



## Journal of Internet Banking and Commerce

An open access Internet journal (<http://www.arraydev.com/commerce/jibc/>)

Journal of Internet Banking and Commerce, April 2010, vol. 15, no. 1  
(<http://www.arraydev.com/commerce/jibc/>)

### Consumers with Sexual Performance Problems and Spam E-mail for Pornography

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#### **Abstract**

Pornography advertisements arrive through spam e-mail advertising products online. We study consumer responses to these advertisements. College student participants (n=200) with and without sexual performance problems (SPP) were asked if they received, opened/read, and bought pornography from spam e-mail. Those with SPP had significantly greater percentages than those without SPP for receiving (93.3% versus 68.1%,  $p=0.042$ ), opening/reading (66.7% versus 14.1%,  $p<0.001$ ), and purchasing (46.7% versus 4.9%,  $p<0.001$ ) pornography from spam e-mail. In the multivariate logistic regression analyses adjusting for demographic (age, sex, race/ethnicity), Internet (Internet use, number spam e-mails received), and psychological

(self-esteem, perceived stress, sexual performance attitudes) variables, those with SPP were significantly associated with opening/reading (OR: 4.51, 95% CI: 1.05, 19.33) and purchasing (OR: 8.76, 95% CI: 1.78, 43.27) pornography from spam e-mail. Also, increased sexual performance attitudes were associated with opening/reading (OR: 1.37, 95% CI: 1.21, 1.54) and purchasing (OR: 1.37, 95% CI: 1.15, 1.62) pornography from spam e-mail. None of the other demographic, Internet, or psychological variables had any associations. Pornography spam e-mail is opened/read and purchased, especially among those with SPP. Targeting those with SPP with e-mail advertisements has ethical implications, in addition to the general ethical issue of sending spam e-mail.

**Keywords: Internet; electronic mail; marketing; advertising; sexual dysfunction; consumer behavior; e-commerce; e-health, college students**

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## INTRODUCTION

It is often reported that pornography is behind the rapid growth of the Internet. There are statistics reported including that 43% of all those who use the Internet view Internet pornography, 35% of all Internet downloads are related to pornography, and that the average time for watching Internet pornography is 15 minutes (OnlineEducation, 2010). The Internet allows for different types of pornography that includes both commercial and non-commercial pornography. Spam e-mail is one way used to market commercial pornography. A 2008 survey reported that 6.5% of all spam e-mail is on pornography topics (PandaSecurity, 2009).

There are strong debates about Internet pornography. Negative aspects include: 1) Internet pornography is contrary to religious and traditional values of family, marriage, and monogamy and promotes sexual freedom and immoral behavior, 2) individuals with compulsive sexual behavior can use Internet pornography to continue such behavior, 3) Internet pornography use can negatively affect real-world intimate relationships, 4) and Internet pornography has sexist portrayals of women. Positive aspects include: 1) viewing Internet pornography allows for increased sexual knowledge through observing sexual performance techniques, and 2) those with depression, anxiety, and alcohol dependence can find temporary relief and distraction by viewing Internet pornography (Doring, 2009).

Among young adults, sexual arousal, enhancement of sex life with offline partners, and satisfaction of sexual needs are reasons for use of online pornography and online sexually explicit material (Boies, 2002; Goodson, McCormick, & Evans, 2000, Goodson et al., 2001; Lam & Chan, 2007). These potential sexual health benefits may also be the reason why young adults would be interested in purchasing online pornography products from spam e-mail. We are not aware of any studies among those with sexual health conditions and the reasons for purchasing online pornography in general or specifically for purchasing pornography advertised in spam e-mail. We are aware of only two studies about spam e-mail and health conditions. One study found that those with sexual performance problems (SPP) had high odds ratios for reading/opening and also purchasing sexual performance products from spam e-mail (Fogel & Shlivko, 2009).

Another study found that those with weight problems had high odds ratios for reading/opening and also purchasing weight loss products from spam e-mail (Fogel & Shlivko, 2010).

We are not aware of any studies among those with SPP for receiving, reading/opening and/or purchasing pornography from spam e-mail. The objective of this study is to determine among young adults if the presence of SPP is associated with receiving, opening/reading, and/or purchasing pornography offered from spam e-mail. We also study whether any personal demographic variables, Internet variables, or psychological variables are associated with any spam e-mail recipient behavior.

