

## **Brother-brother Incest: Data from an Anonymous Computerized Survey**

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*Retrospective data were entered anonymously by 1,178 adult men using computer-assisted self-interview. Twenty-five were victims of brother-brother incest (BBI), 26 were victims of child sexual abuse by an adult male (CSA-AM) before 18 years of age, 1,127 were controls. BBI was often the first sexual experience for the victim. Our findings were consistent with other reports of early and persistent hyper-eroticization of incest victims. BBI and CSA-AM increased the likelihood of engaging in behaviors as an adult consistent with a co-existing or primary male-male sexual orientation, and both had deleterious impacts on adult men's sexual adjustment with their adult partners.*

Despite the extensive research on many aspects of child sexual abuse (CSA, for reviews see Kuyken, 1995; Polusney & Follette, 1995; Putnam, 2003), there has been little research on the effects of brother-brother incest (BBI) on the brothers' adult functioning. This article will explore the

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effects of BBI on brothers and compare the effects to those of CSA by adult males (CSA-AM). In general, sexual abuse by male perpetrators has more adverse effects on male victims than does sexual abuse by female perpetrators, at least in part because of the stigma of homosexuality and the victim's feelings of disgust, self-reproach, and shame (Mart, 2004, p. 468; Mendel, 1995). Meiselman (1979, pp. 312–320) reviewed the literature and reported two cases of father-son incest (FSI, one of which also included BBI) and one case of BBI without FSI in her clinical sample. Meiselman reported that some of the victims of same-sex incest had further same-sex experiences as adults, had fears of becoming homosexual, or had problems with functioning sexually within marriages. Over the subsequent 32 years, there have been at least 20 studies focused on the effects of brother-sister incest (BSI) on the sisters (see Stroebel, O'Keefe, Beard et al., 2013), but there has been little progress in the study of the effects of BBI on the brothers (Bass, Taylor, Knudson-Martin, & Huenergardt, 2006; Kenyon-Jump, 2006, p. 140). Many factors have contributed to the unfortunate dearth of information in the published literature about BBI: the focus of CSA research primarily on female victims of male perpetrators (O'Brien, 1989), the myth of benign BBI (O'Brien, 1989; e.g., Bank & Kahn, 1982), investigators categorizing BBI as voluntary sexual experimentation instead of BBI (O'Brien, 1989; e.g., Bank & Kahn, 1982), and under-reporting by victims, parents, and investigators (for reviews see Mendel, 1995; Phillips-Green, 2002).

## BBI

For the purposes of our study, we have defined incest as *any* sexual behavior among relatives, the definition used by Finkelhor (1979, p. 84). A number of other investigators have attempted to differentiate *normal* sexual experimentation among consenting siblings from CSA using one or more criteria: whether or not there was an age difference, whether or not coercion was involved, whether or not the participant was able to give informed consent, or even whether or not it was heterosexual experimentation (e.g., Bank & Kahn, 1982; Bass et al., 2006; Greenwald & Leitenberg, 1989; Weinberg, 1955; Wiehe, 1990), but such approaches assume that some sexual experimentation among siblings is normal and harmless and thus exclude the part of the sample that would permit testing the assumption. Both Finkelhor (1979, 1980, 1981) and Greenwald and Leitenberg (1989) analyzed sibling incest data from convenience college-student samples, but the authors combined the data on BBI with the data on BSI and sister-sister incest (SSI). Greenwald and Leitenberg (1989) found no evidence of any effect of sexual interactions with siblings of similar ages on participants' adult sexual adjustment. Finkelhor (1979, 1980, 1981) found 26 cases of sibling-sibling sexual experiences in his sample of 266 male participants, but

his study design, which gave respondents the option to either report sibling or non-sibling experiences, very likely contributed to under-reporting of BBI (Greenwald & Leitenberg, 1989). Wiehe (1990) described anecdotal intermingled descriptions of BBI, BSI, and SSI from 16 male and 234 female participants, but respondents were instructed to report only unwanted behaviors, which would have selected for adverse reports. O'Brien (1989) studied 170 adolescent sex offenders, and he included data on 50 male sibling incest offenders of whom only 15 had victimized brothers; the other 35 had victimized only sisters. However, his study did not provide any data on the effects of the incest on the perpetrators. Bass et al. (2006) analyzed the family-systems dynamics of two families in treatment for BBI involving an older perpetrator-brother and several victim-brothers, but they provided no information about the long-term effects of the BBI on the adult functioning of the either the victims or the abusers.

O'Brien (1989, pp. 27–28) found that, consistent with conditioning theories, adolescent offenders who themselves had been victims of CSA perpetrated by males, were more likely to have offended against males or both males and females, but those who had been victims of CSA by females were more likely to have offended against females. Finkelhor (1981, p. 142) found that those with same-sex sibling sexual experiences had a higher rate of adult same-sex activity, suggesting a connection between same-sex sibling experiences and same-sex orientation in adulthood. However, because Finkelhor (1981) combined both sexes of participants, it was unclear to us whether these observations on same-sex orientations in adulthood were based on the male participants, the female participants, or both male and female participants.

Finkelhor (1984, p. 199) in a study of CSA of all types, reported that 45% of the 11 victims of CSA-AM and 20% of the 30 participants who had engaged in same-sex activity with peers as children or adolescents went on to engage in same-sex activity as adults. Johnson and Shrier (1985, 1987) reported that eight of the 11 victims of CSA-AM identified themselves as homosexual or bisexual and that they experienced the molestation as highly traumatic. Simari and Baskin (1984) reported that 25 (46%) of the 54 gay men in their sample reported having been victims of incest of which 9 cases (36%) consisted of incest within their nuclear family and 16 cases (67%) consisted of incest within their extended family; all of the incestuous sexual experiences of the gay men had been with same-sex partners. Eight of the nine cases of nuclear family incest identified by the 54 gay male participants were brother-brother incest, and six of the nine cases had been initiated by the respondent. The ninth case was father-son incest (Simari & Baskin, 1984). A related finding was apparent in Rosencrans' (1997) study of 93 victims of mother-daughter incest: 36% self-identified as lesbian and another 10% self-identified as bisexual. Goodwin and DiVasto (1979, 1989) also reported same-sex behaviors in adult survivors of mother-daughter incest. Yates (1982), Griffiee et al.

(2012); Stroebel et al. (2012), Stroebel, O'Keefe, Beard et al. (2013), and Stroebel, O'Keefe, Griffiee et al. (2013) have all described early eroticization and persistent hyper-eroticization of incest victims. In many cases, the hyper-eroticization persisted into adulthood.

## FINDINGS FROM THE PARALLEL STUDIES ON FEMALE-VICTIMS OF SSI

In statistical analyses of the data from 1,521 *female* participants obtained using the same self-administered computerized questionnaire used for the present study (Stroebel, O'Keefe, Griffiee et al., 2013) it was shown that: (1) CSA by female perpetrators had global adverse effects on female victims including early eroticization and persistent hyper-eroticization of the female victims; (2) CSA perpetrated by the sister was often the first sexual experience for the victim; (3) CSA by female perpetrators had a deleterious impact on adult women's sexual adjustment with her adult partners; and (4) being a victim of SSI or child sexual abuse by an adult female (CSA-AF) increased the likelihood of engaging in behaviors as an adult that were consistent with a co-existing or a primary female-female sexual orientation.

### Hypotheses

The present study analyzed data from *male* victims of *BBI* and similar data from two appropriate control groups: (a) victims of child sexual abuse by a male adult other than a brother (CSA-AM), and (b) controls who were not victims of BBI or CSA-AM. The items used for the present study were included as part of a larger anonymous computerized "cradle to the grave" study of human sexuality. Our hypotheses were as follows: (a) CSA by male perpetrators has global adverse effects on male victims; (b) CSA perpetrated by the brother is often the first sexual experience for the victim; (c) CSA by male perpetrators has a deleterious impact on adult men's sexual adjustment with his adult partners; (d) Being a victim of BBI or CSA-AM increases the likelihood of engaging in same-sex behaviors as an adult that are consistent with a co-existing or a primary male-male sexual orientation, effects analogous to those described in female victims of SSI and CSA-AF (Stroebel, O'Keefe, Griffiee, et al., 2013).

## METHOD

### Participants

A total of 1,178 male participants completed the interview. The median age was 21 years ( $M = 26.5$ ,  $SD = 12.0$ , range: 18–86 years). The education level of the participants was as follows: 6.1% high school only, 70.3% some

college, 14.5% bachelors' degree, 4.9% master's degree, and 4.2% doctoral degrees. All participants were over the age of 18 and gave informed consent using forms approved by the relevant institutional review board. The participants were recruited from a population consisting mainly of undergraduate and graduate college students from six mid-sized, mid-Atlantic college campuses using bulletin board postings and announcements in classes. To obtain a wider base and to increase age, education, and life-experience diversity, we also recruited university faculty and staff and individuals from the same general population of the mid-Atlantic United States who had already completed their education. We included all individuals who were 18 years old or older who were willing to participate in the study after being provided with information about the risks and benefits of the study. We received approval to begin data collection in 2002 on the two Marshall University Campuses and at the Charleston Area Medical Center/West Virginia University Charleston campus. In 2004 we received approval to begin data collection at the West Virginia University Morgantown campus. In 2007 we received permission to begin data collection on the West Virginia State University campus in Institute, WV, and in 2009 we received permission to begin data collection on the Concord University campus in Athens, West Virginia. The announcement processes were slightly different on each of the campuses because we relied on the individual professors to make announcements to their classes. In some cases, the investigators were invited into classes to make the announcements. In order to increase the number of sexual minority individuals who participated in the study we attended area "Pride" parades and gay and lesbian picnics and worked with gay and lesbian churches and other organizations friendly to gays and lesbians. Members of these groups were also invited to participate. Whenever individuals agreed to participate, we encouraged them to bring along friends to participate or to encourage their friends to participate at a later time (snowball recruiting). All participants were unpaid, but many of the students received credit from their professors in psychology, social work, and criminal justice courses. Moreover, all participants were volunteers.

