

# Linköping University Post Print

## **The usability of a Norwegian adaptation of the Childrens Communication Checklist Second Edition (CCC-2) in differentiating between language impaired and non-language impaired 6-to 12-year-olds**

Wenche Andersen Helland, Eva Biringer, Turid Helland and Mikael Heimann

N.B.: When citing this work, cite the original article.

This is the pre-reviewed version of the following article:

Wenche Andersen Helland, Eva Biringer, Turid Helland and Mikael Heimann , The usability of a Norwegian adaptation of the Childrens Communication Checklist Second Edition (CCC-2) in differentiating between language impaired and non-language impaired 6-to 12-year-olds, 2009, SCANDINAVIAN JOURNAL OF PSYCHOLOGY, (50), 3, 287-292.

which has been published in final form at:

<http://dx.doi.org/10.1111/j.1467-9450.2009.00718.x>

Copyright: Blackwell Publishing Ltd

<http://www.blackwellpublishing.com/>

Postprint available at: Linköping University Electronic Press

<http://urn.kb.se/resolve?urn=urn:nbn:se:liu:diva-18539>

Running head: A Norwegian adaptation of the CCC-2

The usability of a Norwegian adaptation of the Children's Communication Checklist Second Edition (CCC-2) in differentiating between language impaired and non-language impaired 6- to 12-year-olds.

Wenche Andersen Helland

Division of Medicine, Stord Hospital, Helse Fonna HF, Norway  
Centre for Child and Adolescent Mental Health, University of Bergen, Norway

Eva Biringer

Division of Psychiatry, Haugesund Hospital, Helse Fonna, HF, Norway

Turid Helland

Department of Biological and Medical Psychology, University of Bergen, Norway

Mikael Heimann

Department of Behavioural Science and Learning, Linköping University, Sweden  
Centre for Child and Adolescent Mental Health, University of Bergen, Norway  
The Swedish Institute for Disability Research, Linköping, Sweden

**Abstract**

The aim of the present study was to evaluate if the Norwegian adaptation of the Children's Communication Checklist -2 (CCC-2) differentiates between a language impaired and a non-language impaired population and to make a first evaluation of the psychometric qualities of the questionnaire on a Norwegian sample. A total of 153 children aged 6-12 years participated in the study (45 language impaired and 108 non-language impaired). The Norwegian adaptation of the CCC-2 distinguished language impaired from non-language impaired children and thus seems to provide a useful screening tool for communication impairments in Norwegian children. The reliability of the CCC-2 appeared to be reasonable with internal consistency values ranging from 0.73- 0.89.

The usability of a Norwegian adaptation of the Children's Communication Checklist Second Edition (CCC-2) in differentiating between language impaired and non-language impaired 6- to 12-year-olds.

This study focused on how to assess communicative competence in two groups of Norwegian children, one with and one without language impairment. Communicative competence is essential in educational as well as in social contexts, and there is a need for assessment tools to identify the nature of different communication problems in children (Farmer & Oliver, 2005). Most language tests assess language structure and content, but are less well suited for evaluating how children use and interpret language or for identifying communication problems like poor turn taking or over-literal comprehension (Bishop, 2003; Bishop & Norbury, 2005), this being referred to as pragmatic language impairment (PLI) (Bishop, 2000; Gilmour, Hill, Place, & Skuse, 2004; Martin & McDonald, 2003). Pragmatic functions are context dependent and pragmatic difficulties tend to be more apparent in every day life than in structured test situations (Botting, 2004; Farmer & Oliver, 2005). Specific

Language Impairment (SLI) is usually diagnosed when a child has significant limitations in his or her language abilities that can not be explained by other factors. Children with SLI have difficulties mastering language form (grammar, vocabulary and phonology), and often comprehension is affected (Bishop & Norbury, 2002; Botting & Conti-Ramsden, 2003; Im-Bolter & Cohen, 2007).

The lack of assessment tools sensitive to PLI motivated the development of the Children's Communication Checklist (CCC) (Bishop, 1998) and its sequel, the Children's Communication Checklist-Second Edition (CCC-2) (Bishop, 2003; Norbury, Nash, Baird, & Bishop, 2004). So far there has been a lack of tests and assessment materials for the evaluation of language and communication skills in Norwegian and the present study was a pilot to evaluate the Norwegian adaptation of the CCC-2. Our aims were twofold: first, to evaluate if this adaptation could differentiate between children identified as having language impairments and typically developing children, second, to make a first evaluation of the psychometric qualities of the questionnaire on a Norwegian sample. Canino and Alegria (2008) underline the fact that a diagnostic instrument developed in one culture does not guarantee its reliability or validity in a different culture and that a comprehensive adaptation process is required.

