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Pediatrics 1999;104:885-893

DOI: 10.1542/peds.104.4.885

This information is current as of March 22, 2007

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://www.pediatrics.org/cgi/content/full/104/4/885>

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Child Sexual Behavior Inventory: A Dutch-speaking Normative Sample

Eric Schoentjes, MD*; Dirk Deboutte, PhD‡; and William Friedrich, PhD§

ABSTRACT. *Objectives.* To describe normative sexual behavior in Dutch-speaking children; to assess the frequencies of different types of sexual behaviors reported in children by their parents; to analyze the relation of these sexual behaviors to demographic, personal, familial, and general behavioral variables; and to compare the Dutch-speaking sample with American samples.

Method. Nine hundred seventeen children (2–12 years of age), screened to exclude sexual abuse, were rated by their caregiver via parent report consisting of the translated Dutch version of the Child Sexual Behavior Inventory, the Child Behavior Checklist, a life event checklist, and a questionnaire assessing family nudity and parental attitudes regarding sexuality.

Results. Frequencies of a wide variety of sexual behaviors for 2- to 5-, 6- to 9-, and 10- to 12-year-old children are presented. Sexual behavior was found to be related to the child's age, maternal education, family nudity, and parental attitudes toward sexuality. The positive relation to general behavioral problems was confirmed. Findings were primarily similar to previously published American studies.

Conclusion. Our study confirms that sexual behavior in children is varied and related to developmental, personal, and familial factors. The relative frequency of the wide variety of sexual behaviors in a Dutch-speaking normative sample is comparable to American samples. *Pediatrics* 1999;104:885–893; *sexual behavior, children, family sexuality, Child Sexual Behavior Inventory.*

ABBREVIATIONS. CSBI, Child Sexual Behavior Inventory; CBCL, Child Behavior Checklist.

With the ever-increasing focus on the sexual abuse of children, pediatricians are often confronted with questions from parents or other caregivers about the normality of a child's sexual behavior or interest in sexual matters. As Finkelhor¹ wrote: "We know more about sexual deviance than we do about sexual normality. . . (We have) a vast ignorance of the forces governing the development and experience of sexual behavior in general." Although in the last 3 or 4 decades there has been a significant increase in studies of infant and child

development, and an explosion of studies about sexual abuse, only a few studies have concentrated on normal child sexual development and experience.² Until recently, knowledge about sexual development and behavior of children, mostly based on adult recollection of sexual feeling or activities during childhood years, was often anecdotal or derived from small or biased samples. Remarkably scarce information based on large-scale surveys or observations exists with regard to child sexual development.

In the past decade however, the results of a few large-scale surveys on this subject have been published.^{3–5} A promising instrument used in some of these surveys is the Child Sexual Behavior Inventory (CSBI).^{3,4} This parental report measure consists of ~40 questions on sexual behavior and interest. It has been well-validated in two large-scale surveys of 2- to 12-year-old children.^{3,4} Since its first publication in *Pediatrics* in 1991, this method has been increasingly used in different studies to measure and describe sexual behaviors for different categories of children. Its use has also been recommended by different authors for the assessment of sexually-abused children.^{6–10}

Large-scale studies including direct observation of children's sexual behavior, or questioning of the children about their sexuality, have not yet been performed to this date. Cultural attitudes and values about sexuality, and in particular childhood sexuality, certainly hamper this kind of research. However, retrospective self-report studies, specifically adult recollections about sexual feelings or activities as a child, have been used to document sexual behavior in children as normal.

Despite controversies about the reliance on parental (or other caregivers) observations and reports on the behavior of their children, they are widely used in clinical and developmental research. Several reasons support the use of parental report in research about children's development. First, is the expertise of the parent, who typically is recognized as the most knowledgeable about their young child's life. Secondly, the questionnaire method allows more children to be studied than the use of more intrusive methods like observation. Thirdly, the use of parental questionnaires is relatively economical.¹¹

Similar to other areas of child development, sexual behavior is influenced by environmental factors. These factors are at the level of the society, and at the level of the family in which the child grows up. Friedrich et al^{3,4} demonstrated that sexual behavior in children is related to the child's family context, most specifically, sexual behavior in the family and

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Received for publication Oct 13, 1998; accepted Mar 3, 1999.

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the level of education of the mother. However, he could not confirm the influence of ethnicity on the sexual behavior in his normative sample.

A modified version of the CSBI has been used previously to examine the sexual behavior and knowledge of two Dutch samples of 0- to 11-year-old children.^{12,13} The results of these surveys confirmed the influence of familial factors on the sexual behaviors but found higher frequencies for a wide variety of sexual behaviors in comparison to the American samples. Unfortunately these results can not be extrapolated to the Dutch population because of an important recruitment bias in both studies, which resulted in overrepresentation of higher social classes.

For professionals to speak with authority about the normality or abnormality of the sexual behavior in children, it is useful for pediatricians to refer to a culturally relevant normative sample. The aim of the present study was to adapt the CSBI for the Dutch language and to use it in a large-scale community-based survey to describe the normative sexual behavior of 2- to 12-year-old children in an urban area in Flanders, the Dutch-speaking part of Belgium. The study also explored the relationship of socioeconomic and family variables to sexual behavior. To examine possible cultural influences on the sexual behavior of children, the frequencies of a wide variety of sexual behaviors were also compared with the frequencies in previously published American samples.

