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## Attitudes toward online sexual activities

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### Abstract

*The goal of this study was to extend our understanding of attitudes toward three types of online sexual activity (OSA) among both students and members of the community: non-arousal OSA (N-OSA), solitary-arousal OSA (S-OSA), and partnered-arousal OSA (P-OSA). In Study 1, 81 male and 140 female undergraduate students completed a paper and pencil survey. In Study 2, an age and sexually diverse group of 137 men and 188 women recruited from the Internet completed an online survey. The results from the two studies were more similar than different. Attitudes toward the three types of activities were neutral to slightly positive on average. The three types of attitudes were significantly related but also distinct. The men's attitudes toward S-OSA and P-OSA were more positive than were the women's; the men and women did not differ in their attitudes toward N-OSA. Sexual minority individuals had more positive OSA attitudes overall. Individuals who were less traditional tended to have more positive attitudes. These results are discussed in terms of the growing acceptance of online sexuality.*

Keywords: online sexual activity; pornography; cybersex; sexual minority individuals; gender

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### Introduction

It has become quite common for people, particularly young people, to engage in a range of sexually-related activities on the Internet—often termed online sexual activity (OSA) (Boies, 2002; Carroll et al., 2008; Daneback, Månsson, Ross, & Markham, 2012; Goodson, McCormick, & Evans, 2001; Shaughnessy, Byers, & Walsh, 2011). These activities can be meaningfully divided into three categories: non-arousal OSA, solitary-arousal OSA, and partnered-arousal OSAs (Shaughnessy et al., 2011). Non-arousal OSAs (N-OSA) are sexually-related activities that are not focused on sexually stimulating materials but, rather, involve educational and relational experiences (e.g., visiting educational websites, seeking dating partners online). Solitary-arousal OSAs (S-OSA) are activities that involve one-way access or production of sexually explicit stimuli (e.g., viewing or posting sexual explicit pictures or videos). Partnered-arousal OSAs (P-OSA) are interactive and require the participation of at least one other individual for the activity to occur (e.g., exchanging instant messages about desired or fantasized sexual acts with another person, engaging in sexual acts at the same time as someone else on webcam). Shaughnessy et al. (2011) found that prevalence was related to the type of OSA—one-third of their sample reported engaging in N-OSA in the previous month; more than half in S-OSA; and, one-quarter in P-OSA. Because, in general, sexual attitudes and sexual behavior are linked (Ajzen & Fishbein, 1977; Albarracin, Johnson, Fishbein, & Meullerleile, 2001; Cha, Doswell, Kim, Charron-Prochownik, & Patrick, 2007), it is likely that people's attitudes toward OSA and OSA experience also are linked. Thus, these varying rates of OSA experience may reflect differences in attitudes toward the three types of activities. However, few researchers have assessed attitudes toward any type of OSA. Therefore, we assessed men's and women's attitudes toward the three types of OSAs. We also examined factors associated with attitudes toward OSA.

### Attitudes Toward Online Sexual Activity

On average, attitudes toward pornography (not necessarily online) tend to be fairly neutral or mixed (Carroll et al., 2008; Evans-DeCicco & Cowan, 2001; Træen, Spitznogle, & Beverfjord, 2004). Less is known about attitudes toward OSA; a review of the literature revealed only four studies of attitudes toward any type of OSA. In most of these studies, participants responded to a questionnaire that listed activities that fit with the broader concept of S-OSA only (i.e., viewing sexual explicit material online). The results show that, for the most part, participants expressed somewhat negative attitudes. For example, Boies (2002) found that 57% of his sample of 760 undergraduate students found

sexually-explicit material online “disturbing”. Carroll et al. (2008) found in their sample of 813 university students that on average the men had slightly positive and the women had slightly negative attitudes toward sexually-explicit material online. Weisskirch and Delevi (2011) found that their sample of 128 university students expressed negative attitudes toward sexting. Only Shaughnessy et al. (2011) examined attitudes toward the full-range of OSAs. They also found that their sample of 217 university students on average had slightly negative views toward OSA. However, the authors assessed attitudes toward OSAs in general even though they argued that there are three distinct types of OSA.

There are a number of limitations to previous studies that examined attitudes toward OSA. First, none of the studies examined attitudes to the three types of OSAs separately. It is likely that people with more positive attitudes toward one type of OSA also have more positive attitudes toward the other types of OSA. However, because people are more comfortable talking about sexual information than about pleasure (Byers, 2011), it is likely that attitudes toward N-OSA are more positive than are attitudes toward S-OSA or P-OSA. Second, all of the studies except Shaughnessy et al. (2011) used single-item measures rather than scales with known psychometric properties, reducing confidence in the findings. Third, all of these studies surveyed only young heterosexual university students. Thus, little is known about the OSA attitudes of sexual minority individuals, non-students, and/or older individuals.

### **Attitudes of Heterosexual and Sexual Minority Men and Women**

To better understand attitudes toward OSA, we examined the extent to which attitudes toward the three types of OSA differed as a function of gender and sexual orientation.

**Gender.** There is considerable research demonstrating that, compared to women, men tend to have more permissive and liberal attitudes toward sexuality in general (Baumeister, Catanese, & Vols, 2001; O’Reilly, Knox, & Zusman, 2007; Peterson & Hyde, 2010) as well as toward use of pornography specifically (Carroll et al., 2008; Træen et al., 2004; Wallmyr & Welin, 2006). These differences are in keeping with gender role socialization (Byers, 1996; Wiederman, 2005). That is, men are expected to have high sexual needs, motivation, and desire for diverse sexual experiences which, when acted upon, enhance their social status. Women, on the other hand, are socialized to have few sexual needs, be sexually reactive rather than active, and restrict sexual activity to the context of a committed relationship. As a result, extensive sexual experience decreases women’s status. Consequently, men tend to have more permissive attitudes than do women toward a range of types of sexual expression. Explanations based on evolutionary theories predict these same gender differences (Schwartz & Rutter, 2000).

With respect to attitudes toward OSA specifically, on average women express more negative attitudes toward S-OSA. Specifically, women express more concern about their partner’s use of this type of OSA as well as less positive expectations and reactions to it (Boies, 2002; Carroll et al., 2008; Goodson et al., 2001; Grov, Gillespie, Royce, & Lever, 2011; O’Reilly et al., 2007). Similarly, using a multi-item scale, Shaughnessy et al. (2011), found, in their sample of 217 undergraduates, that the men reported more positive attitudes than did the women toward OSA in general. However, based on gender-role socialization, women and men would not be expected to differ in their attitudes toward N-OSA because these activities do not involve sexual expression and arousal. In keeping with this view, Byers and her colleagues (Byers et al., 2003a, 2003b; Weaver, Byers, Sears, Cohen, & Randall, 2002) did not find gender differences in attitudes toward school-based sexual health education among Canadian parents, high school students, or middle school students. In contrast, both S-OSA and P-OSA reflect the separation of sexual pleasure from relationships—S-OSA because it typically does not involve a partner, and P-OSA because of the assumption that it is typically done with unknown or casual partners (Shaughnessy et al., 2011; Shaughnessy & Byers, 2013). Therefore, in keeping with gender role socialization, we expected that, compared to women, men would report more positive attitudes toward S-OSA and P-OSA but that men and women would not differ in their attitudes toward N-OSA.