The CCC-2 is a questionnaire measuring various aspects of communicative impairments, covering language structure skills as well as pragmatic skills. It has been standardised on a large sample (N=542) of typically developing 4 to 16 year old children across the UK, and it is designed to be filled out by parents or by any adult who has had regular contact with the child for at least 3 months (Bishop, 2003). The CCC-2 discriminates children with clinically

significant communication problems from typically developing children as well as differentiating between children with SLI and children with pragmatic language impairment.

In a former study, Helland and Heimann (2007) compared children referred to psychiatric services with typically developing children using a Norwegian translation of the original CCC (Schølberg & Thorkildsen, 1998). The results suggested that the Norwegian version of CCC distinguished between children with and without symptoms of language impairments as did the English version. Furthermore, these results indicated that children in the clinical group were more likely to have pragmatic language impairments than were the typically developing children.

In the present study, children were defined as language impaired (LI) if referred to School Psychology Services or speech and language therapists and judged to be language impaired. The investigators did not have access to any information about the exact nature of the language impairments, but we hypothesized that the sample would include children with SLI, children with PLI and children with unspecified communication problems. Children were defined as non-language impaired (NLI) if they were not referred School Psychology Services or speech and language therapists or were not judged by their parents as having any problems regarding communication. The main aim was to investigate if the CCC-2 differentiated between LI and NLI in a sample of Norwegian children six to twelve years old and to carry out a first psychometric evaluation.

## *Method*

### *Participants*

A total of 153 children aged 6-12 years ( $M=8.5$ ;  $SD = 2.0$ ) participated in the study. The sample consisted of a language impaired group (LI group) and a non-language impaired comparison group (NLI group). Descriptive data regarding age and sex distribution for both groups are shown in Table 1. The children were grouped into age spans 6-9 years and 10-12 years. In order to be included in the study the children had to be able to speak in sentences, Norwegian had to be their first language spoken at home, they should have no permanent hearing loss and the questionnaires should be consistently completed. Moreover the children in the language impaired group should be judged by their parents as well as by professionals as being language impaired. The children in the non-language impaired group should neither be referred to School Psychology Services or speech and language therapists nor be judged by their parents as being language impaired.

Altogether six School Psychology Services and three speech and language therapists, representing eight municipalities and one city district were contacted and asked to summarize how many of their referred children in the actual age range were identified as language impaired. Subjects with co-morbid conditions (AD/HD; Asperger syndrome; Downs syndrome; dyslexia, intellectual disability) were also included. This produced a list of 263 possible subjects whose parents all received a letter of invitation to participate in the study. Attached to the letter were two copies of the Children's Communication Checklist –2 (CCC-2), one for the parents to fill out and one for the teacher. The parents asked the teachers for participation and together with the CCC-2

also handed them the letter of invitation that they had received themselves. Completed CCC-2's were returned by 64 parents (24.3 %). In the smallest municipality (about 3400 inhabitants) the response rate was 50 % and in the city area (about 36000 inhabitants) it was 30 %. In the other municipalities (about 7000 to 17000 inhabitants) the mean response rate was 23 %. A total of 45 children aged 6-12 years ( $M=8.7$ ;  $SD=2.1$ ; 31 males, 14 females) fulfilled the above mentioned inclusion criteria, thus making up the Language Impaired group (LI group). A total of 26 children in the LI group had complete CCC-2 questionnaires filled out by both a parent and a teacher.

*Table 1: Age in years and gender for the participating children*

Age	LI			NLI		
	All	Male	Female	All	Male	Female
6-9	29	22	7	75	43	32
6	8	6	2	26	19	7
7	9	6	3	18	7	11
8	4	4	0	17	10	7
9	8	6	2	14	7	7
10-12	16	9	7	33	17	16
10	6	2	4	15	8	7
11	3	2	1	8	7	1
12	7	5	2	10	2	8

A letter with an invitation to participate was sent out together with a copy of the CCC-2 to the parents of 328 children (making up the total population of children attending regular schools in a small municipality in Western Norway). Completed CCC-2's were returned by 127 parents (38.7 %). A total of 108 typically developing children, within the same age range as the LI group ( $M=8.4$ ;  $SD=2.0$ , 60 males, 48 females) filled the inclusion criteria, making up the non-language impaired group (NLI group).