METHODS

Sample

Study participants were derived from 14 schools in the urban area of Antwerp (population: 462 880 inhabitants). These schools were located in the inner city as well as in the suburbs of town. Private as well as state-owned public schools were included. All the children in the participating schools were given a sealed envelope containing a questionnaire and an accompanying letter that explained the aim of the study, presented the investigators, and gave guidelines concerning the completion of the questionnaire. Depending on the age of the child, the envelope was either given to the parents by the teachers or to the children, with instructions to hand it over to their parents. It was assumed that parents of children from Belgian or Dutch nationality had sufficient competence in Dutch to complete the questionnaire.

In the accompanying letter the aim of the study was explained. Participation in this survey was nonobligatory and the parents were guaranteed anonymity. The letter stressed the preference for the female caregiver of the child to complete the questionnaires. The parents were instructed to return the completed (or uncompleted) questionnaires in a closed envelope that accompanied the questionnaire. This envelope was collected by the teacher of their child. After 3 weeks the investigators collected the questionnaires in the schools.

The recruitment occurred in two phases. During the first phase, from January 1997 to February 1997, 1318 questionnaires were distributed in elementary schools; ie, children ages 6 through 12 years. In the second phase, from November 1997 until January 1998, 1248 questionnaires were distributed in nursery schools; ie, children ages 2 through 6 years.

A total of 2566 questionnaires were distributed and 1294 were returned to the investigators (50.4%). From this total, 377 were excluded for various reasons (192 were blank; 84 had been incompletely or incorrectly answered; 71 questionnaires were excluded because the children were not of Belgian or Dutch nationality; 7 questionnaires because the children fell outside the age limits, ie, >12 years old). Questionnaires for children whose parents reported their having been sexually abused were also excluded (23

questionnaires). This resulted in a total of 917 children, or 70.8% of the returned questionnaires. This group of 917 children 2 to 12 years old, of Belgian or Dutch origin, and not suspected of having been sexually abused, constituted the normative sample used in all further analyses. Demographic data of our normative sample are presented in Table 1.

Questionnaire

The 7-page questionnaire consisted of four sections: a demographic data sheet, a section consisting of questions about family nudity and parental attitudes concerning sexuality, the CSBI, and the "problem behavior" portion of the Child Behavior Checklist (CBCL).

The first section of the questionnaire consisted of questions concerning demographic and familial variables. This portion obtained information on the identity of the respondent in relation to the child; the age and sex of the respondent and the child; the total number of children, separately for girls and boys in the family; the rank-order of the child; the occupational and educational status of the parents; the nationality and ethnic origin of the child; and a life events checklist. The life event items obtained information on whether the child had ever experienced parental divorce or separation, physical abuse, parental death, parental illness requiring hospitalization, and child illness requiring hospitalization. One item also screened for negative sexual experiences to identify possible sexually-abused children.

The second section consisted of 4 questions related to family nudity (eg, "Your child can watch when you're naked," "Your child accompanies you in bath or shower?"); 5 questions concerning parental reactions to the sexual curiosity of the child (eg, "How would you react if your child asked to look at your genitals?," "How would you react if your child watched adult movies on television?"); and 4 questions concerning parental attitudes toward sexuality (self-rating of permissiveness for masturbation, homosexuality, and extramarital sex). In this second section the respondent was requested to mention if he had ever experienced "adverse sexual experiences during childhood that still hamper him as an adult".

The third section consisted of the Dutch translation of the CSBI. The adapted CSBI version used in this study consisted primarily of the 44 questions of the CSBI reported by Friedrich et al³ in his publication *Normative Sexual Behavior in Children*. These questions were translated into Dutch by the first author and tested for readability and comprehension by five parents. The questionnaire was then independently translated back to English by a blind translator to check possible distortion of meaning as a result of the translation process. To these 44 questions, 3 were added from the questionnaire used by Cohen-Kettenis and Sandfort¹³ in their survey: "asks questions concerning sexuality," "draws sex parts in pictures," and "plays doctor" (a common Dutch expression for

TABLE 1. Demographic Data

% Female	54.6
Child's age, mean y, (SD)	6.02 (2.64)
Maternal education, mean y, (SD)	19.13 (1.93)
Paternal education, mean y, (SD)	19.17 (2.29)
Maternal professional activity (percentage)	
Unemployed/housewife	13.1
Unskilled worker	3.3
Skilled worker/lower employee	9.2
Employee	39.9
Self-employed person	9.4
Public servant/teacher/higher employee	18.3
Executive/independent profession	6.8
Paternal professional activity (percentage)	
Unemployed	6.1
Unskilled worker	0.6
Skilled worker/lower employee	21.2
Employee	25.8
Self-employed person	13.6
Public servant/teacher/higher employee	17.3
Executive/independent profession	15.4
% White	100
% Divorced or separated	17.1
% Female respondents	92.2
Total n = 917	

mutual physical-genital explorative activity in children). Question 44 of the CSBI-1 ("other sexual behavior [please describe]") was recorded but was not used for further analysis because of the heterogeneity of the responses. Like the original CSBI, the Dutch translation asks the respondent to score the listed sexual behaviors according to their frequency in the past 6 months. One can choose between 4 levels of frequency; ie, 0, never; 1, less than once a month; 2, 1 to 3 times a month; and 3, at least once a week.

Similar to the first large-scale survey accomplished by Friedrich et al,³ the last section consisted of the "problem behavior" portion of the CBCL. This widely-used and well-validated instrument, measures a wide range of behavioral problems. To encompass the age distribution of our population, two versions were used, the 99-item 2- to 3-year-old version and the 113-item 4- to 18-year-old version. Total, internalizing, and externalizing *T* scores were scored for each child.