## Measures

The CASI program (S-SAPE1, © S-SAPE, LLC, 2002, P.O. Box 11081, Charleston, WV 25339), the scale validation, *the items* (except for correction from male to female wording), and item numbering used for the present study have been described (Griffie et al., 2012; Stroebel et al., 2012; Stroebel, O'Keefe, Beard et al., 2013; see Haning et al., 2007 for a full description of the S-SAPE1 sexual behavior screen used to obtain detailed quantitative data about a variety of sexual behaviors and Stroebel et al., 2012 for validation of the CES-D, Intimacy-1, Intimacy-2, Conflict, and Sexual Satisfaction 27-item

scales in women as administered by the S-SAPE1 CASI program). See Griffee et al. (2012) for validation of the hypersexuality and risky-sexual-behaviors scales in women. Additional validation pertinent to the present research is provided below.

Items related to incest were presented interspersed among similar items not related to incest. Variables describing behaviors that constituted CSA by an adult male were constructed by the computer program to insure that they were worded similarly to those previously presented that described the same behaviors with male partners (a) whose age was within 4 years of the participant's and (b) whose age was more than 4 years older than the participant's but under age 18. See the appendix for items used in the present research. Each of the following scales was calculated as the sum of the individual scale items (or reverse scored items).

#### DEPRESSION

The Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) was used to assess depression. The measure consists of 20 items, measured on a Likert scale ranging from 0 (*rarely or none of the time [less than 1 day]*) to 5 (*most or all of the time [5–7 days]*). Internal consistency of the CES-D *in the present sample* was Cronbach's  $\alpha = .882$ .

#### INTIMACY

The Intimacy Scale (Walker & Thompson, 1983) hereafter referred to as the Intimacy-1 scale, was used to assess intimacy. The measure consists of 17 items, measured on a Likert scale ranging from 0 (*never*) to 4 (*always*). Internal consistency of the Intimacy-1 scale in the present sample was Cronbach's  $\alpha = .964$ .

Intimacy as expressed in communication about sexual issues was assessed using the Sexual Partner Intimacy Scale (Haning et al., 2007), hereafter referred to as the Intimacy-2 scale. The measure consists of 9 items, measured on a dichotomous scale. Internal consistency of the Intimacy-2 scale in the present sample was Kuder-Richardson formula 20  $\alpha = .588$ .

#### SEXUAL SATISFACTION

The Sexual Relationship Index Scale (Haning et al., 2007), hereafter referred to as the sexual satisfaction scale, was used to assess sexual satisfaction. The measure consists of 29 items, measured on a Likert scale ranging from 0 (*less than 10% of the time*) to 4 (*more than 90% of the time*) with a possible range of 0 to 116. Internal consistency of the sexual satisfaction scale *in the present sample* was Cronbach's  $\alpha = .907$  for the 29-item scale, .961 for the 14-item

Sex-positive and Partner Affirming Statements sub-scale, .675 for the 7-item Sex-negative Statements about Sex with the Partner sub-scale, and .778 for the 8-item Sex-positive Complaints about Sex with Partner sub-scale.

#### CONFLICT

The Conflict scale (Haning et al., 2007) was used to assess conflict between sexual partners. The measure consists of 9 items, measured on a dichotomous scale. Internal consistency of the conflict scale *in the present sample* was Kuder-Richardson formula 20  $\alpha = .713$ .

#### THE HYPERSEXUALITY AND RISKY SEXUAL BEHAVIOR SCALES

The hypersexuality and risky sexual behavior with men and the hypersexuality and risky sexual behavior with women scales (HSRSB-M and HSRSB-W, respectively) are covert measures based on face-valid items derived using reliability analysis and factor analysis. The scales each consist of 13 self-statements presented as agree/disagree coded 1/0, respectively, and scored by summing the individual item (0 or 1) scores, with theoretical maximum and minimum scores of 13 and zero, respectively. The 13 self-statement items comprising each scale (Griffee et al., 2012) were semi-randomized among a total of 174 self-statements, which effectively hides the fact that the some self-statements are used to produce scales. Each scale is composed of the *hypersexuality* (items 1–8) and the *risky sexual behaviors* (items 9–13, Griffee et al., 2012). Four items in the scales (items, 7, 9, 10, and 12) contain the word *men* in HSRSB-M. Alternative items for 7, 9, 10, and 12 that substitute the word *women* are used in HSRSB-W to describe interactions with *women*. *Internal consistency* of the HSRSB-M scale was Kuder-Richardson formula 20  $\alpha = .691$ . A frequency distribution of the actual total scores showed that 96% of the 1,178 participants had scores below nine, 92% had scores below 8, and 85% had scores below seven. *Internal consistency* of the HSRSB-W scale was Kuder-Richardson formula 20  $\alpha = .706$ . A frequency distribution of the actual total scores showed that 95% of the 1,178 participants had scores below 10 and 90% had scores below nine, 84% had scores below 8, and 75% had scores below seven. These findings were consistent with the observations that the median score on the HSRSB-M scale was four while the median score on the HSRSB-W was 5 and that to get scores above six on either of the two scales, a participant would have had to endorse one or more of the last seven items, which all describe risky sexual behaviors and which were all consistent with sexual addiction. Twenty-five percent of the participants in the present study had scores above seven on the HSRSB-W, indicating the high prevalence of risky sexual behaviors with women among the male participants.

#### THE MALE-MALE SEXUAL ORIENTATION SCALE (M-MSOS)

We summed the data from 12 of the items in Table 9 (all but Item 34, the self-identified sexual orientation, and Items 30–32, which were obligatory subsets of item 29) to obtain the total score for the M-MSOS. These 12 items are analogous to those in Table 9 of Stroebel, O’Keefe, Griffie et al. (2013), with the word “female” replaced by the word “male” to obtain the total score for the M-MSOS. The score on the M-MSOS should be interpreted as a count of the number of scale items or behaviors that the participant endorsed. The M-MSOS alpha was 0.9608; 81.1% of the participants had scores of zero, 90% had scores less than three, and 94.8% had scores of less than ten.

#### THE MALE-FEMALE SEXUAL ORIENTATION SCALE (M-FSOS)

We summed the data from twelve items analogous to those in Table 9 with the word “male” replaced by the word “female” to obtain the total score for the M-FSOS. The M-FSOS alpha was 0.8396; 3.7% of the 1,178 participants had scores of zero. Conversely, 96.3% had scores of greater than zero, 93.3 had scores greater than one, and 91.9% had scores greater than two.

#### Content Validity

All items for the survey were carefully reviewed and approved by four doctoral level experts in the field: a psychiatrist trained in psychotherapy, a social worker trained in psychotherapy, a psychologist, and a gynecologist who was also trained in psychology.

#### Procedure

The present study was part of a larger study entitled “Effects of Recalled Family Attitudes and Childhood Sexual Experiences on Adult Sexual Attitudes and Adjustment.” approved by the institutional review boards at Marshall University, Charleston Area Medical Center/West Virginia University, West Virginia University, West Virginia State University, and Concord University. All 1,178 participants were over the age of 18 and gave informed consent using printed paper forms approved by the relevant institutional review board. Potential participants were invited to participate in a *cradle to the grave study on human sexuality*. The research was conducted using the S-SAPE1 computerized anonymous survey instrument (Stroebel et al., 2012). Surveys were administered in university computer laboratories that had up to 45 computers to a room, and sufficient space that participants were not in a position to see one another’s computer screens. Anonymity was protected by electronic randomized filing of the encrypted results in a hidden random access file filled with fake data as well as simultaneous filing of many fake

decoy lines. Decoding was performed on the file containing all respondents' randomly filed encrypted data. During a 10-min orientation respondents were informed of these protections to their anonymity and that the S-SAPE1 computerized anonymous survey instrument was designed to obtain a history of sexual experiences and behaviors, and they were again informed that they could withdraw from the study at any time they wished. No reference to incest, CSA, or sexual addiction was made during promotion of the study. During the orientation provided before the participants started entering their data into the computers they were informed about the operation of the screen that presented the sexual behavior items and the sexual behavior sub-items. They were informed that for each behavior they would be asked whether a brother or sister or a mother or a father had been a partner. Items related to incest were presented interspersed among similar items not related to incest. Variables describing behaviors that constituted CSA by an adult female were constructed by the computer program to insure that they were worded similarly to those previously presented that described the same behaviors with female partners (a) whose age was within 4 years of the participant's and (b) whose age was more than 4 years older than the participant's but under age 18. See the appendix for items used in the present research.

#### SELECTION OF PARTICIPANTS FOR THE STUDY

From the records of all 1,199 male and 2,051 female potential participants available in the database, we selected all 1,178 men who were not transsexual. The 20 transsexual men were *excluded* because at the time that the early sexual behaviors occurred, they were genetic and anatomical females; any sexual behaviors with a sister would have constituted sister-sister incest; and any sexual behavior with an adult female would have constituted CSA of an under-age female victim by an adult female perpetrator.

#### RESULTS

For the purposes of statistical analysis, those who admitted to having participated as a minor in any one of the voluntary or coerced behaviors with one or more brothers but who denied that their father had been a partner were assigned to the BBI group ( $n = 25$ ). Those who admitted to having participated in voluntary or coerced sexual behaviors of any kind as a minor with adult male partners but who denied that their brother had been a partner were assigned to the CSA-AM group ( $n = 26$ , two of whom were the participant's fathers). Neither of the two victims of FSI included in the CSA-AM group was also a victim of BBI. Those who denied having participated as a minor in any one of the voluntary or coerced behaviors with brothers, fathers, or adult male partners were assigned to the control group ( $n = 1,127$ ).

**TABLE 1** Voluntary, Voluntary and Coerced, and All Coerced Participation in Brother-Brother Incest by Age-differential Between the Siblings

	Participation of participant in Brother-brother incest					
	All voluntary		Both voluntary and coerced		All coerced	
	<i>n</i> <sup>1</sup>	<i>Row%</i>	<i>n</i>	<i>Row%</i>	<i>n</i>	<i>Row%</i>
Brother was within 4 years of participant's age: <i>n</i> = 23 <sup>1</sup>	18	78.3	4	17.4	1	4.3
Brother was more than 4 years older than participant but under 18: <i>n</i> = 3 <sup>1</sup>	2	66.7	1	33.3	0	0.0
Brother was more than 4 years older than participant and over 18: <i>n</i> = 0 <sup>1</sup>	0	—	0	—	0	—
Brother was more than 4 years younger than participant: <i>n</i> = 4 <sup>1</sup>	2	50.0	2	50.0	0	0.0

*Note.* <sup>1</sup>The total of the *ns* add to 30 because 5 of the 25 participants who were victims of Brother-brother incest provided data on brothers in two age-differential groups.