**Sexual orientation.** We expected that sexual minority individuals (gay, lesbian, bisexual, queer, etc.) would have more positive attitudes toward all three types of OSA than would heterosexual individuals. There is indirect evidence to support this prediction in that sexual minority individuals are more likely to engage in N-OSA, S-OSA, and P-OSA. For example, young sexual minority men and women indicate that they use the Internet to learn about aspects of their sexual identity/orientation that they do not feel they can learn about offline and as part of their coming out process (Bond, Hefner, & Drogos, 2009; Kubicek, Carpineto, McDavitt, Weiss, & Kipke, 2011). There also is considerable evidence that, compared to heterosexual individuals, sexual minority individuals are more likely to report using the Internet for S-OSA and P-OSA and do so more frequently (Albright, 2008; Daneback, Cooper, & Månsson, 2005; Daneback, Ross, & Månsson, 2008; Peter & Valkenburg, 2011; Træen, Nilsen, & Stigum, 2006). This may be because sexual minority individuals still experience stress associated with their minority status such as rejection, discrimination, and violence (Dauvergne & Brennan, 2011; Meyer, 2003). As a result, they may feel compelled to hide their sexual orientation. The Internet can be a source of information and facilitate social support for sexual minority individuals (Heinz, Gu, Inuzuka, & Zender, 2002). On a practical level, the smaller number of sexual minority individuals in the population results in more limited access to same-sex partners and same-sex sexual stimuli.

### **Predicting Attitudes Toward OSA**

Given that people differ in their attitudes toward OSA in general (Shaughnessy et al., 2011), we sought to identify factors associated with attitudes toward the three types of OSA. Specifically, we examined five participant characteristics (age, religiosity, and erotophobia/erotophilia as well as gender and sexual orientation which were

reviewed above) and four online behaviors (experience with each type of OSA and average time spent on the Internet).

**Participant characteristics.** Compared to older individuals, younger individuals tend to have more permissive attitudes toward a range of aspects of sexuality (de Jong, Pieters, & Stremersch, 2012; Le Gall, Mullet, & Shafiqhi, 2002; Waite, Laumann, Das, & Schumm, 2009). In addition, younger individuals are more likely to engage in OSA including Internet dating (Sautter, Tippett, & Morgan, 2010; Træen et al., 2006); seeking sexual information (Daneback et al., 2008; Daneback et al., 2012); and, engaging in arousal-oriented OSAs (Cooper, Månsson, Daneback, Tikkanen, & Ross, 2003; Træen et al., 2006). This suggests that age is inversely related to attitudes toward OSA. However, Carroll et al. (2008) did not find that age was associated with acceptance of pornography in their sample of emerging adults, likely because of the restricted age range of the sample. Therefore, we expected that in the general population, the younger the individual, the more positive their OSA Attitudes; we did not expect age to be associated with OSA attitudes in an undergraduate population.

We also expected that the less religious individuals are, the more positive their attitudes toward the three types of OSA. Researchers have found that more religious individuals report more negative attitudes toward pornography (Beaver & Paul, 2011) and engage in OSA less frequently than do less religious individuals (Velezmoro, Negy, & Livia, 2012).

People tend to have a general disposition toward sexual stimuli, termed erotophobia-erotophilia, that influences their sexual behavior as well as their attitudes toward specific sexual activities (Rye, Meaney, & Fisher, 2011). For example, individuals higher in erotophilia tend to have more exposure to sexual media, report greater sexual arousal, engage in more frequent sexual behavior, and report more accepting sexual attitudes toward a range of sexual behavior. With respect to OSA specifically, Velezmoro et al. (2012) found that both American and Peruvian undergraduates who were more erotophilic were more likely to seek out sexual partners and sex-related information online; the American but not the Peruvian students who were more erotophilic were also more likely to engage in S-OSA. Therefore, we expected that the more erotophilic individuals are the more positive their attitudes toward all three types of OSA.

**Internet behavior.** There is considerable variation in how much time people spend on the Internet. Researchers have found that people who spend more time online overall are more likely to engage in partnered-arousal OSA as well as to spend more time viewing pornography (Byers, Menzies, & O'Grady, 2004; Daneback et al., 2005), suggesting that they are more accepting of OSA. In contrast, Beaver and Paul (2011) did not find that amount of time on the Internet was associated with pornography use in undergraduate students, likely because most students are moderate to heavy internet users. Therefore, we expected that, in the general population but not within the undergraduate population, the more time people spend online in general, the more positive their attitudes toward each type of OSA.

Researchers have demonstrated that there is a link between off-line sexual behavior and general sexual attitudes (Ku et al., 1998; Lopez & George, 1995; Yost & Zurbruggen, 2006). For example, researchers have demonstrated that attitudes toward casual sexual activity are associated with both flirtatiousness and a wide range of sexual behaviors (Penke, 2011). There is also some research demonstrating a link between sexual attitudes and online sexual behavior (Braun-Courville & Rojas, 2009; Lo & Wei, 2005). In addition, Shaughnessy et al. (2011) found that individuals who engaged in more frequent S-OSA and P-OSA had more positive attitudes toward OSA. They also found that participants who reported more frequent OSA experience reported more frequent S-OSA and P-OSA experience. Given the correspondence between engaging in one type of OSA and the other two types of OSAs and our prediction that attitudes toward the three types of OSA would be positively correlated, we expected that individuals who have engaged in each of the three types of OSA would report more positive attitudes toward all types of OSA compared to individuals who had not had these experiences. However, researchers have not assessed the correspondence between specific OSA experiences and attitudes toward those experiences. This is problematic because specific attitudes are more strongly associated with corresponding behaviors than are general attitudes (Ajzen & Fishbein, 1977; Albarracin et al., 2001; Cha et al., 2007; Shaughnessy et al., 2011). Thus, we also expected that having experience with a particular type of OSA would uniquely predict attitudes toward that type of OSA over and above attitudes toward the other types of OSA.

## The Current Studies

We conducted two parallel studies to examine attitudes toward N-OSA, S-OSA, and P-OSA. In Study 1, we focused on undergraduate students because they, in general, are heavy Internet users and likely have experience with all three types of OSA (Shaughnessy et al., 2011; Smith, Rainie, & Zickuhr, 2011). In Study 2, we examined the predictions in a more diverse sample recruited from the community. We used canonical correlation analysis both to test our predictions as well as to identify other patterns of association between the predictors and the three OSA attitude variables. Canonical correlation analysis is used to measure the relationships between two sets of variables (in this case the Characteristics and Experience set and the Attitudes set) and can identify more than one pattern of association. To further elucidate the relationships between the predictors and the OSA attitude variables, we also examined the zero-order and semi-partial correlations in follow-up multiple regression analyses. For both studies, we predicted that:

H1. Attitudes toward the three types of OSA (N-OSA, S-OSA, P-OSA) would be positively associated with each other.

