

PSYCHOLOGY

Sexual Interest in Children Among Women in Two Nonclinical and Nonrepresentative Online Samples

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ABSTRACT

Introduction: Regarding women, little research is available about the prevalence of sexual interest in children (SIC), especially in nonclinical samples.

Aim: The present study aimed to investigate the extent to which adult women from 2 nonclinical and nonrepresentative samples indicate sexual interest in prepubescent and/or pubescent children.

Methods: Participants took part in an online survey either via general websites or via websites directed toward individuals with a SIC.

Main Outcome Measures: The self-report survey included questions about the use of online abuse material including children and teenagers as well as about sexual fantasies involving prepubescent and pubescent children. Both measures were included as main outcome measures.

Results: Results showed that few women reported having used online abuse material including children (total sample: $n = 7$ [0.8%], general websites: $n = 3$ [0.4%], SIC websites: $n = 4$ [9.5%]) or teenagers (total sample: $n = 44$ [5.0%], general websites: $n = 37$ [4.4%], SIC websites: $n = 7$ [16.7%]). Results further revealed that some women reported sexual fantasies involving prepubescent (total sample: $n = 98$ [7.0%], general websites: $n = 92$ [6.8%], SIC websites: $n = 6$ [11.1%]) or pubescent children (total sample: $n = 136$ [9.6%], general websites: $n = 129$ [9.5%], SIC websites: $n = 7$ [13.0%]).

Conclusions: The samples included are nonrepresentative and therefore not generalizable to the female population. Nevertheless, they strongly suggest that SIC is a phenomenon also found in women. We therefore recommend professionals in the field of sexual medicine to increase their attention and engagement for women with SIC. Based on the present results, the development of preventive treatment services specifically tailored to women with a SIC has to be strongly encouraged in the near future. **Tozdan S, Dekker A, Neutze J, et al. Sexual Interest in Children Among Women in Two Nonclinical and Nonrepresentative Online Samples. Sex Med 2020;8:251–264.**

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Key Words: Female Pedophilia; Female Hebephilia; Online Abuse Material; Sexual Fantasies Involving Children

INTRODUCTION

Sexual Interest in Children

In the Diagnostic and Statistical Manual of Mental Disorders,¹ pedophilic disorder is described as recurrent, intense sexually arousing fantasies, sexual urges, or behaviors involving sexual activity with a prepubescent child or children. This means

that the diagnosis is intended for individuals who are sexually attracted to children generally aged 11 years or younger. In contrast, sexual interest in pubescent children (ie, aged 11–14) is called “hebephilia”.² Currently, hebephilia is not included in diagnostic classification systems. In the present study, the term “sexual interest in children” includes both pedophilic and

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hebephilic sexual interest but does not necessarily imply that diagnostic criteria are met.

Most empirical research on sexual interest in children has been conducted with men who have sexually offended against children and detected, and, consequently, incarcerated. Only few studies have investigated the prevalence of sexual interest in children in the general population. Also, most of these studies have only included men.^{3–6} Focusing only on men is probably based on the widely accepted notion of sexual interest in children being an exclusively male phenomenon. However, the fact that research has hardly included women compared to men may reinforce this view in the absence of actual empirical data on the lack of female sexual interest in children. Recently, studies have examined the extent to which women in general population report any sexual interest in children.^{7,8} The present study adds to this new line of research by providing empirical data from an online survey assessing the prevalence of sexual interest in children among adult women in nonclinical online samples.

Sexual Interest in Children vs Child Sexual Abuse

As mentioned previously, most of what is known about sexual interest in children among adults is based on studies with child sexual abusers detected by the criminal justice system.⁹ These samples consist mostly of men.¹⁰ Such forensic samples are not necessarily representative for the population of adults who have sexual interest in children, and they are not helpful in assessing the prevalence of the phenomenon. In fact, research has consistently demonstrated that men who sexually abuse children are not necessarily sexually attracted to children meaning they would have a pedophilic or hebephilic sexual preference (for a review, refer to the article by Seto¹¹). Child sexual abusers sometimes have a preference for adult sex partners but choose to act on their sexual desires by abusing children “because they are available and vulnerable” (p. 221).¹² Because of these problems, recent research on pedophilia and hebephilia has focused on samples of individuals with a self-identified sexual interest in children.^{13–18} From this research, it is now evident that there are individuals who are sexually interested in children but report abstaining from acting upon their sexual interests by committing sexual offenses against children. For such individuals, a rare example of a treatment program designed to help the participants cope with a sexual interest in children is the German Dunkelfeld Project (www.dont-offend.org). The primary goal of the project is to hinder potential future sexual offences.¹³

In sum, even though sexual interest in children contributes to child sexual abuse¹⁹ and has been proven to be the most important risk factor for sexual offence recidivism,²⁰ sexually offending against children cannot be regarded as a reliable indicator of pedophilic or hebephilic sexual interest.²¹ Individuals with sexual interest in children were shown to be a stigmatized group who risk being the target of intense discrimination.²² Thus, we clearly separated between child sexual abuse and sexual interest in children as the former is a criminal act while the latter is not. We consciously decided to not go into further detail on the topic of child sexual abuse.

Prevalence of Sexual Interest on Children in the General Population

Research has so far arrived at differing estimates of the prevalence of sexual interest in children among men. The prevalence estimates may differ as a function of the type of question participants are asked. For example, Wurtele et al⁸ found differences between responses to questions referring to sexual fantasies, masturbation, and sexual attraction involving children, the likelihood of having sex with a child if participants were guaranteed they would not be caught or punished as well as the likelihood of using online abuse material.⁸ Among their online sample, men reported prevalence rates ranging from a low of 3.5% to a high of 9.2%.¹