The ages of the BBI perpetrators relative to their 25 brother-victims and whether the brother-victim viewed his participation as voluntary or coerced appears in Table 1. Five of these were victims of BBI with brothers in two different partner-age differential categories. All five reported that at least some of their BBI was voluntary, but three reported that some of the BBI was coerced by at least one of the brother-perpetrators. Participation was listed exclusively as voluntary in 22 (73.3%) of the 30 total BBI dyads. The scores on five psychological scales and comparisons among the three groups are presented in Table 2. The data on the earliest ages, number of partners, number of times, and latest ages that victims of BBI had engaged in voluntary or coerced sexual behaviors with male partners from *all age categories* are presented in Tables 3–6. All data for between group comparisons in Tables 3–6 were restricted to those who had engaged in the behavior.

## Hypothesis Testing

H<sub>1</sub>: CSA BY MALE PERPETRATORS HAS GLOBAL ADVERSE EFFECTS ON MALE VICTIMS

We used one-way ANOVAs to test for differences among the three groups, and we used the Tukey-Kramer test to correct for having made all post-hoc pair-wise comparisons among the three groups. The analyses showed

**TABLE 2** Scores on Ten Psychological Scales

	Brother-brother incest $n = 25$ $Mdn^1$ , $mean \pm SD$	CSA-AM $n = 26$ $Mdn^1$ , $mean \pm SD$	Controls $n = 1,127$ $Mdn^1$ , $mean \pm SD$
CES-D depression scale	14.4 ± 8.5	13.2 ± 9.7	11.3 ± 8.2
Intimacy-1 scale	46.9 ± 16.8 <sup>a</sup>	36.6 ± 15.4 <sup>a,c***</sup>	47.5 ± 15.5 <sup>b***</sup>
Intimacy-2 sexual communication scale <sup>2</sup>	5, 4.2 ± 2.0	3.5, 3.7 ± 2.2 <sup>c**</sup>	5, 5.0 ± 1.7 <sup>b**</sup>
Conflicts scale <sup>2</sup>	2, 2.9 ± 2.2	2.5, 3.2 ± 2.7	1, 2.0 ± 2.0
Sexual satisfaction scale (SRI)	83.0 ± 21.2	79.00 ± 19.7	86.90 ± 18.6
SRI Sex-positive and partner-affirming statements subscale	31.8 ± 16.0	29.5 ± 14.9	34.3 ± 16.8
SRI Sex negative statements about sex with partner subscale	26.4 ± 2.0	25.1 ± 2.9	25.6 ± 3.4
SRI Sex-positive complaints about sex with partner subscale	25.6 ± 6.5	24.5 ± 5.1 <sup>c</sup>	27.0 ± 5.1 <sup>b</sup>
Hypersexuality and risky sexual behaviors with men scale	6.8 ± 2.6 <sup>c***</sup>	7.6 ± 2.7 <sup>c***</sup>	4.1 ± 2.3 <sup>a***</sup> , <sup>b***</sup>
Hypersexuality male partner subscale <sup>2</sup>	5, 4.9 ± 1.7 <sup>c**</sup>	6, 5.6 ± 1.4 <sup>c***</sup>	4, 3.6 ± 1.9 <sup>a**</sup> , <sup>b***</sup>
Risky sexual behaviors with men subscale <sup>2</sup>	2, 1.9 ± 1.6 <sup>c***</sup>	1.5, 2.0 ± 1.6 <sup>c***</sup>	0, 0.5 ± 0.9 <sup>a***</sup> , <sup>b***</sup>
Hypersexuality and risky sexual behaviors with women scale	6.5 ± 2.2 <sup>c***</sup>	7.2 ± 2.5 <sup>c***</sup> , <sup>c***</sup>	4.7 ± 2.7 <sup>a***</sup> , <sup>b***</sup>
Hypersexuality female partner subscale <sup>2</sup>	5, 4.8 ± 1.7 <sup>c*</sup>	5, 5.4 ± 1.6 <sup>c***</sup>	4, 3.8 ± 1.9 <sup>a*</sup> , <sup>b***</sup>
Risky sexual behaviors with women subscale	1.7 ± 1.5 <sup>c**</sup>	1.7 ± 1.2 <sup>c***</sup>	1.0 ± 1.2 <sup>a**</sup> , <sup>b***</sup>
Male-male orientation scale (M-MSOS) <sup>2</sup>	2, 3.96 ± 4.7 <sup>c***</sup>	6, 6.19 ± 4.47 <sup>c***</sup>	0, 0.78 ± 2.44 <sup>a***</sup> , <sup>b***</sup>
Male-female orientation scale (M-FSOS) <sup>2</sup>	10, 7.4 ± 4.7 <sup>b*</sup>	6, 5.8 ± 4.3 <sup>a*</sup>	9, 8.5 ± 2.7 <sup>b*</sup>
Adult behavioral sexual orientation scale <sup>2</sup>	$n = 25$ 3.8, 28.2 ± 39.7 <sup>c***</sup>	$n = 26$ 4.8, 37.6 ± 44.5 <sup>c***</sup>	$n = 914$ 0.0, 6.3 ± 23.3 <sup>a***</sup> , <sup>b***</sup>

Note. <sup>a</sup>comparison to brother-brother incest group, <sup>b</sup>comparison to CSA-AM group, <sup>c</sup>comparison to Control group, \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$ , using the Tukey-Kramer correction for multiple post-hoc comparisons based on the rank-t test. <sup>1</sup>Medians are provided only for variables with heterogeneous variance. <sup>2</sup>Variance was heterogeneous. We used rank-transformed data to calculate the  $p$ -values and provided medians as well as the means and standard deviations.

**TABLE 3** Number of Partners for Voluntary or Coerced Behaviors with Male Partners from All Age-Differential Categories

Behavior	Brother-brother incest			CSA-AM			Controls		
	Mdn	range	n	Mdn	range	n	Mdn	range	n
A of any kind	2 <sub>b</sub> *	1-90	25	5.5 <sub>a</sub> <sup>*,c</sup> **	1-70	26	3 <sub>b</sub> **	1-120	113
B male partner looking at your genitals	3	1-19	16	5.5 <sub>c</sub> *	1-99	20	2 <sub>b</sub> *	1-120	83
C looking at your male partner's genitals	3	1-80	20	5 <sub>c</sub> **	1-99	20	2 <sub>b</sub> **	1-120	84
D touching your male partner's genitals	2 <sub>b</sub> *	1-80	17	5 <sub>a</sub> <sup>*,c</sup> *	1-99	20	2.5 <sub>b</sub> *	1-120	84
E having the male partner touch your genitals	2 <sub>b</sub> *	1-80	17	5 <sub>a</sub> <sup>*,c</sup> *	1-99	20	2.5 <sub>b</sub> *	1-120	84
F looking at or touching your male partner's anus	1	1-4	7	5	1-108	6	2	1-120	54
G having the male partner look at or touch your anus	1	1-4	4	1.5	1-89	12	2	1-4	28
H inserting your penis into your male partner's rectum	1	1-2	5	4	1-8	6	2	1-120	29
I having the male partner insert his penis into your rectum	1	1-2	4	4	1-8	7	2	1-10	38

Note. <sup>a</sup>comparison to brother-brother incest group, <sup>b</sup>comparison to CSA-AM group, <sup>c</sup>comparison to Control group, \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$ , using the Tukey-Kramer correction for multiple post-hoc comparisons based on the rank-t test.

that the BBI group was *not* significantly different from the controls on the CES-D (depression), Intimacy-1 (general intimacy), Intimacy-2 (verbal sexual communication), the Conflicts, or the sexual satisfaction 29-item scales (Table 2). However, the scores of the BBI group on the hypersexuality and risky sexual behaviors with *men* scale and the hypersexuality and risky sexual behaviors with *women* scale, and their corresponding hypersexuality subscales and risky sexual behavior subscales were *all* significantly higher than the corresponding scores of the controls (Table 2).

The CSA-AM group had significantly more problematic scores than the control group on the Intimacy-1 scale (general intimacy), the Intimacy-2 scale (verbal sexual communication), and the Sex-positive complaints about sex with partner subscale (Table 2). The CSA-AM group also had significantly more problematic scores than the BBI group on the intimacy-1 scale (Table 2). The scores of the CSA-AM group on the hypersexuality and risky sexual behaviors with *men* scale and the hypersexuality and risky sexual behaviors with *women* scale, and their corresponding hypersexuality subscales and risky sexual behavior subscales were *all* significantly higher than the corresponding scores of the control group (Table 2).

We used multiple logistic regression and two 0/1 dummy variables to test whether BBI or CSA-AM were statistically significant predictors of participants' endorsing items with categorical responses and to adjust for the effects of the other variable in the model in the event that both were statistically significant predictors (Tables 7–9). To be eligible for addition to the model, we required each evaluated predictor to have been a statistically significant predictor before being added to the model. We then added the most powerful predictor to the model first and subsequently added the next most powerful predictor as long as it was still statistically significant after adjusting for variable already in the model. Victims of BBI were approximately 4.2 times more likely than the controls to endorse feeling like damaged goods, 7.1 times more likely to endorse having suffered psychological injury, 3.7 times more likely to endorse being distant from both parents or distant from father and close to mother in high school, 2.5 times more likely to endorse being distant from both parents or distant from mother and close to father in high school, 3.8 times more likely to endorse still having long-term anger at or being estranged from one or more parents or siblings, 9.9 times more likely to endorse having cheated on their spouse or long-term partner by having sex with men, three times more likely to endorse not having discussed their childhood sexual experience with their spouses or long-term partners, 3.4 times more likely to endorse having fathered an unplanned pregnancy, 138 times more likely to endorse being more distant from the brother(s) that they experimented with sexually than they were from other siblings, and 9.6 times more likely to endorse having experienced nightmares that included children with whom they had sexual experiences as a child (Table 7). Despite the problematic findings, victims of BBI were neither more

nor less likely than controls to have undergone psychological treatment for their childhood sexual abuse (Table 7). Victims of BBI were approximately 3.8 times more likely than the controls to have (as an adult) engaged in self-masturbation involving a vibrating device, 3.2 times more likely to have engaged in masturbation involving nipple stimulation, 4.3 times more likely to have engaged in masturbation involving anal stimulation, 5.7 times more likely to have engaged in masturbation involving rectal insertion of objects, and 3.6 times more likely to have engaged in masturbation involving looking at images of adult men (Table 8).