H2. Compared to women, men would report more positive S-OSA and P-OSA attitudes.

H3. Sexual minority individuals would report more positive attitudes toward all three types of OSA compared to heterosexual individuals.

H4. Attitudes toward N-OSA would be more positive than attitudes toward S-OSA or P-OSA.

H5. Participant characteristics (less religious, more erotophilic) and Internet behavior (N-OSA Experience, S-OSA Experience, P-OSA Experience) would be associated with more positive attitudes toward all three types of OSA. We also predicted that in the community sample but not the student sample, being younger and spending more hours online would be associated with more positive attitudes toward all three types of OSA.

H6. Experience with each type of OSA would be uniquely associated with attitudes toward that type of OSA.

## Study 1: Method

### Participants

As part of a larger survey online about attitudes, experiences, and outcomes of online sexual activities (see Shaughnessy, Byers, Clowater, & Kalinowski, 2013), 81 male and 140 female students completed the measures used in the current study. An additional 10 participants were dropped to improve the homogeneity of the sample (2 were transgender; 8 were over the age of 30 years) and 12 because they did not complete the survey. On average, participants were 19.8 years old ( $SD = 2.2$ ) with the modal age being 18 years (36%). Most reported their ethnicity as White/Caucasian (90%) and being affiliated with a Christian religion (60%) although a third (36%) reported no affiliation. The majority of participants reported a heterosexual orientation (88%). Most participants were dating exclusively (43%) or were not in a relationship (38%); only 11% of participants were married or cohabiting and 8% were dating but not exclusively. Participants reported an average of 5.0 ( $SD = 9.34$ ) face-to-face lifetime sexual partners.

### Measures

A *Background Questionnaire* was used to gather information on participant demographic characteristics, weekly hours of Internet usage ("On average, how many hours per week do you use the Internet"; Time Online), sexual orientation ("Which of the following BEST describes your sexual orientation"), relationship status, and sexual history. Participants provided their ethnicity and religious affiliation in separate open-ended questions. To assess number of offline sex partners, participants indicated: "How many sex partners have you had (do not include sexual partners that you have never met face-to-face)?" *Religiosity* was measured using a single item "How important of a role does your religion play in your daily life" rated on a 7-point Likert-scale ranging from *not at all important* (1) to *very important* (7).

The *Online Sexual Activities Questionnaire* (Shaughnessy et al., 2013) was used to measure lifetime experience with each type of OSA. Participants indicated whether they had ever engaged in non-arousal (14 items, e.g., *looked for information about sexual activities online*), solitary-arousal (16 items, e.g., *viewed sexually explicit pictures involving men and women*), and partnered-arousal (16 items e.g., *wrote and sent stories about sexual acts to someone through email and/or social networking site*) activities. We focused on content validity in developing this measure. Specifically, we generated a list of specific activities based on past research that represented a wide range of OSA. In consultation with a group of six human sexuality researchers, we refined the description of the activities and allocated each to the type of OSA. Reliability of the aggregate of the S-OSA and P-OSA subscales was good in a previous study (see Shaughnessy et al., 2013). Participants' responses to the items were used to create three dichotomous variables: experience/no-experience for each type of OSA (N-OSA Experience, S-OSA Experience, P-OSA Experience).

The *Attitudes toward Online Sexual Activity Scale* (Shaughnessy et al., 2011) was used to assess participants' attitude toward each of the three types of OSA. It was administered three times. For each type of OSA, participants were provided with a brief definition of that OSA within the instructions in order to remind them of the activities involved. Subsequently, they rated their thoughts and feelings in reference to this type of OSA on ten 7-point bipolar items; scores ranged from 10 to 70 with higher scores indicating more positive attitudes. The instructions and measure are presented in Appendix A. Ratings were summed for each type of OSA separately; higher scores represented more positive attitudes. The original measure assessing attitude toward OSA in general yielded high internal consistency (Shaughnessy et al., 2011). For the three subscales, internal consistency was excellent (N-OSA Attitudes  $\alpha = 0.93$ ; S-OSA Attitudes  $\alpha = 0.91$ ; P-OSA Attitudes  $\alpha = 0.92$ ).

The *Sexual Opinion Survey* (SOS; Rye et al., 2011) was used to measure erotophobia-erotophilia. Participants rated their level of agreement with 21 statements on a 7-point Likert scale. Each statement reflected a negative or positive affective or evaluative response to a sexual situation. Possible scores range from 0 to 126, with higher scores indicating greater erotophilia. The SOS has been shown to have good reliability and validity (Rye et al., 2011); internal consistency in the current study was good ( $\alpha = 0.84$ ).

### Procedure

Students were recruited from a mid-sized Eastern Canadian university in early 2009 to participate in a study about experiences and outcomes of online sexual activity. Just under half of the participants (45%) were recruited from the Introductory Psychology participant pool, 24% from pizza-parties held in student residences, and 31% through on-campus advertisements. All participants read and signed an informed consent form prior to completing a paper-based survey. Following the Background Questionnaire (presented first), participants read an introduction to the three types of OSAs that also indicated that a number of questions would be repeated three times, once for each type of OSA. The order of type of OSA was counterbalanced such that six versions of the survey were used; for each type of OSA, the Online Sexual Activities Questionnaire always immediately preceded the Attitudes Towards Online Sexual Activities. After completion of the survey, all participants were debriefed and invited to enter their name in a raffle for a \$50 gift certificate; students recruited through Introductory Psychology also received one bonus point for their participation and students recruited through the resident halls also received free pizza. The university Research Ethics Board approved the project.

## Study 1: Results

### Differences in Attitudes toward OSA

To test H1, we examined the zero order correlation between the three OSA attitudes variables. As predicted, participants with more positive attitudes toward one type of OSA reported more positive attitudes toward the other types of OSA (see Table 1). This was true for both men and women when the correlations were examined separately by gender.

Table 1. Intercorrelations and Gender Differences in Attitudes Toward N-OSA, S-OSA, and P-OSA in the Undergraduate Sample (Study 1).

Attitude variable	<i>r</i>		<i>M (SD)</i>	
	1	2	Men	Women
1. N-OSA			48.9 <sub>a</sub> (9.1)	47.9 <sub>a</sub> (10.2)
2. S-OSA	.51***		46.9 <sub>a</sub> (7.5)	40.0 <sub>c</sub> (9.3)
3. P-OSA	.52***	.62***	43.1 <sub>b</sub> (8.7)	40.2 <sub>c</sub> (9.5)

*Note:* *N* = 81 men and 140 women. Means in the same row or column with different subscripts differ significantly ( $p < .05$ ). \*\*\* $p < .001$ .