Another reason for differing prevalence estimates may be that studies vary regarding the age at which a person is defined as a child. Wurtele et al⁸ did not report their survey including a clear definition of what is meant by the term “child”. Participants may differ in their interpretation of undefined terms that probably affect prevalence estimates. As a result, the authors were not able to report separate prevalence rates for pedophilic and hebephilic interest. Owing to recent research on the differences between pedophilia and hebephilia,² this might be considered relevant. Within an online-sample of 8,718 German men, Dombert et al⁴ specified children as persons aged 12 or younger and found that 358 (4.1%) men reported sexual fantasies including prepubescent children, whereas only 0.1% specified that they had a pedophilic sexual preference.⁴ Santtila et al⁵ provided a population-based estimate of the incidence of sexual interest in children among adult men by investigating 1,310 Finnish male twins. Sexual interest in children aged 12 or younger was reported by 0.2% ($n = 3$) participants. Children aged 15 or younger were sexually interesting to 3.3% ($n = 43$).⁵ As prevalence estimates depend on sample composition as well, other nonrepresentative studies, in contrast, suggest a prevalence of up to 5% for pedophilia in the general population (for a review, see the article by Seto¹¹). In sum, research results on the prevalence of sexual interest in children among adult men from nonclinical samples range from 0.1 to 5%.^{4,11,23–25}

Regarding women, little research is available about the prevalence of sexual interest in children. Early studies asking women about their sexual interest in children revealed prevalence rates ranging from 1 to 4%.^{3,26,27} Recent research also demonstrates variety. Baur et al⁷ investigated 3,898 Finnish women (twins aged 18–33 years) including questions about sexual interests, masturbation fantasies, and sexual partners across 2 specific age groups (0–6, 7–12 years). Results showed that only 17 females (0.4%) reported pedophilic sexual interest. Wurtele et al⁸ investigated 262 females of whom 0.8% reported some likelihood of masturbation and sexual attraction regarding children, 1.5% reported some likelihood of having sex with a child if they were guaranteed they would not be caught or punished, and 3.4% stated some likelihood of viewing child pornography on the Internet. Overall, 4.2% of 262 women responded positively to at least one of the sexual interest in children items.⁸ In other

online surveys, between 3.4% and 5.5% of female respondents admitted the use of online abuse material including persons under the age of 18 years.^{28,29}

Most of the studies on women cited previously aimed at assessing sexual interest in children aged 12 years or younger, which implies a pedophilic interest (ie, sexual interest in children up to 11 years), or did not provide a clear definition of what is meant by the term “child”.

The Present Study

The present study aimed to investigate the extent to which adult women from 2 nonclinical and nonrepresentative samples indicate sexual interest in prepubescent and/or pubescent children. We analyzed data from an online self-report survey conducted in Germany, Finland, and Sweden that aimed to

investigate social and sexual online behaviors among adults.^{30,31} The survey included questions about the use of online abuse material including children or adolescents as well as about sexual fantasies involving prepubescent and pubescent children.

METHOD

Participants

A total of 1,808 adult women completed the online survey, of which 50.7% were located in Germany, 45.5% in Finland, and 3.9% in Sweden. A total of 874 women (48.3%) provided information on the use or nonuse of online abuse material including children or adolescents. Assessment of sexual fantasies involving prepubescent and/or pubescent children were made by 1,411 women (78.0%). The overlapping subsample includes 871 women (48.2%) who answered questions on both online abuse

Table 1. Sample characteristics and use of online abuse material including children or adolescents among female participants who provided information on the use of online abuse material (n = 874) including results of comparisons between participants recruited among general websites (general website) and those who were recruited on websites directed to individuals with sexual interest in children (SIC website) using *t*-test for interval scaled variables and chi-square test or Fisher’s exact test for nominal and binary variables

Variables	Total (n = 874, 100%)		General website (n = 832, 95.2%)		SIC website (n = 42, 4.8%)		Sig.
	M (SD)	Range	M (SD)	Range	M (SD)	Range	
Age (in years)*	26.6 (7.6)	18–67	26.6 (7.6)	18–67	26.1 (7.0)	18–45	n.s. [†]
Relationship status	N (%)		N (%)		N (%)		Sig.
In a relationship	541 (61.9)		515 (61.9)		26 (61.9)		n.s. [‡]
Currently single	333 (38.1)		317 (38.1)		16 (38.1)		
Sexual orientation	N (%)		N (%)		N (%)		Sig.
Heterosexual	631 (72.2)		606 (72.8)		25 (59.5)		n.s. [‡]
Homosexual	48 (5.5)		43 (5.2)		5 (11.9)		
Bisexual	193 (22.1)		181 (21.8)		12 (28.6)		
Not specified [§]	2 (0.2)		2 (0.2)		–		
Use of online abuse material including children	N (%)		N (%)		N (%)		Sig.
No	867 (99.2)		829 (99.6)		38 (90.5)		*** [‡]
Yes	7 (0.8)		3 (0.4)		4 (9.5)		
Use of online abuse material including adolescents	N (%)		N (%)		N (%)		Sig.
No	830 (95.0)		795 (95.6)		35 (83.3)		** [‡]
Yes	44 [¶] (5.0)		37 (4.4)		7 ^{**} (16.7)		
Use of online abuse material including any minor	N (%)		N (%)		N (%)		Sig.
No	829 (94.9)		795 (95.6)		34 (81.0)		** [‡]
Yes	45 ^{††} (5.1)		37 ^{††} (4.4)		8 ^{††} (19.0)		

M = mean value; N (%) = absolute share (percentage share) in the sample; SD = standard deviation; SIC = sexual interest in children; Sig. = Significance level of the group comparison analysis.

P* < .01 *P* < .001.

*Age at data collection.

[†]Result from *t*-Test.

[‡]Results from chi-square test.

[§]Participants did not provide information on these questions.

[¶]Including 6 females who reported on using material involving both children and adolescents.

^{||}Including 3 females who reported on using material involving both children and adolescents.

^{**}Including 3 females who reported on using material involving both children and adolescents.

^{††}Participants who reported both the use of online material including children and adolescents were taken into account only once.