In the total sample 75.8 % of the questionnaires were completed by mothers, 10.5 % by fathers, 7.8 % by both parents and for 5.9 % this information was missing.

The researchers were blinded with regard to the identity of the participants. The study was approved by the Regional Committee for Medical Ethics, University of Bergen (2006) and conducted in accordance with the Helsinki Declaration of the World Medical Association Assembly.

#### *The Children's Communication Checklist Second Edition (CCC-2).*

The CCC-2 contains 70 items grouped into 10 subscales with seven items in each subscale, five items describing difficulties and two items describing strengths. The subscales A-J are presented in Table 2. Items are scored on a four point scale where the informants are asked to judge how often they have observed the described behaviour: less than once a week (or never), at least once a week, but not every day, once or twice a day, several times (more than twice a day) or always. The higher the raw score the poorer performance. Two composite scores are derived: The General Communication Composite, which is formed by summing the scaled scores of the eight first subscales (A-H),

Table 2: CCC-2 raw scores<sup>1</sup> (Mean and Standard Deviation) for the Language impaired (LI) and Non-language impaired (NLI) groups

	LI group				NLI group				<i>p</i>	
	n	Mean	Range	SD	n	Mean	Range	SD		
<b><u>6-9 years:</u></b>										
A. Speech	29	8.24	0-21	5.69	75	0.53	0-5	1.10	***	
B. Syntax	29	5.03	0-21	5.32	75	0.52	0-4	0.98	***	
C. Semantics	29	9.24	0-19	4.42	75	2.89	0-11	2.35	***	
D. Coherence	29	8.03	0-16	4.72	75	1.83	0-7	1.89	***	
E. Inappropriate initiation	29	8.79	0-18	5.11	75	3.39	0-11	2.59	***	
F. Stereotyped language	29	3.79	0-11	2.85	75	1.11	0-8	1.72	***	
G. Use of context	29	8.69	0-19	5.88	75	2.37	0-9	2.29	***	
H. Nonverbal communication	29	4.83	0-16	3.96	75	1.45	0-8	1.44	***	
I. Social relations	29	4.69	0-14	3.70	75	1.31	0-9	1.53	***	
J. Interests	29	5.52	0-14	3.99	75	2.09	0-11	2.08	***	

**10 -12 years**

A. Speech	16	2.88	0-11	3.20	33	0.21	0-3	0.65	***
B. Syntax	16	3.00	0-10	2.92	33	0.39	0-2	0.70	***
C. Semantics	16	6.31	0-12	3.24	33	1.24	0-3	1.12	***
D. Coherence	16	5.50	0-12	3.60	33	1.12	0-6	1.47	***
E. Inappropriate initiation	16	5.94	0-17	4.78	33	2.27	0-11	2.66	**
F. Stereotyped language	16	3.31	0-9	3.05	33	0.45	0-3	0.71	***
G. Use of context	16	5.19	0-11	4.04	33	1.00	0-5	1.50	***
H. Nonverbal communication	16	5.25	0-15	4.67	33	0.85	0-5	1.20	***
I. Social relations	16	4.44	0-17	4.15	33	0.76	0-5	1.20	***
J. Interests	16	5.00	0-12	3.76	33	1.97	0-8	1.98	**

---

.<sup>1</sup> A high score indicates poor performance \*\*\*=  $p < 0.001$ , \*\*= $p < 0.01$ ; Mann Whitney U-test, two- tailed

is an overall measure of communication skills. Cut-off at or below a scaled score of 54 (10<sup>th</sup> percentile according to the UK norms) discriminates children likely to have clinically significant communication problems from typically developing children. The Social Interaction Deviance Composite is a difference score, formed by subtracting the sum of scales A, B, C, D from the sum of scales E, H, I, J (Bishop, 2003; Bishop, Maybery, Wong, Maley, & Hallmayer, 2006; Glennen & Bright, 2005). It is designed to discriminate children with specific language impairment from children with pragmatic difficulties disproportionate to their structural language abilities. According to the UK manual, the Social Interaction Deviance Composite should only be interpreted if a child also scores below cut-off (= 54) on the General Communication Composite.