Only 27 sexual minority students participated in the study. Therefore, we could not test differences in attitudes based on sexual orientation (H3). To test H2 and H4, we conducted a 2 (Gender) x 3 (Type) repeated measures analysis of variance. The results revealed significant main effects of Type ( $F = 64.03, p < .001, \eta_p^2 = .23$ ) and Gender ( $F = 11.04, p = .001, \eta_p^2 = .05$ ) as well as a significant Gender by Type interaction ( $F = 11.76, p < .001, \eta_p^2 = .05$ ). Follow-up simple main effects to the significant interaction qualified both of the main effects (see Table 1). As predicted, compared to the women, the men reported significantly more positive S-OSA Attitudes and P-OSA Attitudes; the men and women did not differ significantly in their N-OSA Attitudes. Additionally, men's N-OSA Attitudes and S-OSA Attitudes did not differ significantly; but, were significantly more positive than their P-OSA Attitudes. Women's N-OSA Attitudes were significantly more positive than either their S-OSA or their P-OSA Attitudes, which did not differ significantly. Examination of the means indicated that the men's attitudes toward each type of OSA were slightly positive. Women's attitudes towards non-arousal OSA were also slightly positive; but, their attitudes towards S-OSA and P-OSA were neutral.

### Predicting OSA Attitudes

Table 2 depicts the means and standard deviations for the predictor variables. On average, participants were not religious, mildly erotophilic, and were active Internet users. The majority of the sample reported N-OSA, S-OSA, and P-OSA experience. Because only three participants reported no N-OSA Experience, this variable was dropped from the analyses.

Table 2. Means, Standard Deviations and Correlations among Predictor Variables in an Undergraduate Sample (Study 1).

Predictors	%	M (SD)	r							
			1	2	3	4	5	6	7	
1. Gender										
2. Age		19.8 (2.2)	-.10							
3. Religiosity		2.5 (1.8)	.17*	-.17*						
4. Erotophobia/erotophilia		80.0 (17.7)	-.33***	.36***	-.32***					
5. Time online		25.8 (18.6)	.01	.02	.11	.04				
6. N-OSA Experience	99		.07	.06	-.14*	.09	-.19**			
7. S-OSA Experience	86		-.30***	.12	-.09	.42***	.14*	-.05		
8. P-OSA Experience	77		-.10	.10	-.05	.27***	.08	.03	.26***	

Note: N = 81 men (coded 1) and 140 women (coded 2). S-OSA = solitary-arousal OSA. P-OSA = partnered-arousal OSA.

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$ .

We used canonical correlation analysis to identify patterns of association between participant characteristics and experiences (gender, age, religiosity, erotophilia/erotophobia, Time Online, S-OSA Experience, P-OSA Experience) and attitudes toward the three types of OSA. The analysis yielded three significant functions, Wilk's = .47,  $F(21, 606) = 8.77$ ,  $p < .001$ . Because the third dimension accounted for less than 10% of the remaining variance, as recommended by Tabachnick and Fidell (2007), it was not considered further.

The first variate pair accounted for 41% of the total variance,  $F(21, 606) = 8.77$ ,  $p < .001$ . Using a correlation of .30 as a cut-off for interpretation (Tabachnick & Fidell, 2007), all of the variables except for Time Online loaded on the Characteristics and Experience variate (see Table 3). All three attitude variables loaded on the Attitude set. This pair of variates indicates that men and participants who were older, less religious, more erotophilic, and had S-OSA and P-OSA experience were more positive in their attitudes toward all three types of OSA.

Table 3. Canonical Correlation Analysis Between the Participant Characteristics and Experience Set and the Attitudes Toward OSA Set in the Undergraduate Sample (Study 1).

Variables	First canonical variate		Second canonical variate	
	r	Stand. Coeff.	r	Stand. Coeff.
<b>Characteristics and Experience Set</b>				
Gender	<b>-.47</b>	-.15	<b>.65</b>	.70
Age	<b>.35</b>	.01	.24	.25
Religiosity	<b>-.49</b>	-.22	.09	.03
Erotophobia/erotophilia	<b>.94</b>	.72	-.01	-.01
Time online	.11	.08	.11	.06
S-OSA Experience	<b>.51</b>	.08	-.12	-.13
P-OSA Experience	<b>.45</b>	.20	<b>.64</b>	.72
<b>Attitudes toward OSA Set</b>				
N-OSA Attitudes	<b>.64</b>	.11	<b>.32</b>	.35
S-OSA Attitudes	<b>.95</b>	.68	<b>-.31</b>	-1.14
P-OSA Attitudes	<b>.82</b>	.34	<b>.51</b>	1.04
<b>R<sub>c</sub></b>	<b>.64***</b>		<b>.36***</b>	

Note: N = 221. Structure coefficients (correlations) greater than .30 were included in the interpretation of each canonical variate and appear in bold. S-OSA = solitary-arousal OSA. P-OSA = partnered-arousal OSA.

\*\*\*  $p < .001$ .

The second variate pair accounted for 13% of the remaining variance  $F(12, 424) = 4.37$ ,  $p < .001$ . Gender and P-OSA Experience loaded on the Characteristics and Experience Set. N-OSA Attitudes and P-OSA Attitudes loaded on the Attitude Set. Taken as a pair, these variates indicate that women and participants with P-OSA experience were more positive in their attitudes toward N-OSA and P-OSA but less positive in their attitudes toward S-OSA.

In order to determine which predictors were uniquely associated with each type of attitude (H6), we conducted three separate simultaneous multiple regression analyses (see Table 4). All three analyses were significant. First, all of the predictors except gender and Time Online were significantly correlated with N-OSA Attitudes at the bivariate level. However, only age and religiosity added uniquely such that older individuals who were more erotophilic reported more positive N-OSA attitudes. Second, all of the predictors except Time Online were significantly correlated with S-OSA

Attitudes at the bivariate level. However, only gender, religiosity, and erotophilia added uniquely such that men who were less religious and more erotophilic reported more positive S-OSA Attitudes. Finally, again all of the predictors except Time Online were significantly correlated with P-OSA Attitudes at the bivariate level. However, only erotophilia and P-OSA Experience contributed uniquely such that individuals who were more erotophilic and who had engaged in P-OSA reported more positive attitudes toward P-OSA.

Table 4. Multiple Regression Analyses Predicting N-OSA, S-OSA, and P-OSA Attitudes (Study 1).

Criterion	Predictor	<i>r</i>	$\beta$	<i>sr</i>	<i>R</i> <sup>2</sup>
<b>N-OSA Attitudes</b>	Gender	-.05	.10	.09	.20***
	Age	.30***	.17	.16**	
	Religiosity	-.25***	-.12	-.11	
	Erotophobia/erotophilia	.42***	.34	.27***	
	Time online	.00	-.003	-.00	
	S-OSA experience	.15*	-.003	-.00	
	P-OSA experience	.14*	.04	.04	
<b>S-OSA Attitudes</b>	Gender	-.36***	-.17	-.16**	.36***
	Age	.19**	-.03	-.02	
	Religiosity	-.31***	-.14	-.13*	
	Erotophobia/erotophilia	.57***	.44	.35***	
	Time online	.05	.04	.04	
	S-OSA experience	.33***	.07	.06	
	P-OSA experience	.20**	.04	.04	
<b>P-OSA Attitudes</b>	Gender	-.15**	.02	.02	.30***
	Age	.18**	.00	.00	
	Religiosity	-.22***	-.10	-.09	
	Erotophobia/erotophilia	.48***	.36	.29***	
	Time online	.10	.07	.06	
	S-OSA experience	.26***	.03	.02	
	P-OSA experience	.39***	.28	.27***	

Note: *N* = 221. S-OSA = solitary-arousal OSA. P-OSA = partnered-arousal OSA. \* *p* < .05 \*\* *p* < .01 \*\*\* *p* < .001.