Table 2. Sample characteristics and sexual fantasies involving prepubescent or pubescent children among female participants who provided information on their sexual fantasies ($n = 1,411$) including results of comparisons between participants recruited among general websites (general website) and those who were recruited on websites directed to individuals with sexual interest in children (SIC website) using t -test for interval scaled variables, U -test for ordinal scaled variables, and chi-square test or Fisher's exact test for nominal and binary variables

Variables	Total ($n = 1,411$, 100%)		General website ($n = 1,357$, 96.2%)		SIC website ($n = 54$, 3.8%)		Sig.
	M (SD)	Range	M (SD)	Range	M (SD)	Range	
Age (in years)*	27.5 (8.8)	18–69	27.5 (8.8)	18–69	28.2 (9.5)	18–58	n.s. [†]
Relationship status	N (%)		N (%)		N (%)		Sig.
In a relationship	908 (64.4)		874 (64.4)		34 (63.0)		n.s. [‡]
Currently single	503 (35.6)		483 (35.6)		20 (37.0)		
Sexual orientation	N (%)		N (%)		N (%)		Sig.
Heterosexual	1,096 (77.7)		1,062 (78.3)		34 (63.0)		* [§]
Homosexual	73 (5.2)		68 (5.0)		5 (9.2)		
Bisexual	236 (16.7)		221 (16.3)		15 (27.8)		
Not specified [¶]	6 (0.4)		6 (0.4)		- (-)		
Sexual fantasies involving ...	N (%)		N (%)		N (%)		Sig.
Prepubescent girls							
Not at all	1,320 (93.6)		1,273 (93.8)		47 (87.0)		***
(2)	59 (4.2)		57 (4.2)		2 (3.7)		
(3)	22 (1.6)		20 (1.5)		2 (3.7)		
(4)	7 (0.5)		6 (0.4)		1 (1.9)		
Absolutely	3 (0.2)		1 (0.1)		2 (3.7)		
Dichotomized ^{††}	N (%)		N (%)		N (%)		Sig.
No	1,379 (97.7)		1,330 (98.0)		49 (90.7)		** [‡]
Yes	32 (2.3)		27 (2.0)		5 (9.3)		
Prepubescent boys	N (%)		N (%)		N (%)		Sig.
Not at all	1,159 (82.1)		1,113 (82.0)		46 (85.2)		n.s. ^{**}
(2)	175 (12.4)		171 (12.6)		4 (7.4)		
(3)	61 (4.3)		59 (4.3)		2 (3.7)		
(4)	15 (1.1)		13 (1.0)		2 (3.7)		
Absolutely	1 (0.1)		1 (0.1)		0 (0.0)		
Dichotomized ^{††}	N (%)		N (%)		N (%)		Sig.
No	1,334 (94.5)		1,284 (94.6)		50 (92.6)		n.s. [§]
Yes	77 [¶] (5.5)		73 (5.4)		4 (7.7)		
Sexual fantasies involving ...	N (%)		N (%)		N (%)		Sig.
Prepubescent children							
No	1,313 (93.1)		1,265 (93.2)		48 (88.9)		n.s. [‡]
Yes	98 (7.0)		92 (6.8)		6 (11.1)		
Sexual fantasies involving ^{††} ...	N (%)		N (%)		N (%)		Sig.
Pubescent girls							
Not at all	1,208 (85.6)		1,165 (85.9)		43 (79.6)		n.s. ^{**}
(2)	138 (9.8)		134 (9.9)		4 (7.4)		
(3)	49 (3.5)		46 (3.4)		3 (5.6)		
(4)	13 (0.9)		11 (0.8)		2 (3.7)		
Absolutely	3 (0.2)		1 (0.1)		2 (3.7)		
Dichotomized ^{††}	N (%)		N (%)		N (%)		Sig.
No	1,346 (95.4)		1,299 (95.7)		47 (87.0)		* [‡]
Yes	65 (4.6)		58 (4.3)		7 (13.0)		
Pubescent boys	N (%)		N (%)		N (%)		Sig.
Not at all	1,121 (79.4)		1,080 (79.6)		41 (75.9)		n.s. ^{**}
(2)	203 (14.4)		196 (14.4)		7 (13.0)		
(3)	66 (4.7)		63 (4.6)		3 (5.6)		

(continued)

Table 2. Continued

Variables	Total (n = 1,411, 100%)		General website (n = 1,357, 96.2%)		SIC website (n = 54, 3.8%)		Sig.
	M (SD)	Range	M (SD)	Range	M (SD)	Range	
(4)	18 (1.3)		16 (1.2)		2 (3.7)		
Absolutely	3 (0.2)		2 (0.1)		1 (1.9)		
Dichotomized ^{††}	N (%)		N (%)		N (%)		Sig.
No	1,324 (93.8)		1,276 (94.0)		48 (88.9)		n.s. [‡]
Yes	87 (6.2)		81 (6.0)		6 (11.1)		
Sexual fantasies involving ^{††} ... Pubescent children	N (%)		N (%)		N (%)		Sig.
No	1,275 (90.4)		1,228 (90.5)		47 (87.0)		n.s. [‡]
Yes	136 ^{§§} (9.6)		129 ^{¶¶} (9.5)		7 (13.0)		
Sexual fantasies involving any children ^{***}	N (%)		N (%)		N (%)		Sig.
No	1,231 (87.2)		1,184 (87.3)		47 (87.0)		n.s. [‡]
Yes	180 ^{†††} (12.7)		173 ^{†††} (12.7)		7 ^{†††} (13.0)		

M = mean value; N (%) = absolute share (percentage share) in the sample; SD = standard deviation; SIC = sexual interest in children; Sig. = significance level of the group comparison analysis.

* $P < .05$, ** $P < .01$.

*Age at data collection.

†Result from *t*-Test.

‡Results from Chi-Square-Test.

§Results from Fischer's Exact Test.

¶Participants did not provide information on these questions.

||Indicated by the self-reported extent to which female and male children at Tanner stage 1 (prepubescent girls and boys) are involved in participants' sexual fantasies.

**Results from *U*-Test.

††Response categories were dichotomized by computing 'not at all' and '(2)' into 'no' and '(3)', '(4)', and 'absolutely' into 'yes'.

†††Indicated by the self-reported extent to which female and male children at Tanner stage 2 (pubescent girls and boys) are involved in participants' sexual fantasies.

§§Including 11 females who reported on having sexual fantasies involving prepubescent girls.

¶¶Including 16 females who reported on having sexual fantasies involving pubescent girls.

|||Including 54 females who reported on having sexual fantasies involving prepubescent children (Tanner stage 1).

***Indicated by the self-reported sexual fantasies which at least partly involves female and/or male children at Tanner stage 1 and/or 2 (prepubescent and pubescent girls and boys).

