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Consumers with Sexual Performance Problems and Spam E-mail for Sexual Performance Products

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ABSTRACT

Spam e-mail on sexual health topics arrive in e-mail inboxes. We study consumer responses to spam e-mail that advertise sexual performance products. Participants (n=200) with and without sexual performance problems were asked if they received, opened, and bought products from spam e-mail about sexual performance products in the past year. Comparisons were performed between those with and without sexual performance problems. Psychological factors of self esteem and perceived stress were measured. Those with sexual performance problems had significantly greater percentages than those without sexual performance problems for receiving (100.0% versus 73.5%, $p=0.024$), opening (66.7% versus 11.4%, $p<0.001$), and purchasing products (46.7% versus 5.4%, $p<0.001$) from spam e-mail. In the multivariate logistic regression analyses adjusting for demographics, psychological factors, and attitudes, those with sexual performance problems were significantly associated with opening (OR: 8.33, 95% CI: 1.95, 35.71), and purchasing products (OR: 7.98, 95% CI: 1.74, 36.73) from spam e-mail. Spam e-mail about sexual performance products are opened and purchased from, especially among those with sexual performance problems. There is a need for e-mail marketing and advertising of sexual performance products that meet ethical standards for e-mail delivery to consumers.

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

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INTRODUCTION

Spam e-mail arrives in abundance in inboxes. In a 2007 United States survey about spam e-mail, depending upon the demographic group, 16%-19% believe that it is a big problem and 34%-62% believe that it is annoying (Fallows, 2007). Spam e-mail is read by 20% of individuals in the United States (Forrester Research & Business Source Alliance, 2004). Purchases from spam e-mail advertisements vary with reports ranging from 4% to 66% (Fallows, 2007; Forrester Research & Business Source Alliance, 2004; Grimes, Hough, & Signorella, 2007; Mailshell, 2003; Marshal, 2008).

Pharmaceutical and health products are the most common type of spam e-mail. In 2008, 32.25% of spam e-mail advertised pharmaceutical products and 20.5% of spam e-mail advertised sexual performance enhancers (Panda Security, 2008). Sexual dysfunction can have a medical basis and includes diseases such as male erectile disorder (Brien & Trussel, 2008). Sexual dysfunction can have psychological concerns such as low self-esteem (Ducharme, 2004) and perceived stress (McKay, 2006) that are related to a medical disorder or have psychological concerns unrelated to a medical disorder. The spam e-mail on sexual dysfunction may be appealing to these psychological concerns and allow individuals to discreetly purchase sexual performance products through the relative anonymity of the Internet.

There are only a few peer-reviewed studies regarding consumer behavior and spam e-mail. Favorable attitudes to spam e-mail decreased when either advertisement intrusiveness or advertisement irritation increased (Morimoto & Chang, 2006). There was no association of number of spam e-mail received to attitudes to spam e-mail. Borderline significance was reported for women to be more likely than men to dislike spam e-mail because of sexual nature content (Grimes, 2006). Both college students and working individuals had significant correlations for receipt of sexual spam and receipt of total number of spam, financial spam, health spam, computer spam, and entertainment spam while this relationship did not occur among retirement-age individuals for health spam and entertainment spam (Grimes et al., 2007).

The objective of this study is to determine if the presence of Sexual Performance Problems (SPP) is associated with receipt of, opening of, and purchase of Sexual Performance Products (SPROD) offered from spam e-mail. We also study whether the psychological variables of self-esteem or perceived stress are related to any spam e-mail recipient behavior.

METHOD

Participants and Procedures

Participants were 200 students from a 4-year commuter city college. The convenience sample obtained responses from those in classrooms and public places at the college. The response rate was 94.3% [200/212 * 100%]. Data collection occurred in May 2007. This anonymous survey was exempt from Institutional Board Review and was conducted in accordance with the ethical principles of the Declaration of Helsinki. Informed consent was obtained.

Measures

Demographics

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

Sexual Performance Item

Participants were asked, "Do you believe that you have SPP?" Response choices were "yes" or "no."

Spam E-mail Items

These items were: 1) Did you receive spam e-mail about sexual performance 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?

Scales

Self-esteem

The Rosenberg Self-esteem Scale (Rosenberg, 1986) is a reliable and valid measure with 10 items measured on a Likert-style scale ranging from 1=strongly disagree to 4=strongly agree. Five items are reverse coded. Higher scores indicate greater self-esteem. In this sample, Cronbach alpha reliability was 0.87.

Perceived Stress

The Perceived Stress Scale (Cohen & Williamson, 1988) is a reliable and valid measure with 10 items measured on a Likert-style scale ranging from 0=never to 4=very often. Four items are reverse coded. Higher scores indicate greater perceived stress. In this sample, Cronbach alpha reliability was 0.84.