## Study 1: Discussion

The results of Study 1 confirmed most, but not all, of our hypotheses. Given the limited diversity in the sample, particularly with respect to age and sexual orientation, it is important to replicate these results in a community sample. Thus, our findings are discussed in the Overall Discussion section in conjunction with the findings from Study 2.

## Study 2: Method

### Participants

Individuals were recruited as part of an online survey about experiences with sexual information, intimacy, and/or sexually explicit material on the Internet using online advertisements that were posted in a wide variety of free online forums (e.g., Kijiji, research listing pages). The final sample consisted of 137 men and 188 women (*N* = 325). An additional 68 participants were removed from the sample: four were identified as multiple entrants based on their login information; 50 did not complete the survey; six gave random or extreme responses; five were transgender (to allow for the gender analysis); one did not specify their sexual orientation; one did not specify their age; and one was significantly older than the rest of the sample (over the age of 70). The majority of the sample identified as White/Caucasian (87%) and had English as their first language (89%); 73% were from Canada (49% Atlantic Provinces, 4% Quebec, 30% Ontario, 10% Prairies Provinces, 6% British Columbia, 1% Northern Territories) and 20% were from the U.S.A. (21% West, 9% Southwest, 30% Midwest, 13% South, 21% Mid-Atlantic, and 6% New England). About half reported no religious affiliation (52%); the remainder reported affiliation with a Christian (37%) or other (12%) religion. The sample ranged in age from 18 to 55 years (*M* = 28.4, *SD* = 8.6). Most participants had an undergraduate (46%) or a graduate or professional (22%) degree; 18% had a college/trade/technical school degree and 13% had a high school diploma or less. Most (61%) were in an exclusive relationship (16% married, 24% cohabiting, 20% dating

exclusively); 9% were dating but not exclusively; and, 30% were not in a relationship. The majority of the sample identified as heterosexual (62%) and the remainder as gay (9% of the overall sample), lesbian (7%), bisexual (17%), unlabelled (4%), and not sure (1%). Participants reported a median of six face-to-face sexual partners (range = 0-843) although the mode was 1.

## Procedure and Methods

Most participants learned about the study through a Facebook group (23%), e-mail list serve (18%), online classifieds site (e.g., Kijiji, craigslist; 15%), or e-mail from a friend (14%). Upon accessing a link to the survey, participants read an informed consent form and agreed to participate. Next, they were asked to create a unique user identification code using letters and numbers that would have meaning to them. This code was used in data cleaning to identify multiple entries from the same individual. Participants then completed a slightly modified version of the survey used in Study 1. First, a few additional descriptive questions were added to the Background Questionnaire (e.g., where they were living, primary language). Second, the measures were always presented in the same order: the Background Questionnaire, the N-OSA measures followed by S-OSA measures, the P-OSA measures, and the Sexual Opinion Survey in that order. Upon completion of the survey, all participants viewed a webpage containing debriefing information and an invitation to enter their name in a raffle for a \$50 gift certificate. The university Research Ethics Board approved the project.

Scoring of the Online Sexual Activities Questionnaire, the Attitude towards Online Sexual Activities, and the Sexual Opinion Survey were the same as for Study 1. Internal consistency was good for all of the scales in Study 2; N-OSA Attitudes  $\alpha = 0.92$ ; S-OSA Attitudes  $\alpha = 0.95$ ; P-OSA Attitudes  $\alpha = 0.95$ , and Sexual Opinion Survey  $\alpha = 0.88$ .

## Study 2: Results

Preliminary examinations of the data revealed a random pattern of missing data on the predictor and outcome variables. The amount of missing data on a single variable ranged from a low of 2% (Time Online) to a high of 15% (P-OSA Attitudes); most variables had about 5% missing data. We used expectation maximization in SPSS v. 20 to replace the missing data (Time Online, religiosity, erotophobia/erotophilia, N-OSA Attitudes, S-OSA Attitudes, and P-OSA Attitudes). A visual comparison of the means and standard deviations revealed minor, if any, changes between the original and imputed data for each variable. For analytic purposes, we grouped all of the individuals who did not identify as heterosexual into a sexual minority group (38%). As with Study 1, few participants ( $n = 7$ ) reported no N-OSA Experience so this variable was dropped from analyses.

### OSA Attitudes

Consistent with H1, participants with more positive attitudes toward one type of OSA reported more positive attitudes toward the other types of OSA (see Table 5). This pattern of results remained true for men and women as well as heterosexual and sexual minority participants examined separately.

Table 5. Intercorrelations and Gender Differences for N-OSA, S-OSA, and P-OSA Attitudes in the Community Sample (Study 2).

Attitude variable	<i>r</i>		<i>M (SD)</i>	
	1	2	Men	Women
1. N-OSA			48.8 <sub>a</sub> (9.7)	51.1 <sub>a</sub> (11.0)
2. S-OSA	.62***		47.9 <sub>a</sub> (11.0)	43.7 <sub>c</sub> (14.1)
3. P-OSA	.61***	.74***	45.2 <sub>b</sub> (12.1)	44.2 <sub>b</sub> (13.1)

**Note:**  $N = 325$  (137 men and 188 women). S-OSA = solitary-arousal OSA.

P-OSA = partnered-arousal OSA. Means in the same row or column with different subscripts differ significantly ( $p < .05$ ). \*\*\*  $p < .001$ .

To test H2, H3, and H4, we conducted a 2 (Gender) x 2 (Sexual Orientation) x 3 (Attitude Type) mixed ANOVA. We found significant main effects for Sexual Orientation and Attitude Type,  $F = 14.24$ ,  $p < .001$ ,  $\eta_p^2 = .04$  and  $F = 40.26$ ,  $p < .001$ ,  $\eta_p^2 = .20$ ; respectively. As predicted, sexual minority participants reported significantly more positive attitudes toward OSA compared to heterosexual participants ( $M = 49.6$  and  $M = 44.9$ , respectively). The main effect for Attitude Type was qualified by a significant Gender by Attitude Type interaction,  $F = 15.63$ ,  $p < .001$ ,  $\eta_p^2 = .09$ . These means are reported in Table 5. Consistent with H2, the men reported significantly more positive S-OSA Attitudes than did the women; the men's and women's N-OSA and P-OSA Attitudes did not differ significantly. In addition, the results partially supported H4. Pairwise comparisons revealed that women reported significantly more positive N-OSA Attitudes compared to S-OSA Attitudes and P-OSA Attitudes, which did not differ significantly. The men reported significantly more positive N-OSA Attitudes and S-OSA Attitudes, which did not differ, compared to P-OSA Attitudes. Examinations

of the means indicated that the men's and women's attitudes toward each type of OSA were slightly positive.