As detailed in Table 7, victims of CSA-AM were also significantly more likely than controls to endorse each of the ten items listed above for the victims of BBI except for item 19 (having nightmares involving childhood child sex-partners). Victims of CSA-AM were also significantly more likely than controls to endorse seven additional items (not significantly endorsed by victims of BBI): they were 2.3 times more likely to endorse being distant from both parents or distant from mother and close to father at time of participation, 15 times more likely to endorse having had adult sexual perpetrators appear in nightmares, 5.3 times more likely to endorse having engaged in sex to obtain money or goods, 27 times more likely to endorse having undergone psychological treatment for their CSA, 7.8 times more likely to endorse having had the listener react with horror and disgust when they tried to open up about their childhood sexual experiences, 9.5 times more likely to endorse having had sex with a male partner while married to a female, and they were 5.4 times more likely to endorse thinking that they have demonstrated symptoms of sexual addiction (Table 7). Furthermore, in the full data set, the total scores on the hypersexuality and risky sexual behaviors with *men* scale and the hypersexuality and risky sexual behaviors with *women* scale were both more powerful logistic regression predictors of a participant endorsing the belief that they had symptoms of sexual addiction than either of their respective sub-scales (step-0 score statistic values of 219.7 and 249.7, respectively).

## H<sub>2</sub>: CSA PERPETRATED BY THE BROTHER IS OFTEN THE FIRST SEXUAL EXPERIENCE FOR THE VICTIM

To test the hypothesis, we used a one-sample t-test on the age difference between the earliest age that participants in the BBI group had masturbated or had engaged in voluntary or coerced sex of any kind with a female partner of any age before age 18. The mean differences were 1.58 ( $n = 24$ ,  $p = .045$ ) and 3.50 years ( $n = 12$ ,  $p = .009$ ) for masturbation and sex of any kind with a female partner of any age, respectively. Sex with a female partner had preceded sex with a brother in only one of the 12 cases who had engaged in both behaviors before reaching 18 years of age. Onset of masturbation had preceded sex with a brother in only six of the 24 cases who had engaged in both behaviors before reaching 18 years of age, indicating that in the

preponderance of cases in the BBI group, voluntary or coerced sex with a brother had preceded either onset of masturbation or the first experience with a female partner. Thirteen of the 25 BBI victims had not had any sexual experiences with a female partner of any age before reaching 18 years of age. Those who did have sexual experiences with female partners before reaching 18 years of age had significantly fewer experiences than controls for each of the seven categories of behaviors when the analyses were restricted to those who had that type of experience at least once (Table 4).

### H<sub>3</sub>: CSA BY MALE PERPETRATORS HAS A DELETERIOUS IMPACT ON ADULT MEN'S SEXUAL ADJUSTMENT WITH HIS ADULT PARTNERS

As detailed for H<sub>4</sub>, below, many victims of BBI endorsed items and engaged in behaviors consistent with having at least a co-existing male-male orientation that adversely impacted their attempts to maintain a committed, monogamous relationship with a female partner as an adult. As mentioned above for H<sub>1</sub>, victims of BBI were approximately 9.9 times more likely than the controls to endorse having cheated on their spouse or long-term partner by having sex with men and 2.6 times more likely to endorse not having discussed their childhood sexual experience with their spouses or long-term partners (Table 7). Furthermore, when the analysis was restricted to the 225 participants who had been legally married, logistic regression analysis showed that victims of CSA-AM were approximately 9.5 times more likely than controls to have had sex with a male partner while legally married to a woman (Table 7).

### H<sub>4</sub>: BEING A VICTIM OF BBI OR CSA-AM INCREASES THE LIKELIHOOD OF ENGAGING IN BEHAVIORS AS AN ADULT THAT ARE CONSISTENT WITH A CO-EXISTING OR A PRIMARY MALE-MALE SEXUAL ORIENTATION

We followed the same approach as outlined for the multiple logistic regressions in Table 7. The 13 examined behaviors are listed in Table 9 along with the odds ratios and their 95% confidence intervals. Based on the multiple regression analyses presented in Table 9, being a victim of CSA-AM was a more powerful predictor for each of the behaviors than being a victim of BBI, except currently living with a male long-term partner which was predicted more powerfully by being a victim of BBI. Endorsing items 28, 33, 35, 36, or 37 was consistent with the idea that the male-male orientation of the endorsers was stronger than any co-existing male-female orientation. Endorsing the other items was consistent with either a co-existing or a primary male-male sexual orientation. Victims of BBI were approximately 9.9 times more likely than controls to endorse having cheated on their spouses or long term partners by having sex with men, 4.1 times more likely to report

**TABLE 4** Number of Times for Voluntary or Coerced Behaviors with Male Partners from All Age-Differential Categories

Behavior	Brother-brother incest			CSA-AM			Controls		
	Mdn	range	<i>n</i>	Mdn	range	<i>n</i>	Mdn	range	<i>n</i>
A of any kind	15	1-1000	25	22.5	1-825	26	10	1-1,899	113
B male partner looking at your genitals	11.5	1-175	16	19.5	1-800	20	18.5	1-1,800	82
C looking at your male partner's genitals	14	1-175	17	18	1-1499	20	10	1-1,800	84
D touching your male partner's genitals	1b*	1-3	17	2.5 <sup>a,c***</sup>	1-8	20	1b***	1-3	84
E having the male partner touch your genitals	10	1-175	18	19	1-750	21	11	1-1,800	80
F looking at or touching your male partner's anus	5	1-25	7	82.5	1-600	6	10	1-1,500	41
G having the male partner look at or touch your anus	17.5	5-27	4	4	1-525	12	10	1-400	28
H inserting your penis into your male partner's rectum	2	1-5	5	42	1-450	6	5	1-1,500	29
I having the male partner insert his penis into your rectum	1.5 <sup>b*</sup>	1-5	4	40 <sup>a*</sup>	2-650	7	6	1-325	27

*Note.* <sup>a</sup>comparison to brother-brother incest group, <sup>b</sup>comparison to CSA-AM group, <sup>c</sup>comparison to Control group, \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$ , using the Tukey-Kramer correction for multiple post-hoc comparisons based on the rank-t test.

**TABLE 5** Earliest Age for Voluntary or Coerced Behaviors with Male Partners from All Age-Differential Categories

Behavior	Brother-brother incest			CSA-AM			Controls		
	Mdn	range	<i>n</i>	Mdn	range	<i>n</i>	Mdn	range	<i>n</i>
A of any kind	10	5-15	25	11	3-17	26	11	4-17	113
B male partner looking at your genitals	10	5-15	16	12.5	4-17	20	10	4-17	82
C looking at your male partner's genitals	10	5-17	16	9	3-16	20	10	4-17	83
D touching your male partner's genitals	12	5-16	17	11	4-16	20	11	4-17	84
E having the male partner touch your genitals	13	5-16	18	12	3-17	21	12	4-17	80
F looking at or touching your male partner's anus	14	6-15	7	12.5	5-15	6	13	5-17	41
G having the male partner look at or touch your anus	9.5	6-15	4	13.5	5-17	12	13.5	6-17	28
H inserting your penis into your male partner's rectum	9.5	6-15	4	13.5	5-17	12	13.5	6-17	28
I having the male partner insert his penis into your rectum	14	9-16	4	15	6-17	7	14	5-17	27

*Note.* <sup>a</sup>comparison to brother-brother incest group, <sup>b</sup>comparison to CSA-AM group, <sup>c</sup>comparison to Control group, \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$ , using the Tukey-Kramer correction for multiple post-hoc comparisons based on the rank-t test.

**TABLE 6** Latest Age (Before Reaching Age 18) for Voluntary or Coerced Behaviors with Male Partners from All Age-Differential Categories

Behavior	Brother-brother incest			CSA-AM			Controls		
	Mdn	range	<i>n</i>	Mdn	range	<i>n</i>	Mdn	range	<i>n</i>
A of any kind	14 <sub>b</sub> *	8–17	25	17 <sub>a,c</sub> **	4–17	26	14 <sub>b</sub> *	4–17	113
B male partner looking at your genitals	14.5	9–17	16	17 <sub>c</sub> *	5–17	20	14 <sub>b</sub> *	4–17	82
C looking at your male partner's genitals	15	9–17	16	17	4–17	20	14	4–17	83
D touching your male partner's genitals	14	9–17	17	17	4–17	20	15	4–17	84
E having the male partner touch your genitals	14.5	9–17	18	17	5–17	21	15	4–17	80
F looking at or touching your male partner's anus	14	10–15	7	17	14–17	6	17	5–17	41
G having the male partner look at or touch your anus	13	10–15	4	16	7–17	12	17	6–17	28
H inserting your penis into your male partner's rectum	15	10–17	5	16.5	14–17	6	16	5–17	29
I having the male partner insert his penis into your rectum	14	9–16	4	17	7–17	7	17	5–17	27

*Note.* <sup>a</sup>comparison to brother-brother incest group, <sup>b</sup>comparison to CSA-AM group, <sup>c</sup>comparison to Control group, \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$ , using the Tukey-Kramer correction for multiple post-hoc comparisons based on the rank-t test.

