a construct. Those with factor loadings of .63 to .71 are "very good" measures of a construct. Factor loadings from .55 to .62 are "good". Factor loadings from .45 to .54 are "fair" and those from .32 to .44 are "poor" measures of a construct. Note that, like the Parent and Adolescent Report scale, most of the BCFPI's Teacher Report items show stronger factor loadings in the clinic sample, where items are more frequently endorsed and the range of scores is greater.

In allocating individual questions to the BCFPI's Teacher Report subscales, we

required that: (1) factor loadings exceed .35 (Tabachnick & Fidell, 1996), (2) questions load higher on that scale than other scales, and (3) that questions be consistent with the structure of problems described in the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM-IV).

Factor Analysis

Regulating Attention, Impulsivity, and Activity Level

Table 1
BCFPI Teacher Report Factor Structure:
Regulating Attention, Impulsivity, and Activity Level

Regulating Attention, Impulsivity and Activity Level	Factor Loading	
	Population	Clinic
BCFPI Question		
Distractible, has trouble sticking to an activity	.795	.854
Jumps from one activity to another	.775	.743
Fidgets	.750	.748
Has difficulty following directions or instructions	.728	.785
Fails to finish things he/she starts	.690	.716
Impulsive, acts without stopping to think	.599	.532

Cooperativeness

Table 2
BCFPI Teacher Report Factor Structure
Cooperativeness

Cooperativeness	Factor Loading	
	Population	Clinic
BCFPI Question		
Argues a lot with staff	.744	.798
Angry and resentful	.736	.728
Cranky	.700	.654
Defiant, talks back to staff	.699	.799
Easily annoyed by others	.687	.713
Blames others for own mistakes	.651	.700

Conduct

One item, “*cuts classes, skips school*”, shows a significant loading on the BCFPI Managing Mood subscale for both the population (.472) and the clinic (.406) sample. In the clinic sample, “*physically attacks people*” also loads onto the Cooperativeness

(.563) subscale.

Table 3
BCFPI Teacher Report Factor Structure: Conduct

Conduct	Factor Loading	
BCFPI Question	Population	Clinic
Vandalism	.795	.780
Destroys things belonging to others	.751	.724
Uses weapons when fighting	.716	.617
Steals things at home	.539	.719
Physically attacks people	.532	.544
Cuts classes, skips school	.178	.106

Managing Anxiety

Table 4
BCFPI Teacher Report Factor Structure: Managing Anxiety

Managing Anxiety	Factor Loading	
BCFPI Question	Population	Clinic
Worries about doing the wrong thing	.800	.804
Is afraid of making mistakes	.766	.775
Worries about doing better at things	.723	.769
Is overly anxious to please people	.700	.740
Worries about things in the future	.605	.653
Worries about past behaviour	.554	.549

Managing Mood

Table 5
BCFPI Teacher Report Factor Structure: Managing Mood

Managing Mood	Factor Loading	
BCFPI Question	Population	Clinic
Gets no pleasure from usual activities	.705	.788
No interest in usual activities	.697	.704
Has trouble enjoying his/her self	.665	.739
Not as happy as other children	.652	.714
Unhappy, sad, or depressed	.578	.706
Feels hopeless	.543	.538

Social Skills

Table 6
BCFPI Teacher Report Factor Structure: Social Skills

Social Skills	Factor Loading	
	Population	Clinic
BCFPI Question		
Sympathy to those who err	.865	.817
Praises work of less able kids	.839	.798
Helps those who are having difficulty	.799	.775
Invites bystanders to join games	.767	.717
Tries to be fair in games	.724	.672
Tries to stop quarrels	.701	.653

Reliability Analyses

Table 7
BCFPI Teacher Report Reliability Analysis:
Internal Consistency Scores

BCFPI Subscale	Cronbach's Alpha	
	Population	Clinic
Regulating attention, impulsivity, and activity level	.896	.887
Cooperativeness	.901	.898
Conduct	.702	.735
Managing Anxiety	.808	.838
Managing Mood	.862	.873
Child Functional Impact	.841	.807
Social Skills	.874	.833

Concurrent Validity

Table 8
Concurrent Validity of the BCFPI Teacher Report:
Correlations with Ontario Child Health Study Scales, Teacher Report

BCFPI Subscale	Correlation	
	Population	Clinic
Regulating Attention, Impulsivity, and Activity Level	.937	.921
Cooperativeness	.967	.965
Conduct	.915	.932
Total Externalizing	.970	.971
Managing Anxiety	.855	.868
Managing Mood	.846	.829
Total Internalizing	.892	.901

Construct Validity

Table 9
BCFPI Construct Validity:
Correlation of BCFPI Teacher Subscales with
Teacher Child Functioning Scores

BCFPI Subscale	Correlation	
	Population	Clinic
Regulating attention, Impulsivity, and activity level	.679	.585
Cooperativeness	.704	.644
Conduct	.546	.534
Total Externalizing	.768	.706
Managing Anxiety	.277	.268
Managing Mood	.734	.695
Total Internalizing	.613	.591

Table 10
BCFPI Construct Validity:
Correlation of Teacher BCFPI Subscales and Teacher Reported Child
Functioning With Social Skills

BCFPI Subscale	Correlation with Social Skills	
	Population	Clinic
Regulating attention, Impulsivity, and activity level	-.477	-.361
Cooperativeness	-.433	-.363
Conduct	-.313	-.267
Total Externalizing	-.490	-.405
Managing Anxiety	.035	.197
Managing Mood	-.385	-.284
Total Internalizing	-.207	-.066
Child Functioning	-.477	-.383

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