#### *Translation procedure*

A Norwegian adaptation of the CCC-2 was provided using a two-way translation procedure. Permission for making this adaptation was given by Harcourt Assessments (owning all rights). To ensure quality of the trans-cultural adaptation, linguists as well as clinicians (speech and language therapists, psychologists, neuropsychologists with long time experience in working with children with communication impairments), took part in the process. The CCC-2 was first translated into Norwegian, and some examples were altered due to differences between the English and the Norwegian language. A speech and language therapist, who has English as her mother tongue, but who also speaks Norwegian fluently, performed the back translation. This translation was submitted to Dorothy Bishop who commented upon seven items. The changes were made in accordance with her suggestions. (Example: Last part of item 60 was translated as: “vil unngå å komme med kritikk til folk han/hun ikke kjenner

“(will avoid criticizing people s/he doesn’t know). Bishop commented that “criticizing” was too strong and so it was changed to “vil unngå og komme med nedsettende kommentarer til folk han/hun ikke kjenner” (will avoid making personal comments about strangers).

### *Scoring*

The questionnaires were scored according to the UK manual and the obtained raw scores are reported for each of the subscales. Raw scores were converted into standardised scores scaled with a normative mean of 10 and SD of 3, possible values ranging 0-16, with a floor at zero. (Bishop, 2003). This was done by an automated scoring program that comes with the CCC-2. Scaled scores (higher score indicating better performance) are only reported for the General Communication Composite and the Social Interaction Deviance Composite.

### *Missing data*

If two or more values in a scale were missing for any child, the scale was discarded from further analyses. Scales with only one missing value were kept as the scale was automatically pro-rated by multiplying by 7/6 (if the total is 5 and there is one item with missing data, then the score for that specific subscale will be calculated with the formula  $[5 \times 7/6]$ ; Bishop, 2003). In addition, questionnaires failing the automated consistency check provided by the scoring program used in the English version (Bishop, 2003), were also excluded. The consistency check shows if the respondent has understood how to complete the CCC-2 with regard to positively and negatively formulated items. In the LI group eight questionnaires were discarded due to lack of consistency (seven teacher and one parent questionnaire) and one was excluded since too few items

were completed. In the NLI group two checklists were discarded because they failed the consistency check and another two because of missing data.

#### *Statistical and psychometric analyses*

Group differences were tested non-parametrically (Mann Whitney U-test) due to non-normal distribution of scores within groups. However, an inspection of results for the General Communication Composite revealed two outliers in the LI group and by removing these, data became normally distributed and Students t-test was used to test group differences on this composite as well as on the Social Interaction Deviance Composite. Tests were two-tailed with an alpha level of .05. Statistical procedures were performed using SPSS version 14.0.

*Validity.* Concurrent validity was assessed in terms of sensitivity and specificity of the General Communication Composite Score. Sensitivity refers to the ability of the instrument to correctly diagnose cases and specificity to the ability to correctly identify noncases. The fact that a child was referred to School Psychology Services or speech and language therapy as well as judged by parents and clinicians as being language impaired, was considered “gold standard”.

*Reliability.* The results of the 26 children in the LI group with completed parent and teacher questionnaires were used to estimate inter-rater reliability. Rating agreement between parents and teachers was assessed by Spearman’s *rho*. Cronbach’s alpha was used to measure internal consistency. Alpha scores between 0.60 and 0.80 are considered satisfactory, and scores above 0.80 indicate a highly internally consistent scale (Prince, Stewart, Ford & Hotopf, 2004).

### *Results*

As can be seen from Table 2, Mann Whitney U-test revealed significant differences ( $p < 0.01$ ) between the raw scores of the LI group and the NLI group on all subscales (z values ranging from -2.94 to -4.87) for both age groups.

#### *Analysis based on the UK norms*

*The composite scores.* In the LI group, 69.8 % of the children scored at or below cut-off 54 whereas only 1.9 % of the children in the NLI group received a score below this level. The mean General Communication Composite score in the LI group was 44.00 (SD=18.17) compared to 83.78 (SD=13.93) for the NLI children and the two groups differed significantly,  $t(149) = 12.9$ ;  $p < 0.001$ . Separate analyses were performed for different age spans, but the results did not change. The mean Social Interaction Deviance Composite of the LI group was 7.60 (SD=10.21) compared to 0.53 (SD= 7.20) in the NLI group  $t(151) = -4.2$ ;  $p < 0.001$ . When comparing the age spans 6-9 years and 10-12 years the difference between the LI group and the NLI group was also significant for the youngest group, while it was non-significant for the oldest.

