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Title: Measuring functional impairment: Preliminary Psychometric properties of the Columbia Impairment Scale – Youth Version with youth accessing services at an outpatient substance use program
Running Title: Validity of the CIS-Y among youth

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Abstract

Aim: Functional impairment is a key aspect of mental disorders, yet it is poorly defined and operationalized, particularly for youth. The Columbia Impairment Scale has been indicated as a potentially useful measure to assess functional impairment. This study provides an initial psychometric evaluation of the Columbia Impairment Scale - Youth (CIS-Y) Version in a sample of youth accessing an outpatient substance use program.

Methods: The Columbia Impairment Scale - Youth Version was administered to youth aged 15–24 years accessing an outpatient substance use program in Ontario, Canada. Demographic data on age, sex, ethnicity, and current occupational and/or educational status were also collected. Exploratory factor analysis (EFA) was used to identify what factor structure best fit our sample of youth.

Results: The sample included 134 youth, with a mean age of 19.3 (SD = 2.1; range = 15-24). Over 34% of the sample had at least some item-level missing data, overwhelming this was item-level "not applicable" responses. The CIS-Y exhibited good internal consistency ($\alpha = 0.84$) and EFA revealed that a 1-factor structure was the best fit for the data.

Conclusions: Results suggest that continued use of the CIS-Y with populations of youth, including emerging adults, is warranted. The scale has good internal consistency, loads onto one factor and discriminates between groups known to have lower and higher functioning. Further research is recommended that uses larger and more varying samples, as well as research that investigates optimal coding of non-applicable responses.

Keywords: young adult; mental disorders; substance-related disorders; psychometrics; functional impairment

INTRODUCTION

Concepts of functioning, impairments in function, and mental disorders are distinct and yet intertwined. In the Diagnostic and Statistical Manual of Mental Disorders (DSM-V), it is recognized in the definition of the mental disorders that symptoms are often accompanied by impairment in functioning in social, occupational and other areas of life (American Psychiatric Association, 2013). In child and adolescent psychiatry, Hoagwood and colleagues (2012) define functioning as the "capacity to adapt to the demands of home, school, and community" they go on to state it is a continuous variable that "includes competencies, on one end, and impairment on the other". Canino, Costello and Angold (1999) note that this characterization of functioning distinguishes it from symptoms because while symptoms may be present or absent, functioning is always present but exists on a continuum. Impairments in function, also termed disabilities, therefore represent a low level of functioning rather than a lack of functioning altogether (Canino et al., 1999).

Functioning is also a unique concept in that it is sensitive to the context that surrounds the individual; what is considered adequate functioning in one environment or context may not be in another (Canino et al., 1999; Stein et al., 2010). Functioning and functional impairment, while critical to mental disorders, are poorly defined and operationalized in major diagnostic guidebooks such as the WHO's International Classification of Diseases (ICD) and the DSM V (Ustün & Kennedy, 2009). More specifically, in their most recent iteration, the DSM V removed

the separate category (Axis V) for the assessment of functioning and the use of the Global Assessment of Functioning (GAF) score to assess and report functioning (American Psychiatric Association, 2013). This led the DSM-5 Disability Study Group to recommended the World Health Organization Disability Assessment Schedule (WHODAS) 2.0 as a measure to use for routine assessment of impairment (Gold, 2014). However, even with this change in recommended tool to assess distress or disability in "social, occupation, or other activities" – functioning and functional impairment, while critical to mental disorders, have not historically been well operationalized even in major diagnostic guidebooks, although recent changes may lead to improvements in these areas, with more detailed evaluation strategies proposed (Gold, 2014). Moreover, these concepts and their relationship to disorder have also been understudied in child and youth psychiatry generally, with no existing consensus on how to measure functioning or determine what constitutes clinically significant impairment (Canino, 2016).

The accurate measurement of functional impairment in the context of mental disorders is important for several reasons. Not only is the identification of functional impairment necessary to define a case of mental disorder, it also affects allocation of resources for mental health. For example, functional impairment is a criterion for children and adolescents to be considered to have a serious emotional disturbance (SED), a classification that informs grant allocations for community mental health services in the United States (Center for Behavioral Health Statistics and Quality, 2016). Functional impairment also has clinical significance for children and

adolescents, as the course and outcome of a mental disorder has been found to be different when functional impairment is present along with symptoms, as opposed to symptoms alone (Angold, Costello, Farmer, Burns, & Erkanli, 1999; Canino et al., 2004; Cleverley, Bennett, & Duku, 2013; Costello, Angold, & Keeler, 1999; Costello, Egger, & Angold, 2005; Lollar & Simeonsson, 2005).