**TABLE 7** Items with Categorical Responses

	Groups				Odds ratio <sup>2</sup> and significance <sup>3</sup>		
	BBI		CSA-AM			BBI vs. controls	CSA-AM vs. controls
	<i>n</i> = 25	% yes <sup>1</sup>	<i>n</i> = 26	% yes <sup>1</sup>			
				<i>n</i> = 1,127			
				% yes <sup>1</sup>			
Item 5. I feel like damaged goods	20.0	42.3	4.1	4.1	4.2 (1.4–13)*	16 (7.0–36)***	
Item 6. I have suffered psychological injury	28.0	34.6	4.2	4.2	7.1 (2.7–19)***	13 (5.7–30)***	
Item 7. Distant from both parents or distant from father and close to mother in high school	68.0	76.9	34.2	34.2	3.7 (1.6–8.8)**	6.6 (2.7–17)***	
Item 8. Distant from both parents or distant from father and close to mother at time of participation	36.0	42.3	24.0	24.0	<i>ns</i>	2.3 (1.09–5.0) <sup>5</sup>	
Item 7a. Distant from both parents or distant from mother and close to father in high school	36.0	38.5	16.9	16.9	2.5 (1.1–5.8) <sup>5</sup>	3.5 (1.6–7.5)**	
Item 8a. Distant from both parents or distant from mother and close to father at time of participation	24.0	7.7	13.8	13.8	<i>ns</i>	<i>ns</i>	
Item 9. (2 coded 1 else 0) I still have long-term anger or am or I am estranged from one or more of my <i>parents</i> or <i>siblings</i>	36.0	34.6	11.4	11.4	3.8 (1.6–9.0)**	4.6 (2.1–10)***	
Item 10. (4 coded 1 else 0) The only way that the adult(s) that I had sexual experiences with as a child have ever appeared in any of my dreams was in nightmares and the feeling was terror or horror	4.0	7.7	0.8	0.8	<i>ns</i>	15 (3.9–60)***	
Item 11. I have cheated by having sex with women	28.0	23.1	21.2	21.2	<i>ns</i>	<i>ns</i>	
Item 12. I have cheated by having sex with men	40.0	38.5	5.4	5.4	9.9 (1.4–24)***	11 (5.1–26)***	
Item 13. I have engaged in sex to obtain money, drugs, or other goods	12.0	15.4	3.8	3.8	<i>ns</i>	5.3 (1.9–15)**	
Item 14. I have undergone psychological treatment for my childhood sexual abuse.	12.0	30.8	2.0	2.0	<i>ns</i>	27 (2.4–65)***	
Item 15. When I tried to open up with another person about my childhood sexual experience, he/she reacted with horror and disgust.	0.0	23.1	3.5	3.5	<i>ns</i>	7.8 (3.0–20)***	
Item 16. I have not discussed all of my childhood sexual experience with my spouse or long-term partner because I felt that he/she might not handle it well.	48.0	65.4	23.7	23.7	2.6 (1.2–5.9)*	4.7 (2.1–10)***	
Item 17. I have fathered an unplanned pregnancy.	28.0	34.6	9.1	9.1	3.4 (1.3–8.4)*	4.3 (1.9–9.8)**	
Item 18b. I am more distant from that (those) brother(s) (with whom I experimented)	20.0	0.0	0.2	0.2	138 (23–820)***	16 (1.6–157)	
Item 19. The only way that the children that I had sexual experiences with as a child have ever appeared in any of my dreams was in nightmares and the feeling was terror or horror	4.0	0.0	0.4	0.4	9.6 (1.08–85) <sup>6</sup>	<i>ns</i>	

(Continued on next page)

TABLE 7 Items with Categorical Responses (Continued)

	Groups				BBI vs. controls	Odds ratio <sup>2</sup> and significance <sup>3</sup>		
	BBI		CSA-AM				Controls	
	<i>n</i> = 25	<i>n</i> = 26	% yes <sup>1</sup>	% yes <sup>1</sup>			<i>n</i> = 1,127	% yes <sup>1</sup>
Item 20b-e. Caught experimenting with another child.	20.0	30.8	15.6	15.6	<i>ns</i>	<i>ns</i>		
Item 21. "I believe that in some ways I have demonstrated symptoms of 'sexual addiction' or 'sexual compulsions' which may explain some of my sexual behaviors."	48.0	73.1	35.7	35.7	<i>ns</i>	5.4 (2.3-13)		
Voluntary or coerced sex of any kind with females who were under age 18 before reaching age 18	40.0	50.0	48.9	48.9	<i>ns</i>	<i>ns</i>		
Voluntary or coerced sex of any kind with males who were under age 18 before reaching age 18	96.0	80.8	9.5	9.5	210 (28-1,573)***	40 (15-108)***		
Voluntary sex with <i>adult males as an adult</i> (behaviors A, and J-R)								
(A) Of any kind	52.0	61.5	8.1	8.1	11 (4.6-24)***	16 (7.0-35)***		
(J) Reaching orgasm with your partner	52.0	57.7	7.2	7.2	12 (5.2-28)***	15 (6.9-33)***		
(K) Ejaculating in your partner's rectum	40.0	42.3	4.3	4.3	12 (5.0-29)***	14 (6.2-32)***		
(L) Ejaculation as a result of oral stimulation of your penis	48.0	61.5	6.7	6.7	11 (4.7-25)***	19 (8.6-43)***		
(M) Reaching orgasm as a result of manual stimulation of your penis	44.0	53.8	5.6	5.6	11 (4.7-26)***	17 (7.7-38)***		
(N) Bringing your partner to orgasm by stimulating his penis with your mouth	32.0	53.8	5.8	5.8	6 (2.4-15)***	17 (7.6-37)***		
(O) Bringing your partner to orgasm by stimulating his penis with your hand	40.0	50.0	5.6	5.6	9.3 (3.9-22)***	15 (6.7-33)***		
(P) Bringing your partner to orgasm by accepting his penis into your rectum	44.0	38.5	4.5	4.5	14 (5.9-33)***	11 (5.0-26)***		
(Q) Sexual relations with a male partner while you were legally married (analysis restricted to the 225 who had been married) <sup>6</sup>	20.0	41.2	5.2	5.2	<i>ns</i>	9.5 (3.2-27)***		
(R) Sexual relations with a male prostitute	12.0	7.7	1.0	1.0	10 (2.5-40)**	8.8 (2.2-35)**		

<sup>1</sup>All percentages are for those who agreed with the statement or engaged in the behavior. The percent that disagreed or did not engage in the behavior can be found by subtraction. <sup>2</sup>The odds ratio shows the predicted increase in likelihood over controls of agreeing with the statement or engaging in the behavior. <sup>3</sup>A Bonferroni correction has already been applied to every p-value in this table: Each presented p-value was multiplied by 2 to correct for the 2 comparisons made. \* =  $p < .05$ , \*\* =  $p < .01$ , and \*\*\* =  $p < .001$ . <sup>4</sup>Significant at step-0 and  $p = .028$  before applying the Bonferroni correction. <sup>5</sup>Significant at step-0 and  $p = .033$  before applying the Bonferroni correction. <sup>6</sup>Significant at step-0 and  $p = .043$  before applying the Bonferroni correction. <sup>7</sup>The total *n*'s for the BBI, CSA-AM, and control groups for those who had been married at least once were: 15, 17, and 193, respectively.

that sexual fantasy involving an adult male partner best facilitated reaching an orgasm while having sex with a favorite partner, 6.5 times more likely to report that sexual fantasy involving an adult male partner best facilitated reaching an orgasm while masturbating, 6.5 times more likely to report that his sexual dreams were usually about a male adult, 7.1 times more likely to report that they had masturbated using images of adult men, 5.6 times more likely to report that they had engaged in voyeurism directed at adult men, 6.6 times more likely to report that the most sexually arousing pornographic picture would be that of an adult male, 11 times more likely to report that they had engaged in sexual relations of any kind with an adult male, 12 times more likely to report that they had reached orgasm with an adult male, 9.3 times more likely to report that they had brought an adult male to orgasm by stimulating his genitals manually, 6.1 times more likely to report that they had brought an adult male to orgasm by stimulating his genitals with their mouths, 6.6 times more likely to report that when watching people on the street, their eyes were most likely to be caught by an adult male, and 6.0 times more likely to endorse having a gay, bisexual, or questioning sexual orientation. Item 34, the participant's self-identified sexual orientation, was most powerfully predicted by CSA-AM followed by BBI (Table 9). Because the participant's self-identified sexual orientation item was added to the CASI program after the first 242 participants had already entered their data, data were only available from the last 936 participants. Among those for whom data were available 36.8% of the 19 BBI victims, 71.4% of the 21 CSA-AM victims, and 8.9% of the 896 controls self-identified as gay, bisexual, or questioning. When the above analysis was restricted to include, as controls, only the 91 controls who reported experience with a same-sex partner who was under age 18 before themselves reaching the age of 18, 44.0% of those 91 controls self-identified as gay, bisexual, or questioning, and a chi-square comparison among the counts in the three groups ( $\chi^2[2, 131] = 6.15, p = .046$ ) for whether there were any significant differences among the three groups attained only borderline significance.

#### THE MALE-MALE SEXUAL ORIENTATION SCALE (M-MSOS)

The ANOVA performed on the rank-transformed data showed that the median M-MSOS scores of the BBI group and the CSA-AM groups (2 and 6, respectively) were each significantly higher than the median score of the control group which was zero (see Table 2 for the means).

#### THE MALE-FEMALE SEXUAL ORIENTATION SCALE (M-FSOS)

The one-way ANOVA performed on the rank-transformed data showed that the median M-FSOS score of the BBI group often was *not* significantly

different from the median score of the controls (10 vs. 9, Table 2). However, the median score of the CSA-AM group was significantly lower (6 vs. 9,  $p = .019$ ) than the control group median and significantly lower than the median of the BBI group (6 vs. 10,  $p = .027$ ) after applying the Tukey-Kramer correction.

#### PREDICTORS FOR SELF-IDENTIFIED SEXUAL ORIENTATION

The score on the M-MSOS scale was, not surprisingly, the most powerful single predictor of the participant's self-identified sexual orientation. We also tested the BBI and CSA-AM dichotomous dummy variables along with the individual scores on each of the 12 items from the M-MSOS scale from Table 9 as predictors of the participant's self-identified sexual orientation (Table 9, item 34) in the absence of the M-MSOS score variable using logistic regression as described above for Table 7. We found the *four* statistically significant predictors in the model without the M-MSOS scale were: (1) stating that the favorite type of sex partner was an adult male (item 37, 44 [7.9–245]; item #, OR, [95% CI]), (2) the participant's having engaged in sexual relations of any kind with an adult male as an adult (item 29, 15 [5.2–45]), (3) the participant's endorsement of having engaged in voyeurism directed at men (item 27, 10 [3.3–32]), and (4) the participant's having masturbated while looking at images of adult men as an adult (item 26, 5.6 [2.0–16]), respectively, in order of decreasing predictive power. After these four predictors were added to the model, none of the other 11 tested variables remained statistically significant predictors, indicating that these four variables were the most powerful predictors for the dependent variable in our data set.