### Predicting OSA Attitudes

The means, standard deviations, and correlations between predictor variables are reported in Table 6. Participants were slightly religious, moderately erotophilic, and active Internet users. Most had S-OSA and P-OSA experience.

Table 6. Means, Standard Deviations and Correlations between Predictor Variables in the Community Sample (Study 2).

Predictors	%	M (SD)	r							
			1	2	3	4	5	6	7	
1. Gender										
2. Sexual orientation			.05							
3. Age	28.4(8.6)		-.20**	.08						
4. Religiosity	2.8(2.0)		.06	-.06	.03					
5. Erotophobia/erotophilia	91.1(21.1)		-.07	.21**	.13*	-.30**				
6. Time online	31.1(18.7)		-.02	.02	-.08	-.15**	.05			
7. S-OSA Experience	88		-.23**	.21**	.02	-.07	.39**	.11		
8. P-OSA Experience	67		-.08	.14*	-.06	-.07	.23**	.04	.28***	

Note: N = 325 (137 men and 188 women). S-OSA = solitary-arousal OSA. P-OSA = partnered-arousal OSA. \*  $p < .05$   
 \*\*  $p < .01$ .

As in Study 1, we used canonical correlation analysis to examine the associations between the participant characteristics and Internet experience variables and OSA Attitudes. This analysis yielded three significant pairs of variates, Wilk's = .51,  $F(24, 911) = 10.01, p < .001$ . The first variate pair accounted for 38% of the total variance. Sexual orientation, religiosity, erotophobia/erotophilia, S-OSA Experience, and P-OSA Experience loaded on the predictor variate. All three attitude variables loaded on the Attitude set. Taken together, this variate pair indicated that sexual minority participants and participants who were less religious, more erotophilic, and had S-OSA and P-OSA experience reported more positive attitudes to all three types of OSA (see Table 7).

Table 7. Canonical Correlation Analysis Between the Participant Characteristics and Experience Set and the Attitudes Toward OSA Set in the Community Sample (Study 2).

Variables	First canonical variate		Second canonical variate	
	r	Stand. Coeff.	r	Stand. Coeff.
<b>Characteristics and Experience Set</b>				
Gender	-.22	-0.11	<b>-.74</b>	-0.61
Sexual orientation	<b>.32</b>	0.10	-.18	-0.17
Age	.13	0.03	.29	0.19
Religiosity	-.41	-0.15	-.10	-0.17
Erotophobia/erotophilia	<b>.92</b>	0.73	-.11	-0.32
Time Online	.11	0.02	-.01	-0.04
S-OSA Experience	<b>.56</b>	0.15	<b>.47</b>	0.59
P-OSA Experience	<b>.49</b>	0.25	-.31	-0.42
<b>Attitudes toward OSA Set</b>				
N-OSA Attitudes	<b>.60</b>	-0.09	-.57	-0.95
S-OSA Attitudes	<b>.93</b>	0.57	.20	1.28
P-OSA Attitudes	<b>.93</b>	0.57	-.29	-0.66
<b>R<sub>c</sub></b>	<b>.62***</b>		<b>.35***</b>	

Note: N = 325. Structure coefficients (correlations) greater than .30 were included in the interpretation of each canonical variate and are marked in bold. \*\*\*  $p < .001$ .

The second variate pair accounted for 12% of the remaining variance,  $F(14, 630) = 4.56, p < .001$ . Gender, S-OSA Experience, and P-OSA Experience loaded on the predictor variate. Only N-OSA Attitudes loaded on the OSA Attitude variate. After controlling for the first variate, this variate pair identified a group of women without S-OSA experience

but with P-OSA experience who reported more positive attitudes toward N-OSA only (see Table 7). The third pair accounted for less than 10% of the variance and therefore was not interpreted (Tabachnick & Fidell, 2007).

The results of the three regression models predicting N-OSA, S-OSA, and P-OSA Attitudes are reported in Table 8 and were all significant. For N-OSA Attitudes, only gender and erotophobia/erotophilia added uniquely such that men and individuals who were more erotophilic reported more positive N-OSA Attitudes. Religiosity, S-OSA Experience, and P-OSA Experience were also significantly associated with N-OSA Attitudes at the bivariate level. For S-OSA Attitudes, religiosity, erotophilia, and S-OSA Experience added uniquely such that individuals who were less religious, more erotophilic and had S-OSA Experience reported more positive S-OSA Attitudes. Gender and P-OSA experience were also significantly correlated with S-OSA Attitudes at the bivariate level. Finally, for P-OSA attitudes, only erotophilia and P-OSA experience contributed uniquely such that more erotophilic individuals who had engaged in P-OSA reported more positive attitudes toward P-OSA. Religiosity and S-OSA Experience were also significantly correlated with P-OSA Attitudes at the bivariate level.

Table 8. Multiple Regression Analyses Predicting N-OSA, S-OSA, and P-OSA Attitudes in the Community Sample (Study 2).

Criterion	Predictor	<i>r</i>	$\beta$	<i>sr</i>	<i>R</i> <sup>2</sup>
<b>N-OSA Attitudes</b>	Gender	.11*	.13	.12*	.18***
	Sexual orientation	.10*	.07	.07	
	Age	-.08	-.12	-.10	
	Religiosity	-.14**	-.03	-.03	
	Erotophobia/erotophilia	.39***	.38	.33***	
	Time online	-.01	-.04	-.04	
	S-OSA experience	.15**	-.00	-.00	
	P-OSA experience	.18***	.09	.09	
<b>S-OSA Attitudes</b>	Gender	-.16**	-.08	-.07	.33***
	Sexual Orientation	.13*	.05	.05	
	Age	.06	-.01	-.00	
	Religiosity	-.25***	-.10	-.10*	
	Erotophobia/erotophilia	.54***	.16	.36***	
	Time online	.04	-.02	-.02	
	S-OSA experience	.38***	.16	.14*	
	P-OSA experience	.23***	.07	.06	
<b>P-OSA Attitudes</b>	Gender	-.07	-.00	-.00	.33***
	Sexual Orientation	.11*	.05	.05	
	Age	.08	.04	.04	
	Religiosity	-.22***	-.07	-.06	
	Erotophobia/erotophilia	.54***	.45	.39***	
	Time online	.08	.04	.08	
	S-OSA experience	.26***	.01	.01	
	P-OSA experience	.34***	.22	.21***	

Note: *N* = 325. \* *p* < .05 \*\* *p* < .01 \*\*\* *p* < .001.

## Study 2: Discussion

As with Study 1, the findings supported most but not all of our hypotheses. The results that were not consistent with our hypotheses followed similar, although not identical, patterns to the results found in Study 1. The results of both studies are discussed below.