RESULTS

Type of Reporter

Mothers comprised the majority of responders (92.2%), but rather than discarding fathers automatically, the differences between fathers and mothers were first calculated. The relation of the gender of the responder to the CSBI mean total score was examined with multiple regression analysis. Four demographic variables were entered first as a block; ie, age and gender of the child, maternal education, and parental professional activity. Parental professional activity was used as an alternative parameter for family income because questions about family income are not well-accepted in Belgium. A score was attributed to each professional category (from 1 for "unemployed/housewife" to 7 for "executive/independent profession"). An average score was calculated when both parents were working outside home, with parental professional activity reflecting this composite.

The gender of the respondent was added in the next step of the regression analysis. This step only marginally increased the explained variance as reflected in an $R^2 = .001$, and the gender of the respondent was not significantly related to the CSBI total mean score after the variance contributed by the four demographic variables was considered ($P = .410$). This finding supported our decision to include the questionnaires completed by a male caregiver in our normative sample.

Age Effect

We examined the age effect on the CSBI item mean score. Similar to the analysis used in Friedrich et al,³ the item mean score of the first 35 items of the CSBI was graphically plotted against the age (Fig 1). Item mean score was calculated by dividing the total score by the number of items (total score up to 105 [35×3] \div 35). The plotted scores show a decline with increasing age. Our results confirmed that the 2- to 5-year-old children are relatively sexual compared with the 10- to 12-year-old children and this is true for both genders. The steepest drop in item mean score for both genders occurs at 5 years of age. Another drop occurs at 8 years of age for boys and 9 years of age for girls. These findings are comparable to those of the American sample described by Friedrich et al⁴ in 1998. On the other hand, only the boys scored an increase in item mean score at the age of 12 in our sample. This increase was described by Friedrich et al⁴ but for both genders, and is probably attributable to the increased interest in sexual matters (as reflected for example in the items: "is very interested in opposite sex" or "tries to view pictures of nude or partially dressed people"). The correlation of age and the item mean score was significant ($r = -.34, P < .0001$).

Endorsement Frequencies of the Items

The proportion of children endorsing each item was calculated for the entire normative sample. Endorsement was defined as a score of either 1, 2, or 3, meaning the child had exhibited that behavior at least once in the past 6 months. The endorsement frequencies are listed in Table 2. Although some sexual behaviors are extremely uncommon (eg, "puts mouth on another child/adult sex parts," "ask others to do sex acts," or "puts object in vagina/rectum"), every item was endorsed at least by a few parents in this sample.

At the other extreme, 24 out of 43 items were endorsed by >10% and 4 out of 43 by >50%. In the second and third columns of Table 2 the relative endorsement frequencies of identical and similar items of two other published CSBI-samples are listed

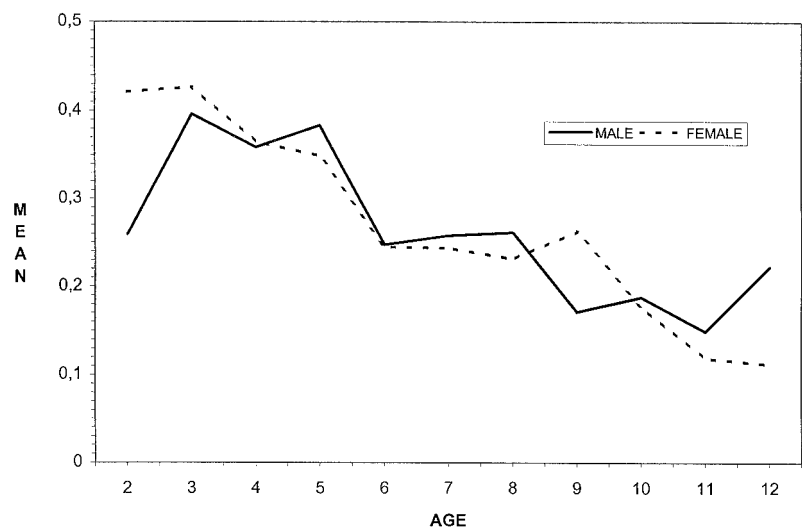


Fig 1. Normative sample: Child Sexual Behavior Inventory item mean score for boys and girls across age groups.

TABLE 2. Rank Order of Endorsement Frequencies for Shared Items of the CSBI-Versions