†††Participants who responded positive to more than one of the 4 pictures were taken into account only once.

material and sexual fantasies involving children. The sample characteristics for the 3 subsamples are presented in Tables 1–3. In all subsamples, a subgroup of women participated via one of 2 German websites associated with individuals with a self-identified sexual interest in children (SIC websites). One website is directed to individuals with a self-identified sexual interest in children offering anonymous treatment opportunities (www.kein-taeter-werden.de, online since 2005). The other website is a forum for individuals with a self-identified sexual interest in children with no other specified thematic focus (www.krumme13.org, online since 2003).³⁰ Differences between participants who took part in the survey via one of the general websites and those who participated via websites directed to individuals with sexual interest in children were expected.³¹ We, therefore, present all variables for the total sample as well as for the 2 groups (general websites and SIC websites) including tests of comparison between them. Among participants who completed the assessment of sexual fantasies involving prepubescent and/or pubescent children, comparison tests showed differences in sexual orientation

between the "general websites" group and "SIC websites" group (Table 2). Women who participated via a general website reported less frequently a homosexual or bisexual orientation than those who participated via a SIC websites.

Procedure

The online survey was conducted between July and December 2012. The study link was spread on general websites, that is, social media platforms (eg, Facebook, Twitter) and other online forums (eg, concerning lifestyle, hobbies, or interests) in Sweden, Finland, and Germany, as well as via email lists for students at universities and vocational universities in Finland. This constitutes the first sample. In addition, participants were recruited via 2 German websites directed toward individuals with a self-identified sexual interest in children. These participants constitute the second sample. On all websites, information about the study including the study link was posted to promote the study. To ensure ongoing visibility, posts on all websites were checked

Table 3. Sample characteristics and the overall indication of any sexual interest in children among female participants who provided information on the use of online abuse material as well as on their sexual fantasies ($n = 871$) including results of comparisons between participants recruited among general websites (general website) and those who were recruited on websites directed to individuals with sexual interest in children (SIC website) using *t*-test for interval scaled variables and chi-square test or Fisher's exact test for nominal and binary variables

Variables	Total ($n = 871$, 100%)		General website ($n = 829$, 95.2%)		SIC website ($n = 42$, 4.8%)		Sig.
	M (SD)	Range	M (SD)	Range	M (SD)	Range	
Age (in years)*	26.6 (7.6)	18–67	26.6 (7.6)	18–67	26.1 (7.0)	18–45	n.s. [†]
Relationship status	N (%)		N (%)		N (%)		Sig.
In a relationship	539 (61.9)		513 (61.9)		26 (61.9)		n.s. [‡]
Currently single	332 (38.1)		316 (38.1)		16 (38.1)		
Sexual orientation	N (%)		N (%)		N (%)		Sig.
Heterosexual	628 (72.1)		603 (72.7)		25 (59.5)		n.s. [§]
Homosexual	48 (5.5)		43 (5.2)		5 (11.9)		
Bisexual	193 (22.2)		181 (21.9)		12 (28.6)		
Not specified¶	2 (0.2)		2 (0.2)		- (-)		
Any sexual interest in children	N (%)		N (%)		N (%)		Sig.
No	717 (82.3)		684 (82.5)		33 (87.6)		n.s. [‡]
Yes	154** (17.7)		145** (17.5)		9** (21.4)		

M = mean value; N (%) = absolute share (percentage share) in the sample; SD = standard deviation; SIC = sexual interest in children; Sig. = significance level of the group comparison analysis.

*Age at data collection.

†Result from *t*-test.

‡Results from chi-square test.

§Result from Fischer's exact test.

¶Participants did not provide information on these questions.

||Indicated by the self-reported use of online abuse material including children and/or adolescents and/or the self-reported sexual fantasies which at least partly involves female and/or male children at Tanner stage 1 and/or 2 (prepubescent and pubescent girls and boys).

**Participants who reported both the use of online abuse material and sexual fantasies involving children were taken into account only once.

regularly. To monitor participation, study links on all websites were distinct.³¹ Participants were informed that the survey would assess their social and sexual online behavior. Before beginning the survey, informed consent was obtained from all participants. The survey was approved by the ethics committees of Deutsche Gesellschaft für Psychologie and Abo Akademi University, Finland.³¹ The survey was programmed using the program SoSci Survey³² from the company SoSci Survey GmbH (www.sosicurvey.de).

Measures

Sample Characteristics

To describe the samples' characteristics, single-item questions on age, relationship status, and sexual orientation were included in the study.

Use of Online Abuse Material Including Children or Adolescents

Online abuse material including children or adolescents involves sexual online material (ie, videos, pictures, or texts) representing child sexual abuse. The use of online abuse material including children or adolescents has been suggested to be a reliable indicator of sexual interest in prepubescent and/or

pubescent children.³³ Participants in the present study were asked how often they have used different types of general sexual online material within the last year, that is, videos, pictures, or texts. For each type of material, participants rated the frequency of use on a 4-point Likert scale from "never" to "very often". Afterward, participants were asked what kind of sexual online material they had been interested in within the last year. Multiple-choice response categories included "involving children" and "involving teenagers". Both categories were included as binary variables.

Sexual Fantasies Involving Prepubescent or Pubescent Children

Self-report measures of sexual fantasy can be viewed as direct indications of one's level of sexual interest.³⁴ Although self-report is considered susceptible to socially desirable responding, it is often used for the assessment of sexual interest in children^{35–37}—probably due to its simple and economical implementation. In addition, it can be assumed that guaranteeing anonymity (eg, within an online survey) enhances truthful responding.³⁸

In the present study, participants were presented with 10 pictures showing different undressed bodies. The pictures were computer-generated stimuli validated for the assessment of

pedophilic interest.³⁹ Each of the bodies represented a Caucasian person in 1 of 5 female and male Tanner stages of secondary sex characteristic development.⁴⁰ Tanner stage 1 indicates a prepubescent developmental stage with no secondary sex characteristics. Tanner stages 2 and 3 represent a pubescent status with the beginning of pubic hair growth in girls and boys and the start of breast development in girls. Tanner stages 4 and 5 indicate maturity of secondary sex characteristics.⁴⁰ The use of Tanner's stages helps clinicians and researchers to accurately assess sexual interest in prepubescent or pubescent children by providing clear criteria based on the developmental stages of children and adolescents. Owing to wide variation in the age of onset of puberty, for example,⁴¹ a 12-year-old girl might look much more or less mature than her age. Therefore, age is an imperfect indication of sex characteristic development and does not necessarily be valid when assessing pedophilic and hebephilic interest.⁴²

For each of the 10 Tanner pictures, participants were asked to assess to which extent the body on the picture corresponds with bodies they have sexual fantasies about. There was no specified time period for participants to respond to the images. Instead, participants have chosen by themselves when they rated each picture. The 5-point assessment scale ranged from 1 (not at all) to 5 (absolutely). As an indication of sexual interest in children, we included the assessments of prepubescent and pubescent girls and boys, that is, 4 pictures showing female and male bodies at Tanner stage 1 and 2. Pictures were presented in a randomized order.