## **METHOD**

### **Participants and Procedures**

Participants (n=200) were undergraduate students enrolled in an inner city commuter college in New York City. Convenience sampling was used to obtain responses from those surveyed in classrooms and public places at the college. A response rate of 94.3% was calculated from the 212 individuals approached. Data were obtained in May 2007. The survey was anonymous and exempt from Institutional Board Review. Ethical principles of the Declaration of Helsinki were adhered to in the study. Participant informed consent was obtained.

### **Measures**

#### *Demographic Variables*

The demographic variables included continuous variables of age (years), hours Internet use (daily), and number of spam e-mails received (daily). Categorical variables included sex and race/ethnicity (white/non-white).

#### *Sexual Performance Problems Item*

Participants were asked: "Do you believe that you have sexual performance problems?" with choices of "yes" or "no."

#### *Spam E-mail Pornography Items*

Participants were asked: 1) Did you receive spam e-mail about pornography in the past year?, 2) If yes, did you open and read the e-mail?, and 3) If you opened and read the e-mail, did you purchase anything from the website provided? Answer choices were "yes" or "no."

### **Psychological Scales**

#### *Self-esteem*

The Rosenberg Self-esteem Scale is a reliable and valid measure (Rosenberg, 1986). It contains 10 items measured on a Likert-style scale that range from 1=strongly disagree

to 4=strongly agree. There are 5 reverse-coded items. Greater self-esteem is indicated by higher scores. Cronbach alpha reliability in this sample was 0.87.

#### *Perceived Stress*

The Perceived Stress Scale is a reliable and valid measure (Cohen & Williamson, 1988). It contains 10 items measured on a Likert-style scale that range from 0=never to 4=very often. There are 4 reverse-coded items. Greater perceived stress is indicated by higher scores. Cronbach alpha reliability in this sample was 0.84.

#### *Sexual Performance Attitudes*

The Sexual Performance Attitudes Scale was created for this survey. It consists of 3 items: 1) "I would like to learn about enhancing sexual performance," 2) "I would like to learn online about enhancing sexual performance," and 3) "I trust the Internet to provide me with accurate information about sexual performance." These 3 items were measured on a Likert-style scale with a range from 1=strongly disagree to 5=strongly agree. Cronbach alpha reliability in this sample was 0.95.

#### *Statistical Analyses*

Descriptive statistics were calculated for the variables. As appropriate, either Pearson chi-square analyses or the Fisher's exact test (when cell sample size <5) were used to compare those with and without SPP for the separate questions of receiving, opening/reading, and purchasing from spam e-mail advertising pornography. A number of logistic regression analyses were conducted with the three different outcome variables of receiving, opening/reading, and purchasing from spam e-mail advertising pornography. Each outcome variable had three different analytical models. The first model only included the variable of SPP. The second model included sexual SPP and also the demographic variables. The third model included SPP, the demographic variables, and the psychological variables of self-esteem, perceived stress, and the sexual performance attitudes scale. PASW version 18 (PASW, 2009) was used.

## **RESULTS**

Table 1 shows the characteristics of the sample. Most of the sample did not have SPP. Average age was almost 21 years, almost two-thirds were women, and slightly more than half were non-white. With regard to daily Internet characteristics, average use was almost 4 hours, and an average of 28 spam e-mail messages were received. With regard to psychological characteristics, there was an average of higher self-esteem, an average level of sometimes having perceived stress, and an average level of disagreeing with sexual performance attitudes.

**Table 1 Characteristics of the Sample of 200 Individuals**

Variable	M (SD) or % (#) (n=200)
Sexual performance problems	
No	92.5% (185)
Yes	7.5% (15)
Age (years)	20.9 (1.99)
Sex	
Men	35.5% (71)
Women	64.5% (129)
Race/ethnicity	
White	43.5% (87)
Non-white	56.5% (113)
Hours Internet use (daily)	3.9 (2.45)
Number of spam e-mails (daily)	28.2 (61.86)
Self-esteem	30.7 (5.47)
Perceived Stress	19.2 (6.13)
Sexual performance attitudes	6.5 (3.76)

Note: M=mean, SD=standard deviation.

Table 2 shows comparisons for those with and without SPP for receiving, opening/reading, and purchasing pornography offered from spam e-mail. For all three comparisons, those with SPP had significantly greater percentages than those without SPP. This included more than 25% higher for receiving, more than 50% higher for opening/reading, and more than 40% higher for purchasing.