#### EFFECTS OF BBI AND CSA-AM ON SELF-IDENTIFIED SEXUAL ORIENTATION

Both the victims of BBI and the victims of CSA-AM were significantly more likely than controls to self-identify as gay, bisexual, or questioning (Item 34, Table 9).

#### BEHAVIORAL SEXUAL ORIENTATION AND IDENTIFICATION OF BEHAVIORALLY HETEROSEXUAL PARTICIPANTS

We used the number of times that the respondent reported for the male and female adult partner "sex of any kind" variables to define the behavioral sexual orientation variable: 100 times the number of times that the respondent reported engaging in sexual behaviors of any kind with all adult male partners (SBAMP) during adulthood divided by the total number of times that the respondent reported engaging in sexual behaviors of any kind with all adult male (SBAMP) and with all adult female partners (SBAFP) during adulthood (100 X SBAMP/[SBAMP + SBAFP], Bickham et al., 2007). A man reporting sexual behaviors with only male partners would have a score of 100% while

one reporting sexual behaviors with only female partners would have a score of 0%. Individuals who reported no sexual relations of any kind with either adult males or adult females as adults were coded as “missing data,” resulting in reduced  $n$  for the control group of 914. A one-way ANOVA on the rank-transformed data showed that the adult behavioral sexual orientation of the BBI victims and the victims of CSA-AM were significantly shifted away from exclusive sex with females in comparison to controls (Table 2). Bickham et al. (2007) considered behavioral sexual orientation scores of 95% or above to be consistent with a heterosexual orientation in women and scores of 5% or below to be consistent with a heterosexual orientation in men. The frequency distributions of behavioral sexual orientation scores for the three groups showed that despite the findings we presented above, only 52.0% of those in the BBI group had behavioral sexual preference scores of under 5% and only 53.8% of those in the CSA-AM group had behavioral sexual preference scores of under 5% while 92.2% of the 914 in the control group with adult sexual experience had behavioral sexual preference scores of under 5%.

## DISCUSSION

To our knowledge, this was the first systematic study focused on the effects of BBI on the brothers. We have collected data on a larger number of BBI cases; we have more detailed data on the BBI sexual behaviors; and we have data on a larger number of outcome parameters than other published studies of which we are aware. In the preponderance of cases in the BBI group, voluntary or coerced sex with a brother had preceded either onset of masturbation or the first experience with a female partner. The likelihood of endorsing statements that assessed cognitive processes, such as feeling like “damaged goods” and feeling like they were psychologically harmed, was increased by being a victim of BBI like it was for BSI (Stroebel, O’Keefe, Beard et al., 2013). The nature of these two cognitive responses was consistent with their being due to the participant’s awareness that he had violated the incest taboo by having had sexual experiences with his brother and having heard society’s messages that such behavior would be harmful to him. Perhaps, also in response to society’s messages, they were more distant from the brother(s) that they experimented with sexually than they were from other siblings and less likely than controls to have discussed their childhood sexual experience with their spouses or long-term partners. Furthermore, objective measures of harm that were not so likely to have been influenced by societal judgments also showed statistically significant adverse effects. BBI incest victims were more likely than controls to have experienced nightmares that included children that they had sexual experiences with as a child. Moreover, BBI victims had, before reaching the age

of 18, had significantly larger numbers of female partners who had touched their genitals and they reported having had intra-vaginal coitus with a larger number of female partners than controls who had engaged in similar behaviors with females (Table 3). They were more likely to have fathered an unplanned pregnancy and more likely to have cheated on their spouse or long-term partner by having sex with men. Our data did *not* provide statistically significant evidence for a tendency of BBI victims to have a larger number of *male* sexual partners before reaching adulthood than controls who had engaged similar sexual behaviors with males under 18 who were not brothers. However, BBI victims were significantly more likely than the 1,127 controls to have, as an adult, engaged in each of the ten behaviors with men analyzed in Table 7, and they were significantly more likely than controls to have endorsed each of the 12 different behavioral measures consistent with a primary or secondary same sex orientation in Table 9. As a result, their behavioral sexual orientation was shifted significantly away from an exclusively heterosexual orientation; their scores on the M-MSOS scale were significantly higher than the controls; and over one third of the BBI victims self-identified as gay, bisexual, or questioning. Yet, their scores on the M-FSOS (male-female sexual orientation) scale were not significantly different than the controls', implying that, as a group, they tended toward a bisexual orientation.

The scores of the BBI group on the hypersexuality and risky sexual behaviors with *men* scale and the hypersexuality and risky sexual behaviors with *women* scale, and their corresponding hypersexuality subscales and risky sexual behavior subscales were *all* significantly higher than the corresponding scores of the controls, providing evidence of hyper-eroticization of the BBI victims with regard to partnered-sex that tended to be expressed with *both* male and female partners. Furthermore, victims of BBI were more likely than the controls to have (as an adult) engaged in self-masturbation involving a vibrating device, more likely to have engaged in masturbation involving stimulating their anus, and more likely to have engaged in masturbation involving self-stimulation while looking at images of adult men. Although masturbation is not considered to be abnormal, the increased likelihood of engaging in masturbation attributable to BBI was yet another important finding consistent with the previous reports of early eroticization and persistent hyper-eroticization of incest victims (e.g., Stroebel et al., 2012; Stroebel, O'Keefe, Beard et al., 2013; Stroebel, O'Keefe, Griffiee et al., 2013; Yates, 1982).

Loss of attachment to the sister (in SSI, Stroebel, O'Keefe, Griffiee et al., 2013), the father (in FDI, Rudd & Herzberger, 1999; Stroebel et al., 2012), or the brother (in BBI or BSI, Caffaro & Conn-Caffaro, 2005; Rudd & Herzberger, 1999; Stroebel, O'Keefe, Beard et al., 2013) results in an emotional cut-off. In other research focused on women, emotional cut-offs predicted poorer functioning in marriage and other relationships (Peleg, 2008; Skowron, Stanley,

**TABLE 8** Odds Ratios and Their 95% Confidence Limits for Six Measures of Self Masturbation as an Adult

Masturbation technique involving:	GROUPS			Odds ratio <sup>2</sup> and significance <sup>3</sup>	
	BBI <i>n</i> = 25	CSA-AM <i>n</i> = 26	Controls <i>n</i> = 1,127		
	% yes <sup>1</sup>	% yes <sup>1</sup>	% yes <sup>1</sup>	BBI vs. controls	CSA-AM vs. controls
vibrating device	40.0	53.8	8.8	3.8(2.4–6.0)***	2.3(1.9–2.9)***
insertion of objects into your urethra	8.0	11.5	0.6	2.5(1.1–5.6) <sup>4</sup>	1.8(1.1–2.9)*
stimulating your anus	44.0	76.9	13.8	4.3(2.6–6.9)***	1.7(1.2–2.2)**
insertion of objects into your rectum	48.0	61.5	8.5	5.7(3.4–9.5)***	2.0(1.4–2.8)***
stimulating yourself while looking at pictures or statues of adult women	64.0	69.2	74.3	<i>ns</i>	0.51(0.4–0.65)***
stimulating yourself while looking at pictures or statues of adult men	44.0	73.1	10.0	7.1(3.1–16)***	24(10–59)***

*Note.* <sup>1</sup>All percentages are for those who agreed with the statement or engaged in the behavior. The percent that disagreed or did not engage in the behavior can be found by subtraction. <sup>2</sup>The odds ratio shows the predicted increase in likelihood over controls of agreeing with the statement or engaging in the behavior. <sup>3</sup>A Bonferroni correction has already been applied to every p-value in this table: Each presented p-value was multiplied by 2 to correct for the 2 comparisons made. \* = *p* < .05, \*\* = *p* < .01, and \*\*\* = *p* < .001. <sup>4</sup>Significant at step-0 and *p* = .026 before applying the Bonferroni correction. <sup>5</sup>Significant at step-0 and *p* = .033 before applying the Bonferroni correction. <sup>6</sup>Significant at step-0 and *p* = .043 before applying the Bonferroni correction.

& Shapiro, 2009) and a greater risk for becoming a mother who maltreats her children (Skowron, Kozolowski, & Pincus, 2010).

*CSA-AM victims* were significantly more likely than controls to have, as an adult, engaged in each of the ten behaviors with men analyzed in Table 7, and they were significantly more likely than controls to have endorsed each of the 12 different behavioral measures consistent with a primary or secondary same sex orientation in Table 9. As a result, their behavioral sexual orientation was shifted significantly away from an exclusively heterosexual orientation; their scores on the *M-MSOS* scale were significantly higher than the controls, and almost three quarters of the *CSA-AM* victims self-identified as gay, bisexual, or questioning. Furthermore, their scores on the *M-FSOS* scale were significantly lower than the scores of both the controls and the *BBI* victims, implying that, as a group, they tended more toward a male-male orientation than either of the other two groups. Our data were consistent with the idea that conditioning resulting from early same-sex experiences was the reason that many of the *BBI* and *CSA-AM* victims engaged in same-sex behaviors as adults (Bickham et al., 2007; O'Brien, 1989). Furthermore, the number of such behaviors that the participants reported (score on the *M-MSOS*) was the single best predictor of their self-identified sexual orientation. Although some might argue that all sexual orientations