It is particularly important to include youth, defined as individuals aged 15-24 (World Health Organization, 2019) when investigating the measurement of functional impairment, as their developmental stage forms a key element of the complex context in which functional impairment is assessed (Canino, 2016; Canino et al., 1999; Rapee, Bőgels, van der Sluis, Craske, & Ollendick, 2012; Stein et al., 2010). The age period of youth aligns with the developmental period of emerging adulthood (Arnett, 2000) – a period of undertaking several major developmental tasks. Youth must navigate simultaneous changes in areas such as education, employment, housing, sexual identity and intimate relationships (Arnett, 2000; McManus et al., 2015; Sainsbury & Goldman, 2011; Singh et al., 2010). As youth transition into adulthood, they also undergo an emancipation process from their caregivers, taking on legal independence and the right to autonomous decision-making (Bergman, Kelly, Nargiso, & McKowen, 2016; Lindgren, Söderberg, & Skär, 2014). Given this unique developmental stage, function and dysfunction may look different among youth compared to younger adolescents or children.

Also notable is the need to adequately assess functioning and impairment associated with substance use disorder in the treatment of youth (Bergman et al., 2016). Among youth (15-24 years), alcohol and other substances account for a high proportion of disability-adjusted life years (DALYs) (Gore et al., 2011). The disability-related effects of alcohol and other substances among this age group require immediate and focused attention to reduce adverse outcomes. The consequences of youth using substances during this developmental period has been associated with impaired functioning in several domains, particularly poor academic performance, poor school attendance (Heradstveit, Skogen, Hetland, & Hysing, 2017; Kelly et al., 2015) and increased rates of accidents and injuries (Centers for Disease Control and Prevention, 2013). Substance use and dependence by youth has also been associated with poorer outcomes later in life, including financial difficulties, antisocial behaviour, and higher rates of intimate relationship conflict (Cerdá et al., 2016; Rohde et al., 2007).

The Columbia Impairment Scale (CIS) has been indicated as a potentially useful measure for functional impairment, on the basis that is it is brief, easy to administer without additional training, psychometrically sound in both English and Spanish, and has separate versions for parents (CIS-P) and youth (Barch et al., 2016; Canino, 2016; Canino et al., 1999; Winters, Collett, & Myers, 2005). The scale was originally developed with 13 items to assess four key domains: interpersonal relations, broad psychopathology, school/work, and leisure time. However, factor analysis had tended to reveal a unidimensional structure, particularly the parent

version (Bird et al., 1993, 1996), although a 3-factor model has also been proposed (Singer, Eack, & Greeno, 2011).

Research with adolescents (<18 years) has found that higher scores on the CIS are correlated with increased mental health service use and more psychiatric symptoms (Nagar, Sherer, Chen, & Aparasu, 2010; Olfson, Druss, & Marcus, 2015). Consequently, this tool has become an important instrument for researchers and mental health programs for use in assessing functioning among adolescents (Essau, Conradt, & Petermann, 2002; Henderson et al., 2017; Langer et al., 2015) and youth aged 16 to 24 (Hinshaw et al., 2012). It has also recently been strongly recommended by the National Institute of Mental Health (NIMH) and the National Institute of Drug Abuse (NIDA) in the United States as a core measure to be included in all NIMH and NIDA funded studies with children and adolescence to encourage data harmonization across studies (see Barch et al., 2016). However, a review of the literature reveals that the validity and reliability of this tool for youth, particularly those seeking substance use and/or mental health treatment, has not been demonstrated. Studies that have attempted to measure its psychometric properties among adolescents have used age groups that are either too young (11-15 years of age) (Zielinski, Wood, Renno, Whitham, & Sterling, 2014) or too narrow (16-18 years of age) (Zanon, Tomassoni, Gargano, & Granai, 2016) to fully capture the youth age category (ages 15 to 24 years). Finally, we could find no studies whose objective was to validate the CIS among substance use populations, a high healthcare cost population (Canadian Substance Use Costs and

Harms Scientific Working Group, 2018). The goal of this study, therefore, is to provide an initial psychometric evaluation of the CIS-Y scale in a sample of youth, aged 15 to 24 accessing an outpatient substance use program at a mental health and addictions treatment centre in Ontario, Canada.