## Overall Discussion

The goal of this research was to shed light on attitudes toward three types of OSA—non-arousal, solitary-arousal, and partnered-arousal. A strength of the research was that we examined attitudes toward OSA in both a student and a community sample. Although we did not directly compare these two samples, they were more similar than different in their attitudes towards OSA as well as in factors associated with OSA Attitudes. The results of this research extend knowledge about online sexual activity by demonstrating a consistency between offline and online sexual constructs as well as the importance of differentiating between conceptually distinct types of OSA.

What are people's attitudes toward OSA? First, we found that individuals have an overall view about various types of OSA. That is, participants who were more positive about one type of OSA were also more positive about the other two types. This finding held true in both samples, for men and women, and for heterosexual and sexual minority individuals. Second, in both samples, this overall view was neutral to slightly positive on average. In contrast, past research has found that attitudes toward OSA were somewhat negative (Boies, 2002; Carroll et al., 2008; Shaughnessy et al., 2011). However, there was variability in responses indicating that some individuals had positive attitudes and other individuals had negative attitudes toward each type of OSA. It may be that attitudes have shifted such that fewer individuals see OSA negatively than did so in the past. It may also be that our participants had more positive attitudes toward OSA than would be found in a representative sample given that a large majority had experienced the three types of OSAs. Indeed, going online for sexual information appears to be normative in that almost all participants in both samples had N-OSA experience. In contrast, Daneback et al. (2012) found that only about half of the respondents in their Swedish sample reported that they had used the Internet to seek information about sexual issues. Research is needed to determine the extent to which culture and/or language affects whether individuals engage in N-OSA and/or their attitudes toward all types of OSA.

Third, despite evidence for an overall view of OSA, participants' attitudes toward the three types of OSA were not uniform. For example, the three types of attitudes only shared between 26% and 55% of their variance. Further, examination of the magnitude of effects indicates that the type of activity had a larger influence on attitudes than did gender or sexual orientation. Finally, in both the samples, participants' attitudes toward P-OSA were least positive. This may be because we did not specify the partnership context in which P-OSA would occur. The media has often framed P-OSA as occurring with strangers, and in the context of infidelity. However, research has shown that, in reality, most people engage in P-OSA with a romantic partner (Shaughnessy & Byers, 2014). Thus, regardless of their own pattern of behavior, it may be that in keeping with media portrayals, participants' attitudes were influenced by the assumption that people who engage in P-OSA, including those with a partner, are doing so with strangers. Research is needed that assesses attitudes toward P-OSA with different types of partners—strangers, acquaintances, friends, and romantic partners. Nonetheless, this research suggests that the type of OSA is an important feature of people's attitudes towards OSA.

### **Gender and Attitudes Toward OSA**

Society is, in general more accepting of male sexual expression than of female sexual expression. As a result, gender role expectations with respect to sexual attitudes and behavior are more permissive for men than for women (Byers, 1996; Wiederman, 2005). In keeping with gender role socialization, we predicted that men would have more positive attitudes toward S-OSA and P-OSA than would women; we did not expect that men and women would differ in their attitudes toward N-OSA, however, because N-OSA does not include sexual arousal or expression. These predictions were supported in both samples, with the exception that the mean differences in P-OSA attitudes in the community sample did not reach significance. These findings suggest that, as with attitudes toward offline sexual behavior, gender and gender role socialization affect attitudes toward OSA. In keeping with this view, the women's attitudes toward S-OSA were similar to their attitudes toward P-OSA (and significantly less positive than their attitudes toward N-OSA). The men's attitudes toward S-OSA were similar to their attitudes toward N-OSA (and significantly more positive than their attitudes toward P-OSA). This suggests that, in terms of attitudes, men do not differentiate between various types of sexual activities they do alone on the Internet (e.g., seeking information versus viewing sexual explicit material), whereas women do not differentiate between sexually arousing activities done alone or with a partner. Alternatively, men and women may have interpreted P-OSA experience as occurring in different relationship contexts. Recent research suggests that although P-OSA most often occurs with a romantic partner, men are more likely than women to have engaged in P-OSA with a stranger (Shaughnessy & Byers, 2014). As such, more men than women may have assumed that P-OSA occurred with a stranger rather than or in addition to a romantic relationship.

Although gender did not load on the first canonical variate for either sample, in both samples, the canonical correlation analysis identified a second pattern of association between the predictors and OSA Attitudes that differentiated the men and women. In the student sample, after controlling for variables associated with generally positive attitudes toward all OSA activities, we identified a group of women with P-OSA experience who had positive attitudes toward N-OSA and P-OSA but negative attitudes toward S-OSA. Similarly, in the community sample, we identified a group of women with P-OSA experience but not S-OSA experience who were more accepting of N-OSA only. It is important to note that the loading for P-OSA Attitudes in the community sample was .29, and thus just failed to meet the cut off for interpretation. Thus, this pattern of results is similar in the two samples. These results are in keeping with traditional gender roles that are accepting of women seeking sexual information and engaging in arousal-oriented sexual activities in the partner context, but are not accepting of women engaging in arousal-oriented sexual activities by themselves. Overall, the results are consistent with other research that has demonstrated gender differences with respect to OSA that are similar to gender differences with respect to offline sexual activities (Shaughnessy et al., 2011; Shaughnessy & Byers, 2014).

### **Sexual Orientation and Attitudes Toward OSA**

We were not able to test whether sexual minority participants differed from heterosexual participants in their attitudes toward OSA in the student sample. However, in the community sample, as predicted, we found that sexual minority individuals had more positive attitudes toward OSA and this did not differ as a function of attitude type. The findings

from previous research suggest that, compared to heterosexual individuals sexual minority individuals use the Internet more frequently to access sexual information, stimuli and partners; further sexual minority individuals perceive these activities as having positive outcomes (Albright; 2008; Daneback et al., 2005, 2008; Peter & Valkenburg, 2011; Shaughnessy, et al., 2013; Træen et al., 2006). Our findings suggest that these experiences likely also result in more positive attitudes toward all types of OSA. Nonetheless, sexual minority individuals on average had only somewhat positive OSA attitudes and demonstrated variability in their attitudes. These findings suggest that, in keeping with past research, experiences with and outcomes of OSA for sexual minority individuals are mixed but more positive than negative (Groves et al., 2011; Shaughnessy et al., 2013).

### **Predictors of Attitudes Toward OSA**

The findings extend previous research that has found gender differences in attitudes toward OSA by identifying a number of other factors associated with these attitudes. Consistent with research on off-line sexual activities (Beaver & Paul, 2011; Rye et al., 2011; Shaughnessy et al., 2011), as predicted, the results of the canonical correlation analysis as well as the zero-order correlations indicated that individuals who were less religious, more erotophilic, and had S-OSA and P-OSA experience reported more positive attitudes toward OSA in general. Individuals with these characteristics likely are less traditional sexually suggesting that less traditional individuals have more positive OSA attitudes.