**Table 2 Pornography Spam e-mail and Sexual Performance Problems**

Variable	Sexual performance problems		p-value
	No % (#) (n=185)	Yes % (#) (n=15)	
Received pornography spam e-mail			0.042
No	31.9% (59)	6.7% (1)	
Yes	68.1% (126)	93.3% (14)	
Opened pornography spam e-mail			<0.001
No	85.9% (159)	33.3% (5)	
Yes	14.1% (26)	66.7% (10)	
Purchased pornography spam e-mail			<0.001
No	95.1% (176)	53.3% (8)	
Yes	4.9% (9)	46.7% (7)	

There were no significant differences for any of the univariate or multivariate logistic regression analyses between those with and without SPP for receiving pornography offered from spam e-mail (data not shown). Table 3 shows logistic regression analyses

for opening/reading spam e-mail for pornography. Model 1 had a significant odds ratio for those with SPP of greater than 12 times likely than those without SPP for opening/reading spam e-mail for pornography. Model 2 shows a similar odds ratio with no significant covariates. Model 3 had a significant odds ratio for those with SPP of greater than 4 times likely for opening/reading spam e-mail for pornography (also see Figure). No demographic or Internet variables were significant and only the psychological variable of the sexual performance attitudes scale had a significant odds ratio of 1.37.

**Table 3 Logistic Regression Analyses for Variables Associated with Opening and Reading Spam E-mail about Pornography Products**

Variables	OR (95% CI)		OR (95% CI)		OR (95% CI)	
	Model 1		Model 2		Model 3	
Sexual performance problems	1.00		1.00		1.00	
No	12.23	(3.87,	11.47	(3.60,	4.51	(1.05, 19.33)*
Yes	38.66)***		36.52)***			
Age			1.04	(0.85, 1.26)	1.04	(0.83, 1.32)
Sex			1.00		1.00	
Men			0.61	(0.27, 1.34)	0.66	(0.26, 1.67)
Women						
Race			1.00		1.00	
White			1.28	(0.57, 2.84)	1.21	(0.48, 3.02)
Non-white						
Hours Internet			0.96	(0.81, 1.14)	0.94	(0.79, 1.14)
Number of spam e-mails			1.00	(0.99, 1.01)	1.00	(0.995, 1.01)
Rosenberg self-esteem					1.02	(0.93, 1.12)
Perceived stress					1.03	(0.94, 1.12)
Sexual performance attitudes					1.37	(1.21, 1.54)***

Note: OR=odds ratio, CI=confidence interval, \*=p<0.05, \*\*\*=p<0.001

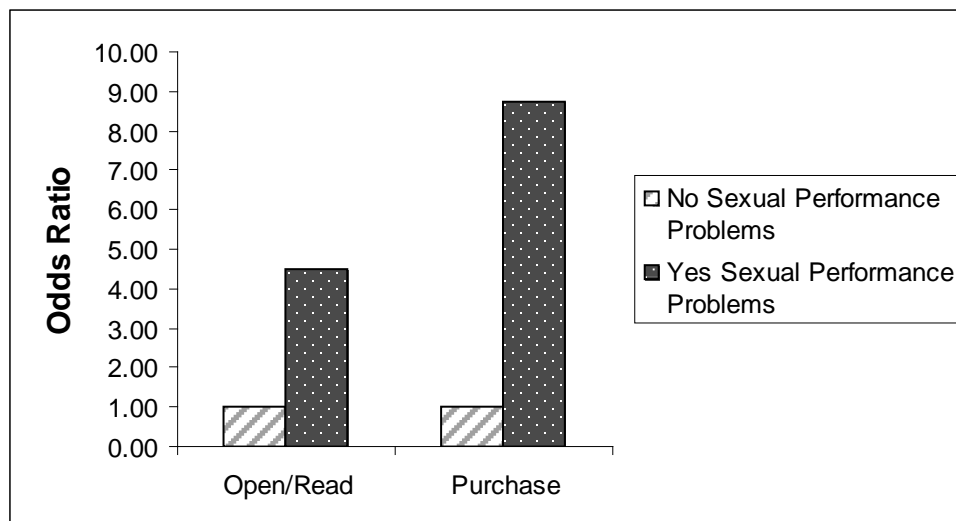
Table 4 shows logistic regression analyses for purchasing spam e-mail for pornography. Model 1 had a significant odds ratio for those with SPP of greater than 17 times likely than those without SPP for purchasing spam e-mail for pornography. Model 2 shows a similar odds ratio with no significant covariates. Model 3 had a significant odds ratio for those with SPP of greater than 8 times likely for purchasing spam e-mail for pornography (also see Figure). No demographic or Internet variables were significant and only the psychological variable of the sexual performance attitudes scale had a significant odds ratio of 1.37.