METHODS

The population accessed consisted of youth aged 15–24 years accessing an outpatient treatment program for those with substance use concerns with or without concurrent mental health concerns. All youth entering the program are asked to complete questionnaires including the CIS-Y as part of a comprehensive assessment during their initial session. With hospital ethics board approval, a member of the research team approached each youth to request informed consent to use the information in research. In total, 182 youth were approached during the study period, of which 134 (73.6%) consented to have their assessments used for research. No significant differences in age or sex were reported between those who did and did not consent.

Measures

Demographic data, including age (in years), sex (male/female), ethnicity, primary substance of concern, and current occupational and/or educational status were included. Questions on occupational and education status were used to create a variable indicating whether the youth was Not in Employment, Education or Training (NEET) a popular metric to understand school-

to-work transitions among youth (Henderson, Hawke, Chaim, & National Youth Screening Project Network, 2017; Social Exclusion Unit, 1999).

The CIS is a 13-item respondent-based measure developed by Bird et al. (1993) designed to measure functional impairment. Items are scored on a 5-point numeric scale, ranging from 0 ("no problem") to 4 ("a very big problem"), which are summed to produce a total score ranging from 0 to 52. Prior research using discriminant-function analysis with a sample of youth aged 9 to 17 years of age (n=182) found that scoring above 15 on the CIS was the most appropriate cut-off score for classifying impairment (Bird et al., 1993). This cut-off has more recently been used to classify impairment in a large (n= 53,622) nationally representative sample (United States) of children and youth aged 6 to 17 years (Olfson et al., 2015) and in clinical settings to evaluate effectiveness of mental health services for children and youth aged 5 to 17 years (see Painter, 2012). Non-applicable/do not know responses are allowed in the scale and are scored using a 5, but are to be treated as missing data in the analysis. Prior research has used individual mean-level imputation to deal with missing data (Bird et al., 1996). However, whether this is a valid method for dealing with not applicable and missing data of varying degrees in the CIS has not been assessed. Original work by Bird et al. (1993) and by others since (Zanon et al., 2016) has found the scale to have adequate reliability and validity. Specifically, Bird et al. (1993) undertook initial psychometric evaluation on a sample of 182 adolescents aged 9-17 and reported high internal consistency (Cronbach's alpha 0.70), moderate test-retest reliability (Time 1-Time

2 interclass correlation 0.63), and good validity when compared to the Children's Global Assessment Scale (CGAS). Zanon and colleagues (2016) more recently reported the psychometric evaluation of the CIS in a sample of 120 Italian youth aged 16-18 years. They reported high internal consistency (Cronbach's alpha 0.76) and compared a first and second administration of the measure (n=108 at second administration) and reported similar frequency and percentages for all items, demonstrating before-after reproducibility. Lastly, Steinhausen & Winkler Metzke (2001), using a sample of 203 youth (15-19 years) in Switzerland reported that the CIS has good concurrent validity with the CGAS and discriminant validity when comparing the CIS scores for youth accessing (or not) mental health services.

Data analysis. The sample characteristics were summarized using means and standard deviations or frequency counts and percentages, depending on the distribution of the variable, using SPSS (version 24). Initial analyses of the scale were then undertaken, including Inter-item correlations, and item means, variances, skewness and kurtosis using Mplus (version 7). Next, we undertook exploratory factor analysis (EFA) in Mplus (version 7) to determine the factor structure of the scale, as well as to identify items that were poor factor indicators and factors that were poorly measured. We selected EFA instead of CFA because although a single factor structure has been identified in the original testing of the scale (Bird et al., 1993, 1996), this was based on parent reports of their children. While other research has retested the original factor structure finding an alternative model, this research too has been based on parental reports and a younger sample

(Singer et al., 2011). Against this background, we decided an EFA was the most appropriate technique for understanding the factor structure of the CIS in our older (i.e. emerging adults) and self-reporting clinical sample. In the EFA analysis, the items were treated as continuous variables and the MLR estimator was used to deal with any deviations from normality. Missing item-level data and not applicable/do not know responses were dealt with in Mplus using Full Information Maximum Likelihood (FIML). Factors were extracted using parallel analysis (Schmitt, 2011). As Mplus does not provide a method for undertaking parallel analysis, we used a program written for SPSS/SAS by O'Connor (2000). We also looked at model fit using three fit indices recommended by Muthén & Muthén (2009): the Chi square statistic (non-significant value is considered good), the RMSEA (recommended >.06) and SRMR (recommended <.05). After identifying the factor structure of the scale, we calculated internal consistency using Cronbach's alpha in SPSS.