No.	Item (Abbreviated)	CSBI-Antwerp (n = 917)	CSBI-1 ³ (n = 880)	CSBI-3 ⁴ (n = 1114)
10	Puts mouth on another child's/adult's sex parts	0.2	0.1	0.2
29	Wants to watch TV nudity	0.7	2.7	7.7
15	Ask others to engage in sex acts	1.0	0.4	0.3
17	Puts objects in vagina/rectum	1.6	0.9	0.8
42	Touches animals' sex parts	1.6	1.3	1.5
7	Masturbates with object	2.0	0.8	3.9
19	Imitates sexual behavior with dolls/stuffed animal	2.9	3.2	1.6
28	Undresses other children	3.1	2.6	1.2
16	Rubs body against people or furniture	4.4	6.7	4.3
14	Makes sexual sounds	4.6	1.4	1.4
9	Imitates the act of sexual intercourse	5.0	1.1	–
40	Overly friendly with men	5.2	7.1	2.8
2	Wants to be opposite sex	5.7	4.9	5.4
30	Puts tongue in mouth when kissing	5.9	2.5	2.3
37	Puts mouth on breast	7.1	2.6	3.0
36	Stands too close	7.2	11.6	21.3
4	Masturbates with hands	7.5	15.3	12.4
33	If girl, overly aggressive, if boy, overly passive	7.9	10.4	–
45	Draws sex parts	7.9	–	2.3
13	Pretends to be opposite sex when playing	8.3	13.0	–
31	Hugs adults not well-known	8.4	7.3	9.5
32	Shows sex parts to children	9.5	8.1	5.3
1	Dresses like opposite sex	11.8	5.8	9.3
20	Shows sex parts to adults	12.9	16.0	9.8
22	Talks about sex acts	12.9	4.7	5.3
27	Talks flirtatiously	13.1	10.6	4.9
8	Touches other people's sex parts	14.1	6.0	–
12	Uses words that describe sex acts	14.3	8.8	–
21	Tries to look at pictures of nude people	16.3	15.5	6.7
3	Touches sex parts in public	22.1	19.7	14.4
41	Shy about undressing	22.9	38.7	–
34	Very interested in opposite sex	24.3	23.0	17.1
18	Tries to look at people when they are nude	31.7	28.5	21.4
25	Sits with crotch or underwear exposed	40.0	36.4	–
5	Scratches anal and/or crotch area	42.6	52.2	–
46	Plays doctor	42.8	–	–
43	Walks around house without clothes	44.5	41.9	–
6	Touches breast	45.9	30.7	27.3
23	Kisses adults not in the family	46.5	36.2	–
35	If boy, plays girl's toys, if girl, plays boy's toys	46.5	53.9	–
44	Ask questions about sexuality	48.9	–	–
26	Kisses other children not in the family	49.1	33.9	–
24	Undresses self in front of others	52.6	41.2	–
38	Likes to walk in underclothes	54.0	52.9	–
39	Shy with strange men	62.5	64.5	–
11	Touches sex parts at home	63.8	45.8	–

to enable comparison with the present sample. The age and sex distributions of these samples differ only slightly (the age and sex distribution of the sample can be found in Table 3.). A large majority of items have similar endorsement frequencies across the three samples. This can be illustrated by the fact that only 21 out of 70 possible two-group comparisons differ by >5% and only 6 differ by >10%.

Developmental Course

As suggested by the age effect on the CSBI total score, age was considered in the calculation of fre-

quencies for the different items. Similar to the analysis of Friedrich et al,⁴ the children were grouped into three age clusters. The rationale for this categorization can be found in the developmental trend of the item mean score as reflected in Fig 1 and as discussed above. The groups are: 2- to 5-year-olds, 6- to 9-year-olds, and 10- to 12-year-olds. The frequencies of sexual behavior in these three age groups are presented in Table 4. An examination of Table 4 suggests that three categories of sexual behavior can be observed when one takes the age of the child into account. The vast majority of the sexual behaviors as

TABLE 3. Age and Sex Distribution of the Normative Sample

	Age (Year)											Total
	2	3	4	5	6	7	8	9	10	11	12	
Male	15	72	65	79	44	37	32	25	24	18	5	416
Female	23	74	66	76	56	40	42	35	52	26	11	501
Total	38	146	131	155	100	77	74	60	76	44	16	917

TABLE 4. Simple Endorsement Frequencies of Sexual Behaviors for the Three Age Groups

No.	Item (Abbreviated)	2-5 Years (n = 470)	6-9 Years (n = 311)	10-12 Years (n = 136)	χ^2 P	Cochran's P
1.	Dresses like opposite sex	16.2	9.0	2.9	<.0001	<.00001
2.	Wants to be opposite sex	9.8	1.0	2.2	<.00001	<.00001
3.	Touches sex parts in public	30.0	16.1	8.8	<.00001	<.00001
4.	Masturbates with hands	9.2	6.1	5.2	NS	-
5.	Scratches anal and/or crotch area	53.4	36.0	20.6	<.00001	<.00001
6.	Touches breast	63.0	35.7	10.3	<.00001	<.00001
7.	Masturbates with object	3.2	0.3	1.5	<.02	<.05
8.	Touches other people's sex parts	21.9	7.7	1.5	<.00001	<.00001
9.	Imitates the act of sexual intercourse	2.3	8.7	5.9	<.001	<.005
10.	Puts mouth on another child's/adult's sex parts	0.2	0.3	0.0	NS	-
11.	Touches sex parts at home	78.3	56.0	31.6	<.00001	<.00001
12.	Uses words that describe sex acts	3.6	24.4	27.9	<.00001	<.00001
13.	Pretends to be opposite sex when playing	13.8	2.9	1.5	<.00001	<.00001
14.	Makes sexual sounds	2.3	6.8	7.4	<.005	<.005
15.	Ask others to do sex acts	0.9	1.6	0.0	NS	-
16.	Rubs body against people or furniture	5.3	3.5	2.9	NS	-
17.	Puts objects in vagina/rectum	3.0	0.3	0.0	<.005	<.005
18.	Tries to look at people when they are nude	37.2	28.9	19.1	<.001	<.0005
19.	Imitates sexual behavior with dolls/stuffed animal	2.6	3.5	2.9	NS	-
20.	Shows sex parts to adults	20.9	4.5	4.4	<.00001	<.00001
21.	Tries to look at pictures of nude people	9.8	21.5	26.5	<.00001	<.00001
22.	Talks about sex acts	4.5	18.0	30.2	<.00001	<.00001
23.	Kisses adults not in the family	57.0	37.6	30.2	<.00001	<.00001
24.	Undresses self in front of others	62.6	48.6	27.2	<.00001	<.00001
25.	Sits with crotch or underwear exposed	50.4	34.7	16.2	<.00001	<.00001
26.	Kisses other children not in the family	63.4	38.6	23.5	<.00001	<.00001
27.	Talks flirtatiously	16.0	12.9	3.7	<.001	<.001
28.	Undresses other children	4.9	1.3	0.7	<.005	<.005
29.	Wants to watch TV nudity	0.4	1.0	0.7	NS	-
30.	Puts tongue in mouth when kissing	0.8	4.5	1.5	<.01	<.01
31.	Hugs adults not well-known	11.9	5.2	3.7	<.0005	<.0005
32.	Shows sex parts to children	13.2	7.1	2.2	<.001	<.0001
33.	If girl overly aggressive, if boy overly passive	10.0	6.4	3.7	<.05	<.01
34.	Very interested in opposite sex	23.4	24.4	27.2	NS	-
35.	If boy, plays girl's toys, if girl, plays boy's toys	59.4	38.3	20.6	<.00001	<.00001
36.	Stands too close	8.9	5.8	4.4	NS	-
37.	Puts mouth on breast	8.7	7.7	0.0	<.01	<.005
38.	Likes to walk in underclothes	63.4	51.5	27.2	<.00001	<.00001
39.	Shy with men they don't know	71.5	58.2	41.2	<.00001	<.00001
40.	Overly friendly with men	6.6	3.9	3.7	NS	-
41.	Shy about undressing	15.3	30.2	32.4	<.00001	<.00001
42.	Touches animals' sex parts	2.6	1.0	0.0	NS	-
43.	Walks around house without clothes	57.5	38.6	13.2	<.00001	<.00001
44.	Ask questions about sexuality	33.6	64.6	65.4	<.00001	<.00001
45.	Draws sex parts	4.9	12.2	8.1	<.001	<.05
46.	Plays doctor	53.0	39.2	15.4	<.00001	<.00001