Data Analyses and Presentation

Data analyses were conducted using IBM SPSS Statistics 22.⁴³ Group comparisons between participants recruited among general websites (general websites) and those who were recruited on websites directed to individuals with sexual interest in children (SIC websites) were computed using *t*-test for interval scaled variables,⁴⁴ *U*-test for ordinal scaled variables,⁴⁵ and chi-square test for nominal and binary variables or Fisher's exact test when one of the cells had less than 5 observations.⁴⁶

For the calculation of the use of online abuse material including any minor, we summarized the use of online abuse material including children and the use of online abuse material including adolescents. Participants who responded positively to both variables were taken into account only once. This approach enables the presentation of all women who reported the use of online abuse material including either children or adolescents or both preventing the double counting of those who are present in both variables. Simultaneously, by reporting all frequencies for both variables separately, we provide all information necessary for a comprehensive understanding of the present data.

Regarding the assessment of Tanner stages, we only included trials with reaction times equal or longer than 150 milliseconds to ensure that cognitive information processing was possible.^{47,48} For the purpose of better clarity and understanding, we present the frequencies of the 5 original response categories as well as

dichotomized categories for the assessment of Tanner stages 1 and 2. Dichotomization was conducted by computing "not at all" and "(2)" into the category "no" and "(3)", "(4)", and "absolutely" into the category "yes". In addition, we summarized the dichotomized assessments for female and male pictures at Tanner stage 1 and 2 to present a dichotomized assessment for prepubescent and pubescent children. Finally, we summarized the dichotomized assessment for prepubescent and pubescent children to present a dichotomized assessment for any children. Participants, who reported sexual fantasies involving both prepubescent and pubescent children, were taken into account only once. Again, this approach enables the presentation of all women who reported sexual fantasies involving either prepubescent or pubescent children or both preventing the double counting of those who are present in both categories.

To calculate an overall indicator of any sexual interest in children, we summarized the use of online abuse material including any minor and sexual fantasies involving any children. If participants were present in both variables, they were taken into account only once. By this, we aim at presenting all women who reported either the use of online abuse material including any minor or sexual fantasies involving any children or both preventing the double counting of women who indicated sexual interest in children by both measures.

Additional Analyses

As both use of online abuse material and sexual fantasies involving children are intended to assess the same construct, that is, sexual interest in children, statistical relations between these 2 variables can be reasonably assumed. Such statistical relations would demonstrate consistency of the present data which suggest validity of the measures. We therefore generate a correlation matrix including the 2 binary variables for the use of online abuse material (including children, including teenagers) as well as the 4 variables for sexual fantasies involving children (prepubescent girls, prepubescent boys, pubescent girls, pubescent boys) in their original 5-point scale. We conducted the correlation analyses using the Pearson product moment correlation coefficient.⁴⁹ In cases of significant differences between the subgroups (general websites vs SIC websites) in both variables whose statistical relation was tested, we used partial correlation coefficients with subgroup (general websites, SIC websites) as control variable.⁴⁹ We expected significantly positive correlations between all 6 indications of sexual interest in children with at least small sizes.

RESULTS

Use of Online Abuse Material Including Children or Adolescents

The subsample including female participants who answered the questions on the use of online abuse material ($n = 874$) had a mean age of 26.6 (standard deviation [SD] = 7.6) years and, on average, mainly reported being heterosexual and in a relationship

(Table 1). They mainly indicated the use of sexual online videos (83%) and reported less frequently the use of sexual online pictures (51%) and sexual online texts (64%). A proportion of 0.4% ($n = 3$) of those women who participated via general websites stated that they use online abuse material including children within the last year, whereas 9.5% ($n = 4$) of those women who participated via websites that were directed at individuals with a sexual interest in children (SIC websites) did so. The use of online abuse material including adolescents was reported by 4.4% ($n = 37$) of women from general websites and by 16.7% ($n = 7$) of women from SIC websites. Taking together, 4.4% ($n = 37$) of women from general websites indicated the use of online abuse material including any minor, whereas 19.0% ($n = 8$) of women from SIC websites reported doing so. Group comparison revealed significant differences between women from SIC websites and those from general websites in all of the 3 variables (Table 1).

Sexual Fantasies Involving Prepubescent or Pubescent Children

Female participants who were willing to assess the male and female bodies at Tanner stages 1 and 2 ($n = 1,411$) had an average age of 27.5 ($SD = 8.8$) and were mostly in a relationship (Table 2). Although all women mainly reported being heterosexual, women from SIC websites demonstrated a higher proportion of homosexual and bisexual orientation than women from general websites. Group comparison only demonstrated significant differences between women from SIC websites and

women from general websites regarding sexual fantasies involving prepubescent girls (general websites: $n = 27$ [2.0%], SIC websites: $n = 5$ [9.3%]) and pubescent girls (general websites: $n = 58$ [4.3%], SIC websites: $n = 7$ [13.0%]). Among the total sample, the proportion of women who reported having sexual fantasies involving prepubescent children ($n = 98$ [7%], general websites: $n = 92$ [6.8%], SIC websites: $n = 6$ [11.1%]) was slightly smaller than the proportion of women who reported having sexual fantasies involving pubescent children ($n = 136$ [9.6%], general websites: $n = 129$ [9.5%], SIC websites: $n = 7$ [13.0%]). As the overlapping group among these 2 variables only included 54 women who reported on having sexual fantasies involving both prepubescent and pubescent children, the proportion of women among the total sample who indicated having sexual fantasies involving any children (ie, girls or boys at Tanner stage 1 or 2) reached 12.7% ($n = 180$, general websites: $n = 173$ [12.7%], SIC websites: $n = 7$ [13.0%]; Table 2).