We used the known groups procedure as another method of assessing the validity of the CIS-Y (Hattie & Cooksey, 1984), using sex and education/employment variables. Given that research has found that females tend to score higher on the CIS (Steinhausen & Winkler Metzke, 2001), we ran a t-test in SPSS with mean imputation for missing data to determine if CIS scores vary by reported sex. We also compared those Not in Employment, Education or Training (NEET) to those who were engaged in at least one of the above with the expectation that those in the NEET category would score higher.

Total score was calculated by summing responses to the individual items. Consistent with the extant literature, missing data (both item-level missing and not applicable/do not know) were addressed using individual-level mean imputation when a total score was calculated. Statistical significance was established at $p<.05$.

RESULTS

The sample included 134 youth, with a mean age of 19.3 (sd = 2.1; range = 15-24). Most of the sample reported female (47.8%) or male (46.3%) sex; 5.8% of the sample did not report a sex or reported an identity other than female or male. About two-thirds of the sample identified ethno-racially as white or European (66.4%). The next largest group identified as Black (6.7%), followed by Latin American (3.7%). Youth self-identified their primary substance of concern as, cannabis/marijuana (23.1%), alcohol (20.9%), smoking tobacco (13.4%), cocaine (8.2%), and other substances (7.3%), or did not indicate a specific substance (26.8%). The majority of those in the sample lived with their parents or family (78.3%) and were born in Canada (82.1%). About a quarter of the sample was Not in Employment, Education or Training (NEET, 26.1%), whereas over half (60.4%) were employed (full or part time), a student or volunteer; 13.5% had missing data on this question.

Inter-item correlations and item-level statistics are presented in Table 1. Inter-item correlations ranged from .01 to .51. The lowest inter-item correlations were found for the item “problem

getting along with mother/mother figure". Item means ranged from 0.89 (problem with getting along with adults other than mother/father) to 3.18 (problems feeling unhappy or sad). Item variances ranged from 1.08 (problem with feeling unhappy to sad) to 2.01 (problems getting involved in activities like sports or hobbies). Skewness varied quite a bit but only exceeded 1 for two items. Kurtosis ranged between 0 and 1 for most items.

While missing item-level data was minimal (range 0.7% to 2.2%), not applicable/do not know item-level responses ranged from 0.7% to over 13%. Questions with the highest frequencies of not applicable/do not know data included, in order of magnitude: "problem getting along with sisters/brothers" (13.4%), "problem getting along with father/father figure" (11.8%), "problem with school work or doing your job" (6.7%) and "problem with behaviour at school (or job)" (7.5%). The overall mean score was 24.6 (sd = 10.0) when using individual mean imputation.

--Insert Table 1 about here--

Results of the EFA analysis are presented in Table 2. As it is shown, a single factor was extracted using parallel analysis. A scree plot is presented in Figure 1, which also points to a unidimensional solution. Factor loadings ranged from .28 to .64. Not surprisingly considering the low inter-item correlations, the item "problem getting along with mother/mother figure" had the lowest loading value, which suggests that this item may not be a good indicator of the overall factor for the CIS in the current sample. The model fit statistics for this model suggested less than optimal fit (Chi square = 161.84; $p<.001$; RMSEA = .11; SRMR = .09). Cronbach's alpha

was calculated to be .84. As expected, mean CIS scores are significantly higher among females (mean =26.8 [Sd=8.9]) than males (mean =21.8 [Sd=10.0]; p=.003). Similarly, those Not in Employment, Education or Training (NEET) had a significantly higher CIS score (mean=28.2 [sd=8.7]) than those engaged in these activities (mean=23.3 [sd=10.0]; p=.012).

--Insert Table 2 about here—

--Insert Figure 1 about here--

DISCUSSION

Despite its wide use, this is the first study to examine the psychometric properties of the CIS-Y in a sample of youth seeking treatment for substance use. Consistent with previous findings (Bird et al., 1993, 1996), the tool was found to be unidimensional and have good internal consistency (alpha = .84). Moreover, the tool was able to discriminate between groups known (females vs. males) (Hattie & Cooksey, 1984); and those hypothesized to have differing levels of functioning (NEET versus not).