Of these characteristics, an individual's disposition toward sexuality—i.e., erotophobia/erotophilia—appears to be particularly connected to attitudes toward OSA. That is, results of the multiple regression analyses indicated that erotophobia/erotophilia uniquely predicted all three OSA attitudes over and above religiosity and past experience with OSA. This is consistent with past findings that individuals who are more erotophilic tend to have more permissive sexual attitudes in general, engage in a wider range of sexual activities, and be more likely to seek out sexual partners and sex-related information on-line and engage in S-OSA (Rye et al., 2011; Velezmoro et al., 2012). The results also demonstrate that attitudes toward OSA are consistent with general sexual attitudes.

The finding that religiosity was not uniquely associated with either N-OSA and P-OSA Attitudes suggests that people who are more religious have more negative attitudes toward OSA than do people who are less religious because religiosity is associated with an erotophobic disposition (Rye et al., 2011). However, religiosity was uniquely associated with S-OSA Attitudes in both samples. This suggests that there is an aspect of engaging in S-OSA that is particularly relevant to religiosity over and above the individual's general disposition toward sexuality. It may be, for example, that attitudes toward S-OSA are linked to views about masturbation specifically because S-OSA (e.g., viewing sexually explicit pictures on line) often occurs alone and involves masturbation (Daneback, Træen, & Månsson, 2009; Maddox, Rhoades, & Markman, 2011). More religious individuals tend to have more negative attitudes toward masturbation (Cowden & Bradshaw, 2007; Davidson, Moore, & Ullstrup, 2004). Alternatively, it may be that the solitary aspect of S-OSA, as it was defined for participants, counters the religious view that emphasizes sexual arousal and activity in the context of a committed relationship. Research is needed to determine the mechanisms through which religiosity affects S-OSA Attitudes.

The results indicate that there is a general connection between OSA experience and OSA attitudes as well as specificity in the experience-attitude relationship. That is, we found that people who had engaged in any type of arousal-oriented OSA (S-OSA and/or P-OSA) had more positive attitudes toward using the Internet for sexually-related purposes—that is, to all three types of attitudes. This may be, in part, because most participants (71% of the student sample and 63% of the community sample) had engaged in both S-OSA and P-OSA. This suggests that, at least to some extent, the connection between OSA experience and OSA attitudes is general rather than specific to a type of OSA. Nonetheless, in keeping with theories that propose that specific attitudes are more strongly associated with corresponding behaviors than are general attitudes (Ajzen & Fishbein, 1977; Albarracín et al., 2001; Cha et al., 2007), we also found evidence for attitude-behavior specificity. That is, P-OSA Experience was uniquely associated with P-OSA Attitudes over and above the contributions of erotophobia/erotophilia and S-OSA experience in both samples; S-OSA experience was uniquely associated with S-OSA Attitudes in the community sample. The fact that S-OSA Experience was not uniquely associated with S-OSA Attitudes in the student sample may reflect the limited variability in S-OSA Experience among the students—86% of the students had engaged in S-OSA. These results extend research on attitude-behavior specificity to attitudes toward arousal-oriented OSA.

Some of our predictions were not supported. First, we found no evidence that younger individuals in our community sample would have more positive OSA attitudes. Further, although we did not expect age to be related to OSA attitudes in our student sample, younger students had more *negative* attitudes toward OSA. This finding may indicate that their attitudes are still evolving. Second, although both of our samples were active Internet users, we did not find that the amount of time participants spent online in a typical week was associated with their OSA Attitudes (see Beaver & Paul, 2011 for a similar finding). This finding may be because current technology allows people to be online passively at all times so that the amount of time spent online is no longer a relevant factor in predicting attitudes (and/or experience) with OSA for either students or people in the community.

### **Limitations and Conclusion**

The results of the study need to be considered in light of its limitations. First, we used a convenience sample of

volunteers. It is likely that, in keeping with past research, their attitudes toward OSA were more positive than attitudes in the general population (Wiederman, 1999). Second, the samples were mostly white and highly educated, although the community sample was diverse in sexual orientation and age. Nonetheless, the extent to which these results generalize to groups with other characteristics is not known. Third, the results are based on explicit self-report measures of attitudes, which are vulnerable to a number of biases (see McCallum & Petersen, 2012 for a review). However, the extent of variability in participants' responses suggests that they were not uniformly over- or under-representing their attitudes. Nevertheless, attitudes toward OSA may in reality be more or less positive than reported. Fourth, participants indicated their experience with a wide range of specific online behaviors within each type of OSA prior to reporting their attitudes towards that type of OSA. For example, the S-OSA experience measure included mainstream pornography as well as kink pornography. Similarly, the P-OSA experiences did not specify the relationship with the partner included in the activity. Thus, it may be that the findings would not apply to attitudes toward each specific N-OSA, S-OSA, and P-OSA experience. Yet, this approach is similar to the approach used in other measures that assess attitudes to a range of behaviors in order to determine overall attitudes. For example, the Sexual Opinion Survey, the measure of erotophobia-erotophilia used in this study, includes questions about pornography, homosexuality, and sex with more than one person. Additional research is needed to support the construct validity of the OSA attitude and experience measures.

This research adds to our knowledge about attitudes toward the three types of OSA. The results suggest that people mostly have neutral to slightly positive attitudes toward OSA. This was true of all groups in our two samples, even though we found that the attitudes of men and sexual minority individuals were more positive than those of women and heterosexual individuals. Overall, the findings suggest that there is a social trend toward viewing OSAs as mainstream sexual activities that people should feel free to engage in if they want to. The findings also indicate that, despite variability based on the type of OSA, attitudes toward OSAs are part of a broader view on sexuality that includes both offline and online behaviors. As such, researchers need to examine OSA constructs within the framework of people's sexual lives both online and offline rather than treating these two environments separately.

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## Appendix: Attitudes Toward Online Sexual Activities Questionnaire

### Instructions

Think about the kinds of online sexual activities in Group [A or B or C] [description of activities just presented in that section of the Online Sexual Activity Questionnaire]. People have different thoughts and feelings about these kinds of online activities. Please circle the number on the scale presented to represent your thoughts about participating in these kinds of online activities. There are no right or wrong answers, please indicate your personal beliefs. Remember, do not think about other kinds of online activities, only about the Group [A or B or C] OSAs that involve [description of activities just presented in that section of the Online Sexual Activity Questionnaire].

N.B. For N-OSA, participants are reminded to think about "information and connecting with others; for S-OSA, to think about activities that "are about accessing sexually explicit material online"; for P-OSA, to think about activities that "are online sexual activities with another person".

### Items

The following items are rated on a 7-point bipolar scale. Positive end is coded 7.

Very morally right -Very morally wrong  
 Very bad-Very good  
 Very unpleasant-Very pleasant  
 Very negative-Very positive  
 Worthless-Very valuable  
 Very normal-Very abnormal  
 Very unhealthy-Very healthy  
 Very helpful-Very harmful  
 Very desperate-Very fulfilled  
 Very pure-Dirty

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