described by the items tend to decrease in endorsement frequency at increasing age (eg, "touches sex parts in public," "touches breasts," "shows sex parts to adult," "tries to look at people when nude," "dresses like opposite sex"). Some seem to be more frequent in the older-age categories (eg, "talks about sex acts," "shy about undressing," "tries to look at pictures of nude people"), where others do not seem to vary between the different age-categories (eg, "imitates sexual behavior with dolls," "very interested in opposite sex," "puts mouth on another child/adult sex parts").

A χ^2 analysis was performed to investigate these impressions in a more formal manner. Frequency tables for each item were constructed by putting the three age-categories in columns and the presence or absence of that behavior in rows (an item score equalling 0 meant that particular behavior was not observed by the parents, item scores of 1, 2, or 3 meant that the behavior had been observed at least once in the past 6 months). When table frequencies

were too low, age categories were grouped. To evaluate the age effect on the individual endorsement frequencies of the items, Cochran's test of linear trend was computed (see Table 4).

In summary, the vast majority of the items (34 of 46) reflected a significant age trend (previous probability established at .01 because of the number of calculations). Twenty-six of the behaviors were more common in the younger age group and 8 were more common in one of both of the older groups.

Internal Reliability of the Dutch Translation of the CSBI

Cronbach's α coefficient was computed and factor analysis was performed to assess the interrelationship among the 46 items of the Dutch translation of the CSBI. All items were positively correlated with the total CSBI score and the Cronbach's α coefficient for the 46 items was 0.86. This high α coefficient is an argument in favor of the items being added to calculate a total score for the CSBI. Nevertheless, a

principal component analysis with varimax rotation revealed the presence of 7 stable factors. Loading of <0.3 on one factor, and a difference of <0.1 between the loading of a single item on 2 different factors, were used as exclusionary criteria. This resulted in the exclusion of 7 out of 46 items. According to their constituent items the 7 factors, computed by principal component analysis, could be labeled as: "shamelessness," "sexual interest," "boundary problems," "gender identity problems," "sexualized play," "sexual intrusiveness," and "genital manipulation" (see Table 5).

The presence of underlying dimensions of behavior in the CSBI could not be determined in the first large-scale sample published by Friedrich et al¹⁴ in 1991. However in a recent publication he suggested that sexual behavior was not an unidimensional phenomenon, and in his most recent sample, six to eight factors could be identified.

The factor analysis computed on the Dutch-speaking sample seems to support these suggestions.

However the interrelationships among the constituent items in these seven domains, as reflected in their individual Cronbach's α coefficient (Table 5), is relatively modest. Future research is needed to further explore these underlying dimensions with a more heterogeneous sample to better define the factors through deleting or rephrasing a number of existing items or by introducing new ones.

Relationship of Sexual Behavior to Demographic and Family Variables

Multiple regression analysis was used to examine the relation of demographic and family variables with the CSBI mean total score. The dependent variable was defined as the mean total score on the 46 items of the translated CSBI. Four demographic variables were entered as a block; ie, age and gender of the child, maternal education, and parental professional activity.