Overall Indicator of Any Sexual Interest in Children

Women in the present study who provided data on both the use of online abuse material and the assessment of pictures presenting female and male children at Tanner stage 1 and 2 ($n = 871$) aged 26.6 ($SD = 7.6$) on average were mostly heterosexual and in a relationship (Table 3). Almost 18% ($n = 154$) of this subsample specified at least some sexual interest in children by responding positive to at least one of the variables included in the present study (general websites: $n = 145$ [17.5%], SIC websites: $n = 9$ [21.4%]; Table 3).

Table 4. Results of 2-tailed tested Pearson product moment correlations as well as partial correlations including subgroup (general website, SIC website) as control variable between 6 indications of sexual interest in children for the total subsample of female participants who provided information on all 6 indications of sexual interest in children ($n = 871$)

Indications of sexual interest in children		1.	2.	3.	4.	5.	6.
1. Use of online abuse material including children	r^*	-					
	P^\dagger	-					
2. Use of online abuse material including teenagers	r_{xy}^\ddagger	.32***	-				
	P	.000	-				
3. Sexual fantasies involving prepubescent girls [§]	r_{xy}	.58***	.24***	-			
	P	.000	.000	-			
4. Sexual fantasies involving prepubescent boys [¶]	r_{xy}	.20***	.12**	.36***	-		
	P	.000	.001	.000	-		
5. Sexual fantasies involving pubescent girls	r	.34***	.21***	.51***	.30***	-	
	P	.000	.000	.000	.000	-	
6. Sexual fantasies involving pubescent boys ^{**}	r	.24***	.14***	.36***	.57***	.34***	-
	P	.000	.000	.000	.000	.000	-

** $P < .01$, *** $P < .001$.

*Pearson's product-moment correlation coefficient.

[†] P value of the correlation coefficient.

[‡]Partial correlation coefficient with subgroup (general website, SIC website) as control variable.

[§]Indicated by the self-reported extent to which female children at Tanner stage 1 (prepubescent girls) are involved in participants' sexual fantasies.

[¶]Indicated by the self-reported extent to which male children at Tanner stage 1 (prepubescent boys) are involved in participants' sexual fantasies.

^{||}Indicated by the self-reported extent to which female children at Tanner stage 2 (pubescent girls) are involved in participants' sexual fantasies.

^{**}Indicated by the self-reported extent to which male children at Tanner stage 2 (pubescent boys) are involved in participants' sexual fantasies.

Correlation Analyses

All the 6 indications of sexual interest in children are positively correlated to each other (Table 4). The strongest correlation is between sexual fantasies involving prepubescent girls and the use of online abuse material including children ($r_{xy} = 0.58$, $P < .001$); the weakest between sexual fantasies involving prepubescent boys and the use of online abuse material including teenagers ($r = 0.12$, $P < .01$).

DISCUSSION

The present study aimed to examine sexual interest in children among adult women in 2 types of nonclinical and nonrepresentative samples. Data analyses included variables from an online self-report survey conducted among adults in Germany, Finland, and Sweden by spreading the link on social media platforms and other online forums (general websites) as well as 2 German online platforms that directly address individuals with a self-identified sexual interest in children (SIC websites). The survey included questions about the use of online abuse material including children or adolescents as well as about sexual fantasies involving prepubescent and pubescent children. Both variables were used as indicators of sexual interest in children among the female participants. Results showed that 7 women of the total sample (0.8%) report using online abuse material including children (general websites: 0.4%, SIC websites: 9.5%; Table 1) indicating a sexual interest in children.³³ Compared with women from general websites, women from SIC websites stated a higher proportion of using online abuse material including children (0.4% vs 9.5%; Table 1). Table 1 further demonstrates that more women reported using online abuse material including children or adolescents (total sample: 5.1%, general websites: 4.4%, SIC websites: 19.0%; Table 1), indicating a sexual interest in children or adolescents.³³ Compared with general websites participants, SIC websites participants revealed a higher proportion of using online abuse material including children or adolescents (4.4% vs 19.0%; Table 1). Such differences were expected and probably reflect a difference in the amount of sexual interest in children in these 2 samples.

Our results also show (Table 2) that 180 female participants of the total sample (12.7%, general websites: 12.7%, SIC websites: 13.0%) have sexual fantasies involving prepubescent children at Tanner stage 1 (no secondary sex characteristics) or pubescent children at Tanner stage 2 (beginning of pubic hair growth in girls and boys and the start of breast development in girls). Compared with general websites participants, SIC website participants showed a higher proportion of having sexual fantasies involving prepubescent (2.0% vs 9.3%; Table 2) and pubescent girls (4.3% vs 13.0%; Table 2). This difference is quite likely the result of the differences in sexual orientation between these 2 groups. SIC website participants specified almost twice as frequently as general websites participants on being homosexual (9.2% vs 5.0%; Table 2) or bisexual (27.8% vs 16.3%; Table 2). As general websites participants indicated a higher proportion of heterosexual orientation than SIC website participants

(87.3% vs 63%; Table 2), they reported less frequently that they have sexual fantasies involving girls. Indeed, the differences in sexual fantasies involving prepubescent or pubescent girls vanished when summarizing the gender-specific items into the variables “sexual fantasies involving prepubescent children” and “sexual fantasies involving pubescent children” (Table 2). Finally, results from Table 3 revealed that 154 female participants of the total sample (17.7%, general websites: 17.5%, SIC websites: 21.4%; Table 3) specified any sexual interest in children as indicated by the use of online abuse material including children and/or adolescents and/or by sexual fantasies involving prepubescent and/or pubescent girls and/or boys.