This research also identified some findings novel to the population of emerging adults. Unlike in younger populations (see Singer et al., 2011; ages 10-17 years), the item assessing relationship with mother (and relationship with father, to a lesser degree) had low correlations with other items. This finding may make sense in the context of emerging adulthood: a time when parental

influence is less central to one's overall sense of self and wellbeing (Arnett, 2000; Koepke & Denissen, 2012). It is also a time when youth may not have as frequent contact with their mother and/or father, for a variety of developmental reasons such as moving away for post-secondary education, increased romantic relationships, and the changing role of parents as youth transition into adulthood (Bucx, Wel, Knijn, & Hagendoorn, 2008; Ward, Deane, & Spitze, 2014). However, more research will be needed to support this finding.

With the increasing recognition of the developmental period of emerging adulthood as a distinct phase of adjustment and development there has been significant growth in research to understand this critical life stage (Bergman et al., 2016; Swanson, 2016). With that comes the need to ensure the health and mental health measurement instruments designed and validated with younger (<18 years of age) or older (> 18 years) are appropriate for youth (ages 15-24 years). Attention needs to be paid to ensuring the content and face validity among the population, otherwise we may be missing the importance of the developmental context in the measure. In this study, while the overall fit of the items in the CIS was good, the high endorsement of the not applicable/do not know response option highlights the items themselves may not be fully reflective of some aspects of the developmental stage of emerging adulthood. Future research should review the conceptual grounding of each item, ideally linking this to conducting validation studies with the population, and revising any items and/or wording to ensure their validity.

There has been little discussion about missing and not applicable/do not know item-level data in the context of the CIS, despite the original scale allowing for "not applicable/do not know" responses. Past research has either failed to acknowledge how these data were dealt with or used mean-imputation, which is the method adopted by the developers in one of their original papers (Bird et al., 1996). Well-cited criticisms of mean-imputation include loss of variability and underestimation of the standard error (Pigott, 2001). Moreover, these problems increase as the proportion of missing data gets larger (Eekhout et al., 2014). We argue that these problems may be worsened when using this instrument in clinical samples of youth, for which a relatively large proportion may not have a father figure and simultaneously be categorized as "NEET". In a recent study by Zanon and colleagues (2016) of 16 to 18 year olds' item-level missing data for the item "getting along with father figure" was 15% and problems "at school or work" was 14.2% whereas not applicable responses for these two items were 3.9% and 1% respectively. In the current study, just over 34% of the sample had at least some item-level not applicable or missing data with 9.5% having three items or more. In such a sample, the potential for total missing data is higher due to the need to use multiple non-applicable responses. As the number of not applicable and missing items increases, the greater the portion of the total score that is being determined by mean-imputation. The problem arises when an individual has non-uniform responses and a large number of items missing due to non-applicability. For example, a youth in this study who scores 4 on two items, scores 1 on five items, and provides 5 N/A responses, using mean-imputation would have a total score of 21.5, putting them over the recommended

cut-off of >15; however, if only their valid responses were used, their total score would be 13. While extreme, this illustration demonstrates how mean imputation can exacerbate the influence of "outlying" responses, resulting in total score that may not accurately represent an individual's true level of functioning. The current research was not designed to address this issue (e.g., we are lacking "a gold standard" measure to use to validate the total score those with missing data versus those without). Nonetheless, we take this opportunity to demonstrate the need to look more closely at the not applicable and missing data in the CIS and question whether alternatives to mean-imputation should be sought.

This study is not without its limitations. Our sample, while based on administrative data, is relatively small with 134 youth. Unfortunately, we could not widen our observational period to capture a larger sample as the CIS was only included among routine-collected data at the study centre starting in 2017. Although our sample conforms to the rule-of-thumb suggesting a ratio of 10 participants per item, lower-than expected correlations, especially for the item about the maternal relationship, may demand a larger sample size to achieve better model fit. Moreover, we were only able to use data on a single clinical population. Future research is required that uses a larger sample and draws on more diverse clinical groups. Also, with a larger sample, Confirmatory Factor Analysis could be undertaken, which would provide a stronger framework for modeling (Brown, 2006). While we were limited to youth self-report in this study, CIS also has a parent version, as such further psychometric analysis evaluating measurement invariance of

the CIS across informants (youth and parent) would be advantageous (Putnick & Bornstein, 2016).