*Gender.* On the General Communication Composite no differences were found between boys and girls in the NLI group. In the LI group the girls in the youngest group scored significantly lower than did the boys  $t(26) = -3.0$ ;  $p < 0.01$ . In the oldest group no differences were found.

*Evaluating different cut-offs.* The recommended cut-off for the General Communication Composite (scoring at or below 54) corresponds to the 10<sup>th</sup> percentile in the UK standardization sample (Bishop, 2003). Using a similar rule for the NLI group in the current study suggests a slightly higher cut-off since a

score of 64 roughly corresponded to the 10<sup>th</sup> percentile in our Norwegian sample.

*Sensitivity and specificity.* Based on a cut-off at or below 54 on the General Communication Composite, 30 out of 43 children in the LI group were correctly identified as cases (language impaired) giving a sensitivity of the instrument of 69.8. %. In the NLI group 106 out of 108 children were correctly identified as noncases (2 false positives), giving a specificity of 98.1 %.

Selecting a cut-off at or below 64 on the General Communication Composite, increased the number of correctly identified cases with seven in the LI group, giving a sensitivity of 86 %. In the NLI group the number of correctly identified cases decreased to 98 out of 108 (10 false positives), giving a specificity of 90.7 %.

*Reliability.* The observed inter-rater agreement between parents and teachers in the LI group ranged from 0.44 (the B. Syntax and the F. Stereotyped Language scale) to 0.76 (the A. Speech scale;  $ps < .05$ ) as is evident from Table 3.

*Internal consistency.* Cronbach's alpha values varied from 0.73 on the Stereotyped language scale to 0.89 on the speech scale (Table 4). The over-all alpha value of the instrument was 0.97.

*Table 3: Observed agreement between parent and teacher ratings on the CCC-2 for a subsample of the Language Impaired children in the Language impaired group (Spearman's rho)*

CCC-2 subscales	n	$r_s$
A. Speech	25	.76**
B. Syntax	25	.44*
C. Semantics	24	.47*
D. Coherence	25	.64**
E. Inappropriate initiation	25	.72**
F. Stereotyped language	25	.44*
G. Use of context	23	.48*
H. Nonverbal communication	25	.55**
I. Social relations	25	.74**
J. Interests	26	.68**

\*= $p < 0.05$ ; \*\*= $p < 0.01$

*Table 4: Measures of internal consistency (Cronbach's alphas) for CCC-2 scales in the total sample (based on raw scores)*

	n	alpha
A. Speech	153	.89
B. Syntax	152	.85
C. Semantics	152	.82
D. Coherence	149	.85
E. Inappropriate initiation	148	.86
F. Stereotyped language	153	.73
G. Use of context	148	.88
H. Nonverbal communication	152	.79
I. Social relations	150	.78
J. Interests	153	.74

### *Discussion*

The main result of this study showed that the Norwegian adaptation of the CCC-2 differentiated between a group of language impaired and a group of non-language impaired children. The two groups differed significantly on all subscales, as well as on the General Communication Composite.

The internal consistency of the Norwegian CCC-2 appeared to be reasonable, Cronbach's alpha values were 0.73 or higher for the different subscales. This indicates that the ratings on the items cluster coherently within each scale. Bishop (2003) reports values of 0.66 or higher for the UK standardisation sample.

Moreover, the agreement between parent and teacher ratings in the LI group ranged from 0.44 to 0.76, which is comparable to the correlations reported by Bishop (2003) for the UK standardisation sample. Relatively low correlations between parent and professional ratings are a common finding (Ehler, Gillberg, & Wing, 1999) and have also been reported in former studies using the original CCC (Bishop & Baird, 2001; Gilmour et al. 2004). These discrepancies between parent and teacher ratings may to some extent be due to the fact that the children are observed in different contexts. Teacher ratings were not included for the NLI group and future research need to provide additional reliability data for the Norwegian CCC-2.