The present study design offers some advantages that enhance the reliability and validity of results. Most importantly, the present study is based on a relatively large sample of female adults ($N = 1,808$) leading to a more precise estimation of sample statistics and a greater statistical power.⁵⁰ In addition, data analyses included multiple indicators of sexual interest in children (use of online abuse material and sexual fantasies involving children) which implies a certain degree of triangulation and facilitates validation of data.⁵¹ Indeed, correlation analyses revealed significant relationships between the different indications of sexual interest in children (Table 4). That is, women who indicated that they use online abuse material including children more likely indicated that they use online abuse material including teenagers ($r_{xy} = 0.32$, $P < .001$) and that they have sexual fantasies involving prepubescent (girls: $r_{xy} = 0.58$, $P < .001$; boys: $r_{xy} = 0.20$, $P < .001$) or pubescent children (girls: $r = 0.34$, $P < .001$; boys: $r = 0.24$, $P < .001$) than did women who did not report the use of online abuse material including children. In addition, we found significant relationships between sexual fantasies involving prepubescent girls and boys ($r_{xy} = 0.36$, $P < .001$), prepubescent girls and pubescent girls ($r = 0.51$, $P < .001$), prepubescent boys and pubescent boys ($r = 0.57$, $P < .001$), as well as pubescent girls and boys ($r = 0.34$, $P < .001$). This indicates that women who reported that their sexual fantasies are at least partly about prepubescent children (Tanner stage 1) likely reported that sexual fantasies are at least partly about pubescent children (Tanner stage 2). Moreover, women who reported that their sexual fantasies are involving prepubescent or pubescent girls likely reported that their sexual fantasies are involving prepubescent or pubescent boys. The rather weak correlations between the use of online abuse material including teenagers and sexual fantasies involving both prepubescent (girls: $r_{xy} = 0.24$, $P < .001$; boys: $r_{xy} = 0.12$, $P < .01$) and pubescent children (girls: $r = 0.21$, $P < .001$; boys: $r = 0.14$, $P < .001$) seem to be reasonable because the term “teenagers” commonly implies adolescents aged 14–17 years, whereas Tanner stages 1 and 2 represent earlier developmental stages, that is, before puberty (aged up to 10 years) and beginning of puberty (aged 11–14 years). In sum, the correlation pattern gives reason to assume consistency of the present data.

A further advantage of the present study was that data were collected online which implies a high degree of anonymity. This

may have foster participants' readiness to respond truthfully. Finally, we chose a rather conservative approach when solely including the assessments of Tanner stages 2 as an indication of sexual interest in pubescent children. Actually, a pubescent status is represented by Tanner stages 2 and 3. Post hoc analyses of the present data indicated that the prevalence of sexual interest in children among female participants in the present study would have been much higher when taken into account the assessments of pictures showing children at Tanner stage 3 (approximately 30%). The fact that the prevalence of sexual interest in children among women reached almost 18% despite a conservative procedure justifies the assumption that pedophilic and hebephilic sexual interest may not be a phenomenon exclusive to men.

Previous studies on the prevalence of sexual interest in children among female adults in the general population reported rates up to 4%.^{3,7,8,26,27} The present results demonstrate an even higher proportion of women who appear to be at least partly sexually attracted to children and/or adolescents with prevalence rates up to 17.5% for women who participated via general websites which have not been associated with the topic of sexual interest in children (Table 3). Our higher rates compared to previous studies may have been due to the fact that previous studies mainly focused on indicators for pedophilic interest. That is, most studies on the prevalence of sexual interest in children among women aimed at assessing sexual interest in children aged 12 years or younger which rather implies a pedophilic interest (ie, sexual interest in children aged up to 11 years). The present study aimed at assessing sexual interest in children and adolescents which implies a pedophilic or a hebephilic interest (ie, sexual interest in children up to 14 years). Thus, the broader range of ages might have revealed further groups of females being interested in older children that might have been neglected in other studies by limiting the age range to 12 years. In addition, previous studies mainly included direct questions on the sexual interest in children,^{3,7,8,26,27} for example, "I am sexually attracted to little children". Our methodological approach included the assessment of sexual interest in children by rating the extent to which naked bodies of prepubescent and pubescent children corresponds with bodies participants have sexual fantasies about. This methodological difference might have led to different results. A direct question on sexual interest in children may be more difficult to affirm than a picture of a naked children as the former implies a clear consciousness about one's own sexual interest in children, whereas the latter may not necessarily do so.

Nevertheless, there are other possible explanations for the discrepancy between previous research and the present results. Some of them are discussed in the following as limitations of the present study implicating further research questions.

Limitations and Further Research Questions

Although the study was not meant to be representative,³¹ the fact that the present data were not population-based has to be mentioned as a strong limitation. Indeed, the present online

recruitment seems to be an economic and practicable approach to focus on deviant online behavior, such as the use of online abuse material including children or adolescents. Moreover, the present sample includes users of websites that were identified as directly addressing individuals with a sexual interest in children (SIC websites). Thus, the results for the total sample are probably distorted by a higher rate of individuals being sexually attracted to children which is represented by the differences between general and website participants in using of online abuse material (Table 1). However, in all the 3 subsamples (Tables 1–3), the proportion of the SIC websites participants was below 5% indicating that their impact on the total subsamples' results is obviously not very substantial. Consequently, the proportions of sexual interest in children for the total samples are quite similar to those of the general websites subgroups (eg, total sample: 17.7%, general websites: 17.5, Table 3). In addition, in most variables concerning sexual fantasies involving prepubescent or pubescent children, women who participated among general websites and women from SIC websites did not differ from each other. As mentioned previously, the higher proportion of using online abuse material including children or adolescents among SIC websites participants might be partly caused by a general difference in online behavior. However, it is more likely that there is a real difference in being sexually interested in children between women from general websites and women from SIC websites. In fact, it might be assumed that most participants from the SIC websites would indicate a sexual interest in children as they are visiting a website that is explicitly directed toward individuals with sexual interest in children. There are many possible reasons why only a minority of SIC websites participants specified a sexual interest in children. One reason might be that participants did not feel safe about the protection of their identity and therefore were not willing to disclose a sexual interest in children that is highly stigmatized in society.²² Another reason might be that participants have called up the website as relatives of persons with sexual interest in children, therapists, or other interested parties and even though participated in the study.

Mentioned previously as an advantage of the present study, data were collected online implying a high degree of anonymity. From a different perspective, this anonymity may be regarded as a limitation because there is a certain degree of unknowingness about participants. For instance, it might be that male participants pretended to be female, especially those from SIC websites, or that participants generally did not respond honestly as they might have not taken the survey seriously. Moreover, we collected data from 2 German SIC websites. It is possible that individuals who visited one of these websites also know the other website. Therefore, participants of the SIC websites might have had access to both study links and the possibility to participate more than one time in our study without our awareness. However, this is also the case for the general websites as well as online studies in general.