**Table 4 Logistic Regression Analyses for Variables Associated with Purchasing from Spam E-mail about Pornography Products**

Variables	OR (95% CI)		OR (95% CI)		OR (95% CI)	
	Model 1		Model 2		Model 3	
Sexual performance problems	1.00		1.00		1.00	
No	17.11	(5.07,	16.37	(4.72,	8.76	(1.78, 43.27)**
Yes	57.70)***		56.76)***			
Age			1.08 (0.80, 1.46)		0.98 (0.70, 1.38)	
Sex						
Men			1.00		1.00	
Women			0.64 (0.20, 2.02)		0.89 (0.24, 3.29)	
Race						
White			1.00		1.00	
Non-white			0.72 (0.23, 2.28)		0.71 (0.20, 2.59)	
Hours Internet			1.05 (0.83, 1.32)		1.02 (0.81, 1.28)	
Number of spam e-mails			1.00 (0.99, 1.01)		1.00 (0.99, 1.01)	
Rosenberg self-esteem					1.02 (0.88, 1.17)	
Perceived stress					0.95 (0.84, 1.08)	
Sexual performance attitudes					1.37 (1.15, 1.62)***	

Note: OR=odds ratio, CI=confidence interval, \*\*=p<0.01, \*\*\*=p<0.001

**Figure Spam E-mail for Pornography Products**



## **DISCUSSION**

We found that those with SPP are strongly interested in opening/reading and also purchasing pornography offered from spam e-mail. Demographic and Internet variables are not associated with this opening/reading and purchasing behavior, while sexual performance attitudes are associated with this opening/reading and purchasing behavior.

Our findings for opening/reading and also purchasing pornography offered from spam e-mail extends the current research known about consumer behavior for spam e-mail among those with SPP. Not only are these consumers interested in sexual performance products offered from spam e-mail (Fogel & Shlivko, 2009), but also they are interested in pornography offered from spam e-mail.

When comparing our current study for opening/reading and also purchasing pornography offered from spam e-mail to the study about opening/reading and also purchasing sexual performance products offered from spam e-mail (Fogel & Shlivko, 2009), there are some important similarities and differences. Similarities include the exact same percentages in both studies for those with SPP for opening/reading and also purchasing the different types of products offered from spam e-mail. The key difference is with regard to the multivariate analyses and magnitude of the odds ratios. The same variables were analyzed in both studies. In this study with the outcome of pornography, the odds ratio was 4 for opening/reading and increased to 8 for purchasing. In the study with the outcome of sexual performance products (Fogel & Shlivko, 2009), the odds ratio was the same at 8 for both opening/reading and also purchasing. This pattern suggests that the magnitude of the interest level for opening/reading among those with sexual performance problems is not as high for pornography as it is for sexual performance products. It is possible that the subject line on the spam e-mail for pornography is being interpreted as intrusive or irritating which are known factors for decreasing favorable attitudes toward spam e-mail (Morimoto & Chang, 2006).

Also, only increased sexual performance attitudes were associated with opening/reading and purchasing pornography from spam e-mail. Although there are numerous studies reporting sex differences among college students (Boies, 2002; Byers, Menzies, & O'Grady, 2004; O'Reilly, Knox, & Zusman, 2007; Selwyn, 2008) and young adults (Hald, 2006) with increased interest among men than women for online pornography, we did not find such differences.

There are study limitations. First, data were only obtained from one institution and may not generalize to a national sample. Second, there were only 15 individuals with SPP which may be an artifact of studying a young adult sample. Third, we did not inquire about the specific reasons for opening/reading and purchasing the pornography from spam e-mail.

## **CONCLUSION**

In conclusion, pornography spam e-mail is opened/read and also purchased by those with sexual performance problems. The pornography spam e-mail marketers have a market segment with strong interest. For those groups that are opposed to online



pornography, they should consider providing appropriate educational interventions to discourage those with sexual performance problems from opening/reading and also purchasing pornography from spam e-mail. For those businesses that focus on pornography products, we are not advocating sending spam e-mail. Apparently those with sexual performance problems have a strong interest in such a product. The ethics of targeting such a market segment has many ethical implications that are beyond the scope of this paper.

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