Only two variables were significantly related to the CSBI mean total score; ie, age ($F = 99.9$, $R^2 =$

TABLE 5. Factor Loadings of the CSBI-items in a Seven-factor Model

No.*	Item (Abbreviated)	Loadings						
		1	2	3	4	5	6	7
25	Sits with crotch or underwear exposed	0.733	-0.014	-0.003	0.092	0.054	0.150	0.12
24	Undresses self in front of others	0.728	0.018	0.122	0.011	-0.075	0.058	0.01
43	Walks around house without clothes	0.674	-0.019	-0.013	0.115	0.014	0.139	0.21
26	Kisses other children not in the family	0.648	0.071	0.354	0.051	-0.110	0.047	0.02
38	Likes to walk in underclothes	0.637	0.060	0.015	0.128	0.090	0.117	0.18
23	Kisses adults not in the family	0.616	0.068	0.317	0.006	-0.087	-0.069	-0.01
22	Talks about sex acts	0.049	0.697	0.042	-0.086	0.254	-0.111	-0.08
21	Tries to look at pictures of nude people	-0.059	0.684	0.052	0.086	0.019	0.013	0.16
44	Ask questions about sexuality	0.091	0.648	0.040	-0.039	0.042	0.031	0.10
12	Uses words that describe sex acts	0.016	0.597	0.061	-0.114	0.305	-0.070	-0.06
34	Very interested in opposite sex	0.107	0.485	0.204	0.128	-0.043	0.200	0.19
41	Shy about undressing	-0.109	0.413	-0.113	0.075	-0.084	0.051	0.00
18	Tries to look at people when they are nude	0.264	0.386	0.103	0.193	0.039	0.116	0.22
45	Draws sex parts	0.111	0.326	0.036	-0.048	0.187	0.197	-0.09
29	Wants to watch TV nudity	0.025	0.316	-0.105	0.230	-0.197	-0.159	0.26
36	Stands to close	0.065	-0.007	0.704	0.020	0.014	0.009	0.08
40	Overly friendly with men	-0.015	-0.030	0.696	0.169	0.060	0.047	0.02
31	Hugs adults not well-known	0.094	-0.017	0.641	-0.041	0.012	0.112	0.05
33	If girl overly aggressive, if boy overly passive	0.173	0.100	0.420	0.038	0.051	-0.040	0.05
27	Talks flirtatiously	0.166	0.164	0.410	0.096	-0.042	0.053	0.26
13	Pretends to be opposite sex when playing	0.124	0.057	0.103	0.814	0.047	0.046	0.06
2	Wants to be opposite sex	0.041	-0.036	0.069	0.780	0.004	0.101	0.16
1	Dresses like opposite sex	0.156	0.060	0.064	0.633	-0.025	-0.038	0.01
9	Imitates the act of sexual intercourse	-0.038	0.143	0.021	-0.084	0.689	0.048	0.00
19	Imitates sexual behavior dolls/stuffed animal	-0.012	0.121	0.029	0.058	0.668	0.029	-0.03
7	Masturbates with object	0.055	-0.193	-0.081	0.017	0.544	-0.011	0.20
14	Makes sexual sounds	-0.039	0.270	0.104	0.040	0.539	-0.064	0.05
42	Touches animals' sex parts	0.089	0.044	0.018	0.240	0.179	0.632	-0.09
37	Puts mouth on breast	0.064	0.125	0.148	-0.103	-0.033	0.569	0.24
17	Puts objects in vagina/rectum	0.069	-0.082	-0.042	0.114	0.013	0.565	0.05
30	Puts tongue in mouth when kissing	0.132	0.087	0.285	-0.053	-0.022	0.533	0.10
10	Puts mouth on another child's/adult's sex parts	0.038	0.012	-0.061	-0.061	-0.046	0.390	-0.04
4	Masturbates with hands	0.068	0.078	0.055	0.057	-0.038	-0.150	0.62
11	Touches sex parts at home	0.434	0.033	-0.031	0.064	0.127	0.073	0.54
3	Touches sex parts in public	0.321	-0.071	0.020	0.109	0.171	0.010	0.52
32	Shows sex parts to children	0.050	0.096	0.126	0.126	-0.012	0.372	0.46
15	Ask others to do sex acts	-0.129	0.151	0.149	-0.161	0.030	0.033	0.46
20	Shows sex parts to adults	0.237	0.031	0.198	0.157	-0.062	0.191	0.45
5	Scratches anal and/or crotch area	0.303	0.004	0.088	0.129	0.220	0.142	0.44
	Percent of total variance explained	8.88%	7.11%	5.90%	5.39%	4.97%	4.99%	6.03%
	Cronbach's α	0.81	0.67	0.57	0.70	0.56	0.49	0.66

* Items numbers 6, 8, 16, 28, 35, 39, and 46 left out.

.108, $P < .000001$) and maternal education ($F = 11.9$, $R^2 = .016$, $P < .00001$). Together they accounted for 12.4% of the explained variance. Gender and parental professional activity were not significantly related to the CSBI mean total score after the variance contributed by age and maternal education was considered. These findings confirm the age effect on the CSBI total mean score, ie, younger children have significantly higher scores than older children. Maternal education is also related to the CSBI score, in that mothers with higher levels of education report more sexual behavior than less educated mothers.

The relation of a number of child and family variables to the CSBI total mean score were then examined in the normative sample of 917 children. To determine the unique variance accounted by a certain child or family variable, the four demographic variables (age and gender of the child, maternal education, and parental professional activity) were first entered as a block, and at the next step, one of these child or family variables was added. The following child and family variables were examined: whether the child had been victim of physical abuse, the marital status of the parents, the total number of children in the family, and whether the respondent had had adverse sexual experiences during childhood. Of the four variables examined, three were significantly related to the CSBI total mean score, namely physical abuse of the child ($F = 9.5$, $R^2 = .01$, $P < .003$), marital status ($F = 8.1$, $R^2 = .008$, $P < .005$), and total number of children ($F = 6.1$, $R^2 = .006$, $P < .02$). These three variables, although significantly related to the CSBI mean total score, typically account for <1% of the explained variance.