Sexual Performance Attitudes

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

Statistical Analyses

As appropriate, analysis of variance (ANOVA), the Pearson chi-square test, or the Mann-Whitney test were used to compare the variables for those with and without SPP. As appropriate, Pearson chi-square analyses or the Fisher's exact test were used to compare the responses of those with and without SPP to the separate questions of receiving, opening, and purchasing from spam e-mail about SPROD. Lastly, we conducted a series of logistic regression analyses with three different outcome variables

of receiving, opening, and purchasing from spam e-mail about SPROD. For each outcome variable three models were conducted. The first model was only for the independent variable of SPP. The second model included SPP and the demographic variables. The third model included the variables in Model 2, the psychological variables of self-esteem and perceived stress, and the sexual performance attitudes scale. SPSS version 17 (SPSS, 2008) was used.

RESULTS

Table 1 compares the sample characteristics. Those with SPP received a greater number of spam e-mail, had lower self-esteem, greater perceived stress, and higher sexual performance attitudes than those without SPP.

Table 1
Characteristics of a Sample of 200 Individuals Regarding their Sexual Problems Status

Variable	No Sexual Problems M (SD) or % (#) (n=185)	Yes Sexual Problems M (SD) or % (#) (n=15)	p-value
Age (years) ^a	20.9 (2.02)	21.3 (1.59)	0.40
Sex ^b			0.35
Men	34.6% (64)	46.7% (7)	
Women	65.4% (121)	53.3% (8)	
Race/ethnicity ^b			0.60
White	43.8% (81)	40.0% (6)	
Non-white	56.2% (104)	60.0% (9)	
Hours Internet use (daily) ^a	3.9 (2.45)	3.8 (2.57)	0.97
Number of spam e-mails (daily) ^c	28.1 (63.97)	29.7 (25.14)	0.006
Self-esteem ^a	31.2 (5.11)	24.8 (6.52)	<0.001
Perceived Stress ^a	18.9 (5.90)	23.60 (7.43)	0.004
Sexual Performance Attitudes ^a	6.2 (3.52)	10.9 (3.89)	<0.001

Note: M = mean, SD = standard deviation. P-values for hours Internet use are from logarithmically transformed variables due to presence of skewness. Non-logarithmically transformed values are shown for the mean and standard deviation values for ease of understanding. Number of spam e-mails received, although skewed, was not logarithmically transformed due to 8 individuals with values of 0, precluding a logarithmic transformation.

^aAnalysis of variance performed, ^bPearson chi-square test performed, ^cMann-Whitney test performed.

Table 2 shows comparisons for SPP and receiving, opening, and purchasing from spam e-mail regarding SPROD. All those (100%) with SPP reported receiving spam e-mail regarding SPROD and was significantly higher than the 74% received from those without SPP. With regard to opening spam e-mail regarding SPROD, those with SPP had significantly greater percentages for opening. With regard to purchasing from spam e-mail for SPROD, those with SPP had significantly greater percentages for purchasing, with a greater than 41% difference.

Table 2
Spam e-mail and Sexual Performance Problems

Variable	Sexual Performance Problems		p-value
	No % (Frequency) (n=185)	Yes % (Frequency) (n=15)	
Received sexual performance spam e-mail			
No	26.5% (49)	0.0% (0)	0.024
Yes	73.5% (136)	100.0% (15)	
Opened sexual performance spam e-mail			
No	88.6% (164)	33.3% (5)	<0.001
Yes	11.4% (21)	66.7% (10)	
Purchased sexual performance spam e-mail			
No	94.6% (175)	53.3% (8)	<0.001
Yes	5.4% (10)	46.7% (7)	

Using logistic regression, there were no significant differences in any univariate or multivariate analyses between those with and without SPP for receiving spam e-mail for SPROD (data not shown). Table 3 shows logistic regression analyses for opening spam e-mail for SPP. Model 1 had a significant odds ratio for those with SPP of greater than 15 times likely than those without SPP to open spam e-mail for SPROD. 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 to open SPROD (also see Figure). Also, the sexual performance attitudes scale had a significant odds ratio of 1.29. No demographic or psychological variables were significant.

Table 3
Logistic Regression Analyses for Variables Associated with Opening Spam E-mail Regarding Sexual Performance Products

Variables	OR (95% CI)	OR (95% CI)	OR (95% CI)
	Model 1	Model 2	Model 3
Sexual performance problems			
No	1.00	1.00	1.00
Yes	15.62 (4.87, 50.11)***	14.92 (4.60, 48.44)***	8.33 (1.95, 35.71)**
Age		1.14 (0.93, 1.40)	1.16 (0.91, 1.47)
Sex			
Men		1.00	1.00
Women		0.90 (0.38, 2.15)	1.06 (0.40, 2.83)
Race			
White		1.00	1.00
Non-white		1.29 (0.54, 3.05)	1.22 (0.47, 3.14)
Hours Internet		0.57 (0.11, 2.87)	0.51 (0.09, 2.91)
Number of spam e-mails		1.00 (0.99, 1.01)	1.00 (0.99, 1.01)
Rosenberg self-esteem			1.05 (0.95, 1.16)

Perceived stress			1.03 (0.94, 1.13)
Sexual performance attitudes			1.29 (1.14, 1.46)***

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

Hours of Internet use logarithmic transformed due to presence of skewed data. Number of spam e-mails not logarithmically transformed due to some individuals reporting values of 0 which precluded a logarithmic transformation.