**TABLE 9** Odds Ratios and Their 95% Confidence Limits for Sixteen Measures of Adult Male-Male Sexual Orientation

Items	Groups <sup>8</sup>				Odds ratio <sup>4</sup> and (95% CI)
	BBI		Controls		
	<i>n</i> = 25 % yes <sup>5</sup>	<i>n</i> = 26 % yes <sup>5</sup>	<i>n</i> = 1,127 % yes <sup>5</sup>	BBI vs. controls	
11. Cheated on his spouse or long-term partner by having sex with men <sup>6</sup>	40.0	38.5	5.4	9.9 (4.1–24) <sup>2c</sup>	11 (5.1–26) <sup>1c</sup>
23. Sexual fantasy involving an adult male partner is the fantasy topic that best facilitates orgasm while with a favorite partner	20.0	53.8	5.8	4.1 (1.5–11) <sup>2a</sup>	19 (8.5–43) <sup>1c</sup>
24. Sexual fantasy involving an adult male partner is the fantasy topic that best facilitates orgasm while masturbating	32.0	65.4	6.7	6.5 (2.7–16) <sup>2c</sup>	26 (11–61) <sup>1c</sup>
25. Sexual dreams are usually about experiences with a male adult	32.0	50.0	6.7	6.5 (2.7–16) <sup>2c</sup>	14 (6.2–31) <sup>1c</sup>
26. Has masturbated while looking at images of adult men	44.0	73.1	10.0	7.1 (3.1–16) <sup>2c</sup>	24 (10–59) <sup>1c</sup>
27. Has engaged in voyeurism directed at men	32.0	57.7	6.7	5.6 (2.3–13) <sup>2c</sup>	32 (13–78) <sup>1c</sup>
28. Most sexually arousing picture: male adult	52.0	61.5	8.1	6.6 (2.8–16) <sup>2c</sup>	19 (8.5–43) <sup>1c</sup>
29. Engaged in sexual relations of any kind with an adult male	52.0	57.7	7.2	11 (4.6–24) <sup>2c</sup>	16 (7.0–35) <sup>1c</sup>
30. Reached orgasm with an adult male	52.0	57.7	7.2	12 (5.2–28) <sup>2c</sup>	15 (6.9–34) <sup>1c</sup>
31. Brought adult male to orgasm using manual genital stimulation	40.0	50.0	5.6	9.3 (3.9–22) <sup>2c</sup>	15 (6.7–33) <sup>1c</sup>
32. Brought adult male to orgasm using oral genital stimulation	32.0	53.8	5.8	6.1 (2.4–15) <sup>2c</sup>	17 (7.6–37) <sup>1c</sup>
33. When watching people on the street, his eye is most likely to be caught by an adult male	32.0	50.0	6.7	6.6 (2.8–16) <sup>2c</sup>	14 (6.3–31) <sup>1c</sup>
34. Self-identified sexual orientation is gay, bisexual, or questioning <sup>7</sup>	36.8	71.4	8.9	6.0 (2.3–16) <sup>2c</sup>	26 (9.6–68) <sup>1c</sup>
35. Currently living with a male long term partner	16.0	11.5	1.9	10 (3.2–32) <sup>1c</sup>	6.9 (1.9–25) <sup>2b</sup>
36. Favorite type of sex partner is a male	32.0	42.3	6.2	7.1 (3.0–17) <sup>2c</sup>	11 (4.9–25) <sup>1c</sup>
37. Favorite type of sex partner is an adult male	32.0	42.3	6.2	7.1 (3.0–17) <sup>2c</sup>	7.1 (4.9–25) <sup>1c</sup>

Note. <sup>a</sup>–<sup>c</sup>Superscript letters indicate significance levels: <sup>a</sup> =  $p < .05$ , <sup>b</sup> =  $p < .01$ , and <sup>c</sup> =  $p < .001$ . <sup>1</sup>–<sup>3</sup>Superscript numbers give order of addition to the model (which is also the order of decreasing predictive power). <sup>3</sup>The N is 1,178 except for item 34 with N = 936<sup>7</sup> because the item was not included in the CASI program until after the first 242 had already participated in the study. <sup>4</sup>The odds ratio estimates the predicted increase in likelihood of agreeing with the statement or engaging in the behavior relative to controls. <sup>5</sup>The percent is for those agreeing with the statement or engaging in the behavior. The corresponding figures for those not agreeing can be found by subtraction. <sup>6</sup>Item 11 appears in both Table 7 and Table 9. <sup>7</sup>N = 936.

are equally good and therefore no harm had been done to the victim, few would argue that any perpetrator has a right to engage in behavior with a minor that will alter the adult sexual orientation of the victim without the victim's informed consent or that any minor has the right to engage in such behavior without the informed consent of his or her parents. Same-sex behaviors have been reported in victims of father-son incest (see Mendel, 1995 for review), sister-sister incest (Stroebel, O'Keefe, Griffee et al., 2013), and in mother-daughter incest (Goodwin & DiVasto, 1979, 1989; Rosencrans, 1997).

The M-MSOS and M-FSOS scales used to measure sexual orientation in this paper in men and in Stroebel, O'Keefe, Griffee, et al. (2013) in women were new scales designed to provide orthogonal measures of sexual orientation (Bickham et al., 2007; Whalen, Geary, & Johnson, 1990), meaning that orientation toward sex with same-sex partners and opposite sex partners were analyzed as independent variables that could be represented graphically on orthogonal coordinates. Furthermore both scales were based on a broad range of sexual behaviors: sexual behaviors with partners, masturbatory behavior, sexual fantasy with partners, sexual fantasy while masturbating, sexual dreams, sexual pictures, voyeurism directed at real people, and the gender of the residential sexual partner. There are three synergistic mechanisms that could explain an etiological relationship between early same-sex experiences and adult same-sex or bisexual orientations: Two of these Pavlovian (classical) conditioning and operant conditioning have been invoked by Bickham et al. (2007) to explain coexisting same-sex orientations in behaviorally *heterosexual* women who had early same-sex experiences with partners or who started masturbating using same-sex images at early ages. Robinett (2012) also invoked Pavlovian conditioning and operant conditioning produced by childhood and adolescent same-sex experiences to explain development of adult same-sex orientations and gay, lesbian, and bisexual identities in both men and women. The third mechanism, sexual imprinting, would provide a third etiological explanation, and sexual imprinting would also explain the nearly indelible effect of early same-sex experiences in creating adult bisexual or same-sex orientations noted by Robinett (2012). Sexual imprinting is the type of critical-period learning (Desmarais, Roeber, Smith, & Pollak, 2012; Fox, Levitt, & Nelson, 2010; Fox & Rutter, 2010; Uylings, 2006) first used to explain the observation that birds raised by foster-parents of other species preferred mates of the foster-parent's species (for review see Irwin & Price, 1999). In humans, sexual imprinting, a type of critical period learning, has been invoked to explain sexual preferences for partners who resemble their opposite sex parents (Bereczkei, Gyuris, & Weisfeld, 2004; Nojo, Tamura, & Uhara, 2012), some men's preferences for lactating or pregnant women (Enquist, Aronsson, Stefano, Jansson, & Jannini, 2011), and some people's greater willingness to accept sexual partners who smoke (Aronsson, Lind, Ghirlanda, & Enquist, 2011). It is important to point out that

the theory of sexual imprinting would be equally applicable to explaining acquiring preferences for opposite-sex partners or same sex partners and that it would also be applicable to explaining acquisition of unusual sexual preferences such as using dildos (O'Keefe et al., 2009; Stroebel et al., 2010), exhibitionism (Swindell et al., 2011), and the life-long preference for the specific species and sex of animal being identical to the species and sex of the animal that those who have sex with animals first had sex with (often as early as 14 years of age, Williams, & Weinberg, 2003). We believe that the data from twin studies claiming that concordance in twin pairs supports a genetic etiology for same-sex orientations (for critical review see Bearman & Brückner, 2002) is flawed because the twin studies failed to look at or adjust for the effect of brother-brother incest, which would explain concordance between incestuous brothers in adult same-sex orientations (without any genetic cause being involved, Cameron & Cameron, 1995) no matter whether they were identical twins, fraternal twins or even older-brother, younger-brother diads.

Psychological therapy for childhood sexual abuse was *not* significantly more common in BBI than in controls, but that was very likely because of the fact that for many years, the idea that BBI incest could happen or have adverse effects has been dismissed or ignored by therapists and those considered to be experts on victimization (O'Brien, 1989; see Mendel, 1995 for review). For example, BBI was not mentioned by Sheinberg & Fraenkel (2001) or Kenyon-Jump (2006). For victims who are still children or adolescents at the time of treatment, it is also important to recognize that some BBI and CSA-AM victims like FDI victims (Yates, 1982; Stroebel et al., 2012), SSI victims (Stroebel, O'Keefe, Griffie et al., 2013), and BSI victims (Stroebel, O'Keefe, Beard et al., 2013) have been eroticized by the incest or CSA-AM experience. Furthermore, our data showed that victims of BBI, like victims of BSI, FDI, and CSA-O, were at risk for fathering unplanned pregnancies, so all BBI victims should receive birth-control information and be provided with access to birth-control as part of treatment. Because of their tendency to continue to have sex with multiple female and male partners both before and after the age of 18, they should also be provided with information about the risks of becoming infected with HIV and other sexually transmitted diseases (STDs); they should be tested for STDs; and they should be instructed in safe-sex methodology. As in FDI, family systems therapy for BBI potentially provides a vehicle for maintaining the intact family and existing ties between family members (Caffaro & Conn-Caffaro, 2005; Maddock & Larson, 1995; Sheinberg & Fraenkel, 2001). However, removing either the BBI victim or his brother from the family as advocated by some (e.g., O'Brien, 1989) all but guarantees the creation and perpetuation of an emotional cut-off between the BBI victim and his brother, as seen for removal of the father in FDI cases (Maddock & Larson, 1995).

### Limitations to the Study

This was an epidemiological, self-selected, cohort study based on a convenience sample, not an experimental study. Since the participants were *not* identified as children and then randomized into groups to be subjected to incest under the direct supervision of an investigator (a design that would not be ethical to implement, Friedrich, 2005, p. 44), it can be said that our present study was correlative in nature. Describing the study as correlative implies that the correlation between early events and later events we found *could* have been caused by selective memory or other reporting defects to which retrospective studies are vulnerable (e.g., selectively remembering an early behavior because participants engaged in a later behavior or creating a false early memory to justify participants' later behavior). Based on the extensive research on retrospective data that showed fairly good reliability of reports on whether or not events happened and few false positives (Hardt & Rutter, 2004), we believe that the events we described above in such alternative explanations would be extremely unlikely to occur. Furthermore, because we did not obtain a random sample of a defined general population, our results cannot be used to estimate the *incidence* of behaviors in the general population. Moreover, because many of the participants were from state-supported schools and relatively well educated, questions can be raised about whether conclusions based on the study sample would apply to more poorly educated or extremely wealthy individuals.