The low response rate raises problems regarding the generalizability of our findings. When inspecting the responses from each of the participating School Psychology Services and each of the speech and language therapists the response rate was between 16 and 33 percent, the exception being the smallest municipality having a response rate of 50 percent. A Norwegian study

investigating the impact of non-response in a community survey of mental health problems in Norwegian children found that children with signs of mental problems, as reported by teachers, were less likely to take part in the study than children without such signs (Stormark, Heiervang, Heimann, Lundervoll, & Gillberg, 2008). Thus the burden of having a language impaired child may be reflected in reluctance of participation. Regarding the response rate in the NLI-group, this was comparable to what was reported for the comparison group in the study by Helland and Heimann (2007) on the usability of CCC in a Norwegian sample.

LI-children are more likely to have parents with similar language problems, and might be underrepresented in this study because completing a questionnaire like the CCC-2 is linguistically demanding for the parents. Thus, when using a parental questionnaire like the CCC-2 in a clinical setting one has to be aware of information bias since some items may have been misinterpreted. Furthermore, there may be bias leading to artificial large differences between the LI group and the NLI group. Since one clinical and one healthy group were compared in the present study there is a risk that more extreme ranges of variance in language problems were represented. A future epidemiological study will have all symptom levels represented, thus avoiding this potential source of enlargement of the group differences between the LI and the NLI groups. In addition, two other issues might also affect our results: The fact that we allowed for co-morbidity in the LI group and the lack of an established Norwegian instrument that could be used for validation. However, language impairment often co-occurs with other problems and the aim of the present study was not to reveal what caused the language impairment. Regarding another instrument for

validation, although desirable, reliance on parents and professionals judgment of the child being language impaired might be considered sufficient (Bishop & Baird, 2001; Lundervold, Heimann & Manger, 2008).

The fact that only 69.8 % of the LI group scored below cut-off 54 on the General Communication Composite was somewhat unexpected since these children were all evaluated by parents and professionals as having problems with communication. One possible reason might be that this evaluation was based mainly on the children's pronunciation which alone would not result in a low General Communication Composite.

Changing the cut-off score to 64 on the General Communication Composite - corresponding roughly to the 10<sup>th</sup> percentile in the Norwegian NLI group - increased the proportion of children in the LI- group being identified by the instrument to 86.0 %. Thus, in order for the CCC-2 to function as a valid screening of Norwegian children, our preliminary recommendation is that a higher cut-off score than 54 points on the General Communication Composite should be used. Speculatively, one reason for the difference in cut-off scores between the Norwegian and the UK version might be different standards of pronunciations in English and Norwegian speaking populations. Contrary to English conventions the use of dialects are cultivated and appreciated in Norway. Another explanation may be that one has not completely succeeded in the trans-cultural adaptation of the CCC-2. It is also possible that a larger sample size would have yielded a different picture although an Australian standardisation (Bishop, 2003) only used a sample size of 111 children. In the Australian sample the results fell below the expected mean of the British

standardisation sample, indicating that a lower cut-off should be used for Australian children.

In sum, the results of the present study indicate that the Norwegian adaptation of the CCC-2 might be developed into a reliable instrument with a reasonable sensitivity and specificity for identifying children with language impairment. We will continue to validate the content of the questionnaire in an ongoing study comparing different diagnostic groups. It is a challenge for future research to collect data from a sufficient number of children to develop Norwegian norms and in order to create a Norwegian standardization of the questionnaire. Given the functional and social disabilities associated with language impairment, this is a very important field to address in the future.

*Acknowledgements*

This study was conducted with the support of the Stord Hospital, the Helse Fonna HF and the Centre for Child and Adolescent Mental Health, University of Bergen, Norway. The authors wish to thank Dorothy Bishop for her generous assistance. Also, we want to thank Lillian Møllerhaug, who together with the first author performed the translation and adaptation of the questionnaire. Further we wish to thank all parents, teachers, speech and language therapists and staff at the School Psychology Services that made this study possible.