An analogous strategy was used to examine the relation of CSBI total mean score to family nudity, parental attitudes toward sexuality, and parental response to the sexual curiosity of their child. The four demographic variables were first entered as a block. In three consecutive steps the mean scores for the questions concerning familial nudity, parental attitude toward sexuality, and parental response to the sexual curiosity of their child were added to the multiple regression analysis. All three of these consecutively added variables were significantly related to the CSBI total mean score (respectively, $P < .00005$, $P < .001$, and $P < .03$) and together accounted for 11.4% of the explained variance (respectively, $R^2 = .059$, $R^2 = .044$, $R^2 = .011$). This confirms the findings of previous studies that parents who report a more permissive approach to familial nudity, co-bathing, sexual curiosity of their child, homosexuality, or masturbation, also report higher levels of sexual behavior, even after controlling the effects of age and gender of the child, maternal education, and parental professional activity.^{3,4}

Relationship of Sexual Behavior to General Behavior Problems

The relationship of sexual behavior to general behavioral problems was examined by using the internalizing and externalizing T scores from the CBCL, which are widely used summary scores. The inter-

nalizing T score reflects the degree of problems related to depression, anxiety, somatic concerns, and withdrawn behavior, whereas the externalizing T score reflects delinquent and aggressive behavior.¹⁵ The normality of our sample regarding behavioral problems was first examined. The CBCL internalizing and externalizing T scores are constructed so that they have a mean score of 50 and a standard deviation of 10. For the 2- and 3-year-old children (scored by the 99 item 2- to 3-year-old version) the mean and standard deviation in our sample were, respectively, 47.4 and 9.5 for the internalizing score and 46.8 and 9.7 for the externalizing score. Thus the 2- and 3-year-old children in our sample tend to have slightly lower externalizing and internalizing T scores than those in the normative sample used for computer scoring. The 4- to 12-year-old children in our sample (scored by the 113 item 4- to 16-year-old version) did not differ from the normative sample used for computer scoring (mean score and standard deviation for internalizing and externalizing T score, respectively, 50.5, 10.3 and 50.0, 10.5).

To examine the relation of CBCL internalizing and externalizing T score with the CSBI mean total score, multiple regression analysis was used. The dependent variable was defined as the mean total score on the 46 items of the translated CSBI, and the four demographic variables (age and gender of the child, maternal education, and parental professional activity) were first entered as a block.

In a next step the relations of the CBCL internalizing and externalizing T score to the CSBI total mean score were separately examined. Both internalizing and externalizing T scores from the CBCL were significantly related to the CSBI total mean score, even after removing the contribution of the four demographic variables ($F = 85.4$, $R^2 = .096$, $P < .00001$, and $F = 124$, $R^2 = .133$, $P < .00001$, respectively). It seems that parents who report more behavioral problems in their child, also report higher levels of sexual behavior. This finding is similar to observations in the previous studies that examined this relationship.

DISCUSSION

Our study examined the frequencies of a wide variety of sexual behaviors in a normative sample of 917 2- to 12-year-old Dutch-speaking children. A parent report measure, the CSBI, was used in this study. The strategy used to collect a representative sample was different from that used in two previous large-scale surveys performed by Friedrich et al.^{3,4} Instead of recruiting the population in pediatric clinics, family medicine clinics, or day-care centers, the questionnaires were distributed in a large number of schools, selected to evenly cover the urban area of a large Belgian city. Care was taken to include private schools as well as public schools to avoid bias based on religious beliefs, because in Belgium the vast majority of private schools are Roman Catholic, whereas the state secular schools are pluralistic. The high educational status of our sample is attributable to the fact that in Belgium the school attendance is compulsory until the age of 18 years. Most of our parents

(mean age of the reporting parents, 34.8 years) thus have a minimum educational status of 18 years. In addition, both maternal and paternal reports were used, because we found that the gender of the reporter added very little to the variance of the total score.

The screening question for sexually-abused children detected 23 children or ~2.5% of the sample. This proportion is smaller than that found by Friedrich et al⁴ in his normative samples (~3.5%) and much smaller than the proportion that could be expected based on the epidemiologic data concerning the presence of sexually-abused children in the general population. This important discrepancy could partially be explained by the fact that parents of sexually-abused children most probably decided not to participate in the survey and did not return their questionnaire. Another possible explanation is that whether a child <12 years of age is sexually abused, may be overlooked by caregivers, attributable to the fact that a large portion of the disclosures of sexual abuse take place in preadolescent or adolescent years. Epidemiologic data from the Flanders Child Welfare Department report a percentage of 43% of disclosure of sexual abuse past the age of 12 years, and only 24.3% before the age of 6 years.¹⁶

The decline in overt sexual behavior with age was confirmed in our normative sample when the total score on the CSBI was examined. Caregivers reported less overt sexual behavior in 10- to 12-year-old children in comparison with 2- to 5-year-old children. This decline does not seem to be a continuous phenomenon, but seems to occur in phases, corresponding to preschool years (2–5 years), middle childhood (6–9 years), and prepuberty (10–12 years).