Despite these limitations, convenience samples have been, and continue to be, useful to answer other kinds of sexological questions such as those addressed in the present article (Brecher & Brecher, 1986). Furthermore, studies that have attempted to obtain random samples to obtain data on CSA and other types of sexual behavior have run into sampling problems (Brecher & Brecher, 1986; Pilkington & Kremer, 1995). Our findings provide important information about the impact of *both* voluntary and coerced BBI on the brothers. Future studies are needed to test for differences in the effects of voluntary and coerced BBI on the brothers, to identify risk factors for BBI, and to test whether early same-sex experiences with age-peer partners other than brothers are also associated with adult bisexual or same-sex orientations.

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## APPENDIX

Items from S-SAPE1 (© S-SAPE, LLC, 2002, P.O. Box 11081, Charleston, WV 25339) used in the study.

### Sexual Behavior Screen

The screen displayed each *behavior* item (one at a time), detailing not only the behavior but also that it was voluntary or coerced. Each item specified the age of the respondent at the time, the age-differential category, and gender of the partner. The questions were presented in a multi-tiered hierarchically structured format.

### Items for Behaviors During Sex with Partners

Items (1) and (2) below represent second-tier screening questions that only allowed access to third-tier questions if they were answered affirmatively (Haning et al., 2007). Item numbers (1) and (2) are presented below as examples that described CSA by an adult male. When paired with each of four partner age differentials and behaviors A–I, below, they form a total of 16 items that describe sexual behaviors that occurred before participants in the study reached 18 years of age. With insertion of 18–99 for “Your age range:” and by substituting behaviors A and J–R, below, Item (1) and Item (2) each describe ten sexual behaviors of participants as adult males with other adult males.

Item 1. “Your age range: 1–17 years; Behavior: Sexual experimentation of any kind with a male age 18 or older and more than 4 years older than yourself. Give your best guess for numbers—don’t get hung up on being precise!”

Item 2. “Your age range: 1–17 years; Behavior: Coerced sexual situations of any kind with a male age 18 or older and more than 4 years older than yourself. Give your best guess for numbers—don’t get hung up on being precise!”

The subsequent third-tier items describing *behaviors* that constituted CSA by an adult male were constructed by the computer program by substituting the following 8 phrases (labeled “B” through “I”) for the behavior phrase in items (1) and (2).

- (A) “of any kind”
- (B) “involving the male partner looking at your genitals”
- (C) “involving looking at your male partner’s genitals”
- (D) “involving touching your male partner’s genitals”
- (E) “involving having the male partner touch your genitals”
- (F) “involving looking at or touching your male partner’s anus”
- (G) “having the male partner look at or touch your anus”
- (H) “involving inserting your penis into your male partner’s rectum”
- (I) “involving having the male partner insert his penis into your rectum”
- (J) “involving reaching orgasm with your partner”
- (K) “involving ejaculating in your partner’s rectum”
- (L) “involving ejaculation as a result of oral stimulation of your penis”
- (M) “involving reaching orgasm as a result of manual stimulation of your penis”
- (N) “involving bringing your partner to orgasm by stimulating his penis with your mouth”
- (O) “involving bringing your partner to orgasm by stimulating his penis with your hand”
- (P) “involving bringing your partner to orgasm by accepting his penis into your rectum”
- (Q) “involving sexual relations with a male partner while you were legally married” (analysis restricted to the 225 who had been married)
- (R) “involving sexual relations with a male prostitute “

The unchanged items (B) through (I) were substituted into item (1). Similar substitutions were made for each phrase into item (2) except that the phrase “the coercing male” was substituted for “your male partner” whenever it occurred. The 16 items (resulting from inserting A–I into items 1 and 2) are each representative of a total of four items that can be deduced from the sample by inserting one of the four age-differential categories which were presented in the following order: (a) The partner’s age was within 4 years of the respondent’s age, (b) The partner was more than 4 years older than the respondent but under the age of 18, (c) The partner was more than 4 years older than the respondent and over the age of 18 (as shown in items 1 and 2), and (d) The partner was more than 4 years younger than the respondent. Items (J)–(R) were only paired with age ranges indicating that both partners were at least 18 years old when the behavior occurred.

### Sexual Behavior Sub-Items

The following sub-item variables were the actual prompts used in the sexual behavior screen to obtain the data used in this research.

- (a) “Did you ever engage in” this behavior in this age range? (No/Yes coded 0/1)
- (b) “Number of partners:”
- (c) “On about how many occasions did you engage in this behavior?”
- (d) and
- (e) “What were the earliest and latest ages in the [applicable age range] age interval that you engaged in this behavior?”
- (f) “Was mother involved” or “Was father involved” These questions were only asked when the partner described in the item was more than 4 years older and over age 18 and of the female sex (for mother) or the male sex (for father), respectively. (No/Yes coded 0/1.) Items 3 and 7–10 (below) were presented as multiple-choice while items 4–6, and 11–17 were presented as agree/disagree and coded 1/0.
- (g) “Was sister involved?” (for female partners) or “Was brother involved?” (for male partners) was asked for all partner-age categories. (No/Yes coded 0/1)

Items 3–6, 11–17, and 21 were presented as agree/disagree coded “1” and “0” respectively. Items 7–9 and 18–20 were presented as multiple-choice with the answers recoded as described below.

Item 3. “The best way to describe my family of origin’s experience with child sexual abuse at the hands of my parents is as follows: (a) There were never any parental behaviors which could be described as child sexual abuse. (b) Whatever child sexual abuse that did occur was never brought to the attention of the authorities in any way. (c) Child sexual abuse of me or my siblings did occur, and it was brought to the attention of the authorities.”

Item 4. “I was sexually abused by my father or father figure.”

Item 5. “My childhood sexual experiences left me feeling like damaged goods, that my value had been diminished.”

Item 6. “I have suffered serious psychological injury as a result of one or more of my childhood sexual experiences.”

Item 7. “The best way to describe the feelings of closeness that I had toward my parents as a child of high school age is: (a) I felt very distant and estranged from both parents. (b) I felt close to my mother but distant from my father. (c) I felt close to my father but distant from my mother. (d) I felt close to both parents but somewhat closer to my mother. (e) I felt close to both parents but somewhat closer to my father.”

Item 8. “The best way to describe the feelings of closeness that I have toward my parents now (or up until their death(s)) is: (a) I feel very distant and

estranged from both parents. (b) I feel close to my mother but distant from my father. (c) I feel close to my father but distant from my mother. (d) I feel close to both parents but somewhat closer to my mother. (e) I feel close to both parents but somewhat closer to my father.”

For items 7 and 8, answers (a) and (b) were coded as “1” and answers (c) and (d) were coded as “0” to create binary variables.

Item 9. “The best way to describe my relationships with other members of my family of origin is: (a) I have never had long-term anger at or estrangement from either parent or any sibling, and I have good relationships with all members of my family of origin today. (b) I still have long-term anger at or I am estranged from one or more of my parents or siblings. (c) Although I had long-term anger at or was estranged from one or more of my parents or siblings, we have worked through our issues and we now have good relationships.”

For item 9, answer (b) was coded as “1” and all other answers were coded as “0” to create a binary variable.

Item 10. “The best way to describe my adult dreams about adults who I had sexual experience (of any sort) with as a child is: (a) I still find that one or more of the adults that I had childhood sexual experiences with appear in dreams linked with sexual arousal, and I am comfortable with that. (b) I still find that one or more of the adults that I had childhood sexual experiences with appear in dreams linked with sexual arousal, and I am uncomfortable with that. (c) While I had childhood sexual experiences with one or more adults and they appeared in dreams linked with sexual arousal in the past, they have not appeared in dreams for many years. (d) The only way that the adult(s) that I had sexual experiences with as a child have ever appeared in any of my dreams was in nightmares and the feeling was terror or horror. (e) None of the above: I either had no childhood sexual experiences with adults or I had no dreams about them linked to either sexual response or nightmares.”

For item 10, answer (d) was coded as “1” and all other answers were coded as “0” to create a binary variable.

Item 11. “I have cheated on my spouse or long-term partner by having sex with women during our relationship.”

Item 12. “I have cheated on my spouse or long-term partner by having sex with men during our relationship.”

Item 13. “I have engaged in sex for the specific purpose of obtaining money, drugs, or other goods in exchange for sex.”

Item 14. “I have undergone psychological treatment for my childhood sexual abuse.”

- Item 15. "When I tried to open up with another person about my childhood sexual experience, he/she reacted with horror and disgust."
- Item 16. "I have not discussed all of my childhood sexual experience with my spouse or long-term partner because I felt that he/she might not handle it well."
- Item 17. "I have fathered an unplanned pregnancy."
- Item 18. The best way to describe my adult relationships with my brother(s) that I engaged in childhood sexual experimentation with is: (a) I am closer to that (those) brother(s) than to other siblings. (b) I am more distant from that (those) brother(s) than from other siblings. (c) I cannot say that childhood sexual experimentation made any difference in my being closer to or further from my siblings. (d) I never experimented sexually with any brothers."

Choice "(b)" was coded "1" else "0" to produce a binary variable.

- Item 19. Item 19 was identical with Item 10 except that the word "adults" was replaced with the word "children."
- Item 20. "Please select the sentence which best describes your worst childhood experience with being caught by an adult while you were experimenting sexually with another child: (a) I have never been caught by any adult while I was experimenting sexually with another child (or I never experimented.) (b) I have been caught by an adult, but the adult indicated that experimenting sexually with another child was normal and OK. (c) I have been caught by an adult, and the adult indicated gently that experimenting sexually with other children was inappropriate in the presence of adults. (d) I have been caught by an adult, and the adult showed shock or disgust and made it clear that experimenting sexually with other children was bad or disgusting. (e) I have been caught by an adult, and the adult punished me for experimenting sexually with other children."

Choices "(b)"–"(e)" were coded "1" and choice "(a)" was coded "0" to create a binary variable "caught experimenting with another child".

- Item 21. "I believe that in some ways I have demonstrated symptoms of 'sexual addiction' or 'sexual compulsions' which may explain some of my sexual behaviors."

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