*References*

- Bishop, D. V. M. (1998). Development of the Children's Communication Checklist (CCC): A method for assessing qualitative aspects of communicative impairment in children. *Journal of Child Psychology and Psychiatry*, 39(6), 879-891.
- Bishop, D. V. M. (2000). Pragmatic language impairment: A correlate of SLI, a distinct subgroup, or part of the autistic continuum? In D.V.M. Bishop & L. B. Leonard (Eds.), *Speech and language impairment in children: Causes, characteristics, intervention and outcome* (pp. 99-113). Hove: Psychology Press Ltd.
- Bishop, D. V. M. (2003). *The Children's Communication Checklist Second Edition (CCC-2)*. London: The Psychological Corporation.
- Bishop, D. V. M., & Baird, G. (2001). Parent and teacher report of pragmatic aspects of communication: use of the Children's Communication Checklist in a clinical setting. *Developmental Medicine & Child Neurology*, 43, 809-818.
- Bishop, D. V. M., Maybery, M., Wong, D., Maley, A., & Hallmayer, J. (2006). Characteristics of the Broader Phenotype in Autism: A Study of Siblings Using the Children's Communication Checklist-2. *American Journal of Medical Genetics 141B*, 117-122.
- Bishop, D. V. M., & Norbury, C. F. (2002). Exploring the borderlands of autistic disorder and specific language impairment: a study using standardised diagnostic instruments. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 43, 917-931.
- Bishop, D. V. M., & Norbury, C. F. (2005). Executive functions in children with

- communication impairments, in relation to autistic symptomatology. I: Generativity. *Autism*, 9(1), 7-27.
- Botting, N. (2004). Children's Communication Checklist (CCC) scores in 11-year-old children with communication impairments. *International Journal of Language and Communication Disorders*, 39(2), 215-227.
- Botting, N., & Conti-Ramsden, G. (2003). Autism, primary pragmatic difficulties, and specific language impairment: can we distinguish them using psycholinguistic markers? *Developmental Medicine and Child Neurology*, 45(8), 515-524.
- Canino, G., & Alegria, M. (2008). Psychiatric diagnosis-is it universal or relative to culture? *Journal of Child Psychology and Psychiatry*, 49(3), 237-250.
- Ehler, S., Gillberg, G., & Wing, L. (1999). A Screening Questionnaire for Asperger Syndrome and Other High-Functioning Autism Spectrum Disorders in School Age Children. *Journal of Autism and Developmental Disorders*, 29(2), 129-141.
- Farmer, M., & Oliver, A. (2005). Assessment of pragmatic difficulties and socioemotional adjustment in practice. *International Journal of Language and Communication Disorders*, 40(4), 403-429.
- Gilmour, J., Hill, B., Place, M., & Skuse, D. H. (2004). Social communication deficits in conduct disorder: a clinical and community survey. *Journal of Child Psychology and Psychiatry*, 45(5), 967-978.
- Glennen, S., & Bright, B. J. (2005). Five Years Later: Language in School-Age Internationally Adopted Children. *Seminars in speech and language*, 26(1), 86-101.

- Helland, W. A., & Heimann, M. (2007). Assessment of pragmatic language impairment in children referred to psychiatric services: A pilot study of the Children's Communication Checklist in a Norwegian sample. *Logopedics Phoniatics Vocology, 32*, 22-30.
- Im-Bolter, N., & Cohen, N. J. (2007). Language Impairment and Psychiatric Comorbidities. *Pediatric Clinics of North America, 54*, 525-542.
- Lundervold, A.J., Heimann, M., & Manger, T. (2008). Behaviour-emotional characteristics of primary schoolchildren rated as having language problems. *British Journal of Educational Psychology*. In press.
- Martin, I., & McDonald, S. (2003). Weak coherence, no theory of mind, or executive dysfunction? Solving the puzzle of pragmatic language disorders. *Brain and Language, 85*, 451-466.
- Norbury, C. F., Nash, M., Baird, G., & Bishop, D. V. M. (2004). Using a parental checklist to identify diagnostic groups in children with communication impairment: a validation of the Children's Communication Checklist-2. *International Journal of Language and Communication Disorders, 39*(3), 345-364.
- Schjølberg, S., & Thorkildsen, N. P. (1998). Sjekkliste for barns kommunikasjon (CCC). Til forskning. Av D.V.M. Bishop. [Checklist for children's communication. Research version by D.V. M. Bishop]. Oslo: Centre for Child and Adolescent Psychiatry.
- Stormark, K. M., Heiervang, E., Heimann, M., Lundervoll, A., & Gillberg, C. (2008). Predicting Nonresponse Bias from Teacher Ratings of Mental Health Problems in Primary School Children. *Journal of Abnormal Child Psychology, 36*, 411-419.

Prince, M., Stewart, R., Ford, T., & Hotopf, M. (2004). *Practical psychiatric epidemiology*. Oxford: University Press.