Analysis of the endorsement frequencies of the individual CSBI items enabled a more detailed description of the development of sexual behavior in 2- to 12-year-old children. Although all the listed behaviors appear in the normative sample, there clearly existed certain behaviors that could be labeled as more developmentally appropriate than others did. For preschool children these include: "touches sex parts in public or at home," "touches or tries to touch mother's breasts," "undresses self in front of others," "kisses other children not in the family," or "walks around without clothes or in underclothes." In 6- to 9-year-old children, a number of these behaviors are still endorsed by >20% of the population. Other behaviors tend to be more frequent in this age category; eg, "asks questions about sexuality" or "shy about undressing". Most items reflecting sexual curiosity or preoccupation tend to increase with age and are therefore relatively more frequent in the 10- to 12-year-old age group. "Tries to look at picture of (partially) nude people" and "talks about sex acts" are two examples of behaviors that are infrequent in the lower age group, but appear in >25% of the children older than 10 years.

A number of behaviors are very unusual and were rarely endorsed in the three age categories. These behaviors tend to have high loadings on the same factor in the factor analysis, and are best labeled as intrusive, aggressive, or more imitative of adult sex-

ual behavior (eg, "puts mouth on other child/adult sex parts," "puts tongue in mouth when kissing," "touches animal sex parts," "puts objects in vagina or rectum").

The findings concerning the developmental trends in the occurrence of different sexual behavior are very similar to those reported by Friedrich et al^{3,4} in the American normative samples. The individual endorsement frequencies of the different items in the Dutch normative population as a whole, are also in the same order of magnitude as those found in the two other large-scale American samples. These findings seem to suggest that there are no important differences in the development and characteristics of sexual behavior in 2- to 12-year-old Belgian and American children.

This relative absence of differences is in marked contrast to two Dutch studies that used a portion of the CSBI. Possible explanations for the differences are several. The first is that a very biased sample (1% of the total possible) was used in one study.¹³ The second is that a pediatrician well-known to the parents collected the data in the other.¹²

The relationship of sexual behavior and a number of demographic, individual, and familial variables was also illustrated in our normative sample. The significant inverse relationship with age was confirmed with regression analysis. Maternal education is correlated significantly with sexual behavior, but the gender of the child and the parental professional status did not, which is similar to the findings for the American samples. The relation of maternal education to increased reporting of behavior problems in children has been noted before, and Friedrich et al^{3,4} suggests that better educated parents may be in a position to be more observant of their children, thus witnessing (sexual) behaviors that less observant or more occupied parents might miss.

Family nudity and parental attitudes regarding sexual curiosity of their child or concerning tolerance toward masturbation, homosexuality, or extramarital sex, were also significantly correlated to the reporting of sexual behavior of their children and accounted for >10% of the explained variance, even after removing the effect of age and gender of the child, maternal education, and parental professional status. This could reflect that the sexual behavior of children is influenced by the family environment in which they are raised. A more liberal attitude regarding (childhood) sexuality, however, could be reflected in a parent more willing to report sexual behavior of their children, without influencing the behavior in itself. It seems reasonable to assume that both mechanisms are responsible for this phenomenon.

The relationship of other personal or familial variables to the sexual behavior were less informative. Separated or divorced parents seem to report higher levels of sexual behavior in their children. Although the relationship is significant, it does not account for >1% of the explained variance in our normative sample. Similar observations were made for the number of children in the family (higher number

predicted lower frequencies of reported sexual behavior) and the victim status of the child concerning physical abuse (parents of physically-abused children reported significant higher levels of sexual behavior), even after controlling for the effects of maternal education, parental professional status, and age and gender of the child. More surprisingly, the 88 parents (9.6% of the respondents) who reported that they themselves had been the victim of "adverse sexual experiences before the age of 16 years," did not report significantly different levels of sexual behavior in their children. One would expect that their own experience would make them either more or less observant of the sexual behavior of their child, but this could not be confirmed in our normative sample.

Finally, sexual behavior was related to the other reported general behavioral problems. Internalizing behavior as well as externalizing behavior were significantly related to the sexual behavior and each accounted for ~10% of the explained variance. This finding is similar to that of previous studies and suggests that children with manifest emotional or behavioral problems tend to exhibit a broader range of behaviors, including excessive sexual behavior.

This description of sexual behavior in a normative sample of Dutch-speaking 2- to 12-year-old children confirms earlier findings in this field. A variety of sexual behaviors seems to be normal and their occurrence tends to be age-dependent. Information concerning age-appropriate sexual behavior allows pediatricians to provide better counseling to parents or other caregivers more adequately concerning the normality of a large number of sexual behaviors in children. Unusual sexual behaviors like intrusive or aggressive sexual behaviors, or highly increased sexual behavior, should warn the pediatrician of the possibility of other behavioral or emotional problems, including the possibility of sexual abuse.^{8,17} On the other hand, unfounded labeling of age-appropriate sexual behavior as abnormal or harassing, can have detrimental effects on the child.² The importance of taking familial variables into account when assessing the sexual behavior of a child should also be stressed, mainly as the result of the strong influence of environmental factors on the (reporting of) sexual behavior in children. The ability to refer to a culturally relevant normative sample is likely to be advantageous for optimal counseling.

ACKNOWLEDGMENTS

This study was supported by a grant to Eric Schoentjes from the Fund for Scientific Research–Flanders.

We thank Iris Leeman and Ilze Pastijn for their technical help; Mimi Giri, Robert Vermeiren, and Elli Kruijthof for their critical review; and Johan Denollet and Monique Elseviers for their statistical advice.

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Pediatrics 1999;104:885-893

DOI: 10.1542/peds.104.4.885

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