A further limitation of the present data is that all measures are based on participants' self-reports. A social desirability scale was not applied. Thus, distortion of the present data owing to social desirability cannot be excluded. In addition, participants were offered with the opportunity to skip questions they did not wish to answer. The use of online abuse material is a criminal behavior in all the 3 countries participants came from, that is, in Germany, Sweden, and Finland. As participants might not dare to report criminal activities, this have possibly led to a systematic bias in the data. Compared to the proportion of sexual fantasies involving prepubescent or pubescent children in the present study, the reports on using online abuse material including children or adolescents were less frequent. This may indicate that having sexual fantasies about children is easier to disclose as it does not imply the anticipation of criminal prosecution. Furthermore, sexual interest in children is strongly stigmatized by public⁵² and therefore possibly difficult to disclose by affected individuals. Consequently, the present results might underestimate the prevalence of sexual interest among adult women. Finally, it might be that participants misunderstood the meaning of the category "involving teenagers" when assessing the content of sexual online material. Among legal pornographic material, there is a category called "teen" which includes adult female actors portraying teenagers.⁵³ As the response category "involving teenagers" had not been specified by an exact age of actors (eg, 14–17 years), participants might have not reported the use of online abuse material including adolescents but the use of legal pornographic material from the category "teen". This would have led to an overestimation of the prevalence of sexual interest among adult females. Nevertheless, as the category "involving teenager" was placed next to the category "involving children", we assume the probability of such misunderstanding to be rather low.

Another uncertainty relates the fact that the present study did not include precise questions about the exact content of the sexual online material that included children or adolescents. In the present study, we considered every sexual online material that included children or adolescents to be online abuse material.

The use of online abuse material has been shown to be an indicator not only of sexual interest in children but also of compulsive sexual behavior.⁵⁴ From our clinical experience, there are persons who report their use of sexual online material compulsively turned to images of underage persons to increase arousal. In fact, post-hoc analyses of the present data revealed a statistical relation between the use of online abuse material including any minor and the frequency of the general use of sexual online material. This means that women who reported the use of online abuse material including any minor were more likely to report a more frequent use of sexual online material (videos: Fisher's exact = 47.9, $P < .001$; pictures: Fisher's exact = 36.3, $P < .001$; texts: Fisher's exact = 8.2, $P < .05$) in general. Thus, it might be that the women in the present study who reported the use of online abuse material including children or adolescents do not have a sexual interest in children but need

online abuse material because ordinary sexual online material lost its effect.

To reach better clarity and understanding of the data, we dichotomized the sexual fantasy categories by computing the response categories "not at all" and "(2)" into the category "no" and "(3)", "(4)", and "absolutely" into the category "yes". This specific methodological approach need to be taken into account when interpreting the present data. This means, other ways of dichotomization are indeed possible changing the percentages of women indicating a sexual interest in children, for example, computing "not at all", "(2)", and "(3)" into the category "no" and "(4)" and "absolutely" into the category "yes". Compared to this methodological approach, our approach clearly led us to a higher rate of women with sexual fantasies involving children. Yet, as we provided the reader with all information necessary for a comprehensive understanding of our data, the reader is enabled to develop own interpretations and conclusions from the present data. Our methodological approach only represents one possibility of data presentation.

Moreover, research so far suggests that pedophilia and hebephilia are 2 relatively distinct but also overlapping constructs.² Strictly speaking, individuals with pedophilic interest and those with hebephilic interest should not be considered as one homogeneous group when investigating individuals' specific characteristics. As the present study was not intended to investigate specific characteristics but to examine the amount to which women indicate pedophilic or hebephilic interests, we combined the 2 constructs of pedophilia and hebephilia. In addition, as said previously, results of the measures for pedophilic and hebephilic interests were presented separately and in detail and were not a priori merged.

Owing to these limitations, the validity and generalizability of the present results are presumably restricted to a certain degree. Further empirical research on how common sexual interest is among adult females is deemed necessary, especially in population-based samples. Although being sexually attracted to children cannot be equated with sexually abusing children, research among men has shown that sexual interest in children constitutes a risk factor for sexual child abuse.²⁰ In particular, the use of online abuse material has been demonstrated to be related to sexual offences against children in male perpetrators.⁵⁵ Even if male and female perpetrators were shown to have different risk factors for committing child sexual abuse,^{56–58} future research proposals need to be focused on using online abuse material as a risk factor that might also lead female adults with a sexual interest in children to sexually offend against children. As women who sexually abuse children have always been a powerful social taboo⁵⁹—even in professionals in the health-care system—they are surrounded by a societal "culture of denial."⁶⁰ Also, there is a huge discrepancy between prevalence rates of female and male child sexual offenders from official criminal statistics and victimization surveys. One possibility is that female child sexual offenders are more likely to go underreported.^{61,62} The results of

the present study suggest that quite a few women are, at least to some extent, sexually interested in children and may be at a risk for abusing children and/or maybe are in need of professional help. We suggest that women with sexual interest in children and/or adolescents are surrounded by a quite similar social taboo as are women who sexually offend against children. Thus, scientific data on women with a sexual interest in children are missing. We therefore consider the overcome of that social taboo by professionals in the health-care system particularly important.⁶²

CONCLUSION

The present sample is nonrepresentative, and the present results are therefore not generalizable. However, the results clearly demonstrate that there are women who report using online abuse material and having sexual fantasies about children. Thus, professionals in the health-care system need to be aware that sexual interest in children may be a phenomenon also found in adult females. We strongly advise professionals in the health-care system to increase their attention and engagement for women with sexual interest in children. A stronger representation of the existence of such women in the professional's mind is deemed necessary to prevent adult females who are perhaps even struggling with their sexual interest in children from remaining unseen. We recommend clinicians and researchers in the field of sexual medicine not to wait until women seek help in the health-care system to cope with their sexual interest in children. Instead, we suggest pursuing an active approach toward women who are sexually attracted to children and might be at risk to sexually offend against them. Projects such as the German Dunkelfeld Project¹³ appear to be directed toward male individuals with a sexual interest in children. Based on the present results, the founding of preventive treatment services specifically tailored to female individuals with a sexual interest in children has to be strongly encouraged in the near future.

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