Another limitation of this study is it relied on data collected as part of routine intake into a youth addictions service, we were extremely limited by the data available for use to understand how substance use may affect functioning. While we included details on the context of the youth, for example employment and education, there is a lack of understanding of whether youth were using substances at the time of assessment, and how the magnitude of substances may have affected their performance on the CIS. As such, future research should consider how substance use, including at the time of assessment, may affect youth's performance on assessments of functioning, like the CIS.

To conclude, results of this study suggest that continued use of the CIS-Y within populations of youth, including emerging adults seeking treatment for substance use, is warranted. Despite the suboptimal fit of the items assessing relationship with parents, the scale has good internal consistency, loads onto one factor as previously shown and discriminates between groups known to have lower and higher functioning. We recommend further research is undertaken using larger and more varying samples, as well as research which can answer questions surrounding coding of non-applicable responses.

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TABLE 1. Inter-item Correlations and Descriptive Statistics for the Columbia Impairment Scale - Youth Version

Item	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Problem with getting into trouble	1												
2. Problem with getting along with mother/mother figure	0.27	1											
3. Problem with getting along with your father/father figure	0.028	0.319	1										
4. Problem with feeling unhappy or sad	0.118	0.219	0.239	1									
5. Problem with behaviour at school (or job)	0.508	0.093	0.213	0.24	1								
6. Problem with having fun	0.129	0.09	0.105	0.41	0.23	1							
7. Problem with getting along with adults (other than mother/father)	0.178	-0.01	0.128	0.19	0.232	0.332	1						
8. Problem with feeling nervous/afraid	0.184	0.13	0.26	0.60	0.359	0.309	0.195	1					
9. Problem with getting along with sisters/brothers	0.093	0.175	0.191	0.15	0.198	0.363	0.358	0.145	1				
10. Problem with getting along with other kids your age	0.279	0.067	0.137	0.29	0.402	0.322	0.256	0.351	0.23	1			
11. Problem with getting involved in activities like sports or hobbies	0.142	-0.015	0.179	0.43	0.314	0.39	0.333	0.419	0.34	0.408	1		
12. Problem with school work (or doing your job)	0.275	0.129	0.36	0.36	0.443	0.335	0.301	0.283	0.23	0.202	0.398	1	
13. Problem with behaviour at home	0.41	0.483	0.243	0.23	0.441	0.2	0.295	0.189	0.35	0.306	0.367	0.297	1
Mean	1.611	2.027	1.9	3.17	1.36	2.107	0.89	2.681	1.578	1.504	2.047	1.89	1.771
Variance	1.783	1.946	1.969	1.077	1.93	1.979	1.252	1.742	1.906	1.893	2.012	1.861	1.761
Skewness	0.401	0.01	0.213	-1.069	0.61	-0.223	1.36	-0.616	0.432	0.312	-0.129	0.065	0.269
Kurtosis	-0.991	-1.245	-1.242	0.198	-0.95	1.199	1.254	-0.833	-1.06	-1.26	1.244	-1.35	-1.08
% missing	0%	0.7%	0.7%	0.7%	0.7%	1.4%	0.7%	0.7%	2.9%	0.7%	2.2%	2.2%	2.2%
% not applicable/don't know	2.2%	2.2%	11.8%	3.0%	7.5%	2.2%	0.7%	2.2%	13.4%	3.0%	3.7%	6.7%	3.7%

n ranges from 112 to 132

TABLE 2. Geomin Rotated Factor Loadings and Standard Errors from Exploratory Factor Analysis of the Columbia Impairment Scale - Youth Version

	1- Factor solution	
	Factor Loading	Standard Error
11. Problem with getting involved in activities like sports or hobbies	0.643*	0.068
5. Problem with behaviour at school (or job)	0.594*	0.079
8. Problem with feeling nervous/afraid	0.594*	0.072
4. Problem with feeling unhappy or sad	0.593*	0.086
12. Problem with school work (or doing your job)	0.591*	0.073
13. Problem with behaviour at home	0.563*	0.081
10. Problem with getting along with other kids your age	0.547*	0.076
6. Problem with having fun	0.541*	0.087
7. Problem with getting along with adults (other than mother/father)	0.464*	0.085
9. Problem with getting along with sisters/brothers	0.445*	0.084
1. Problem with getting into trouble	0.422*	0.098
3. Problem with getting along with your father/father figure	0.394*	0.093
2. Problem with getting along with mother/mother figure	0.279*	0.105

* significant at the 5% level

Figure 1. Scree Plot of Eigenvalues from Exploratory Factor Analysis of the Columbia Impairment Scale – Youth Version