Table 4 shows logistic regression analyses for purchasing from spam e-mail for SPROD. A similar pattern existed as for opening these spam e-mail messages, with similar odds ratios and significance levels for all 3 models. The odds ratio for Model 3 of almost 8 times likely for those with SPP to purchase sexual performance products is shown in the Figure.

Table 4

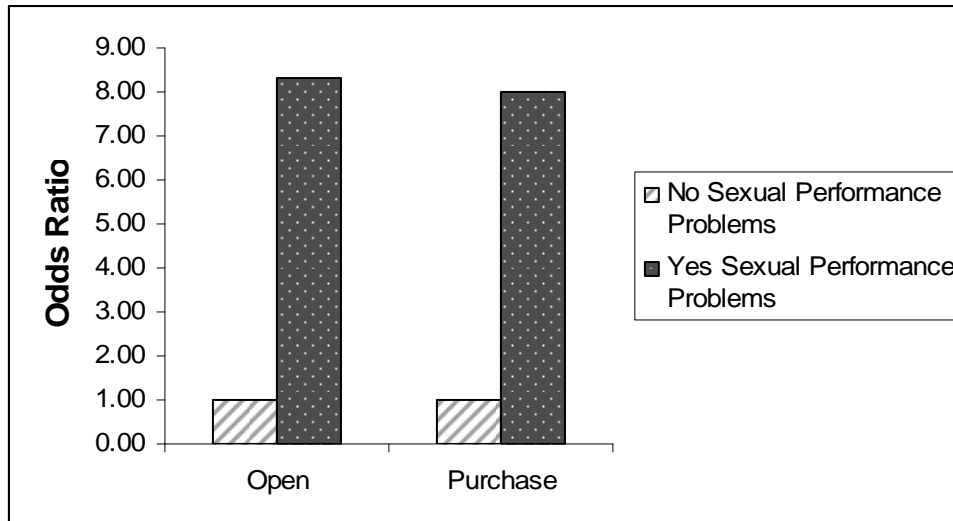
Logistic Regression Analyses for Variables Associated with Purchasing from Spam E-mail Regarding Sexual Performance Products

Variables	OR (95% CI)	OR (95% CI)	OR (95% CI)
	Model 1	Model 2	Model 3
Sexual performance problems			
No	1.00	1.00	1.00
Yes	15.31 (4.62, 50.74)***	14.34 (4.27, 48.16)***	7.98 (1.74, 36.73)**
Age		1.19 (0.91, 1.57)	1.15 (0.85, 1.56)
Sex			
Men		1.00	1.00
Women		0.73 (0.24, 2.22)	0.93 (0.27, 3.15)
Race			
White		1.00	1.00
Non-white		1.12 (0.37, 3.42)	1.19 (0.35, 3.99)
Hours Internet		1.39 (0.16, 12.31)	1.20 (0.12, 11.77)
Number of spam e-mails		1.00 (0.99, 1.01)	1.00 (0.99, 1.01)
Rosenberg self-esteem			1.02 (0.90, 1.16)
Perceived stress			0.98 (0.87, 1.10)
Sexual performance attitudes			1.28 (1.10, 1.49)**

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

Hours of Internet use logarithmic transformed due to presence of skewed data. Number of spam e-mails not logarithmically transformed due to some individuals reporting values of 0 which precluded a logarithmic transformation.

Figure
Spam E-mail for Sexual Performance Products



DISCUSSION

We found that those with SPP are highly receptive to spam e-mail for SPROD. They are more likely than those without SPP to open and purchase from these e-mails. Psychological factors of self-esteem and perceived stress were not associated with this opening and purchasing behavior.

Sexually oriented spam is viewed as offensive by both men and women (Khoo & Senn, 2004). It appears that those with SPP do not consider this sexually oriented spam as offensive since two-thirds opened and almost half purchased from this spam e-mail. This strongly contrasts to those without SPP who only opened 11% and purchased from 5%.

Our multivariate logistic regression analyses showed that demographic characteristics and Internet-use characteristics were not related to opening or purchasing. Although those with SPP had greater psychological concerns of self-esteem and perceived stress, this was not significant, while increasing sexual performance attitudes was significant. As suggested by the Theory of Planned Behavior, this is consistent with the numerous studies indicating that attitudes are important for predicting behavior (Hardema et al., 2002). The highest odds ratios were for the presence of SPP, which suggests that this is the most important variable for understanding the opening and purchasing behavior.

Product quality can be poor for products advertised in spam e-mail (Fogel, 2009). Why are those with SPP eager to open and purchase from spam e-mail? First, the perceived medical and/or psychological need to enhance sexual performance may result in those with SPP considering products from even non-reputable sources. Second, sexual performance is a very sensitive topic and the private nature of e-mail may be preferred rather than face-to-face purchases at a pharmacy or health food store. Third, although advertisement intrusiveness is associated with negative attitudes toward the

advertisement (Morimoto & Chang, 2006), those with SPP may not consider these spam e-mails as intrusive since it offers a product of interest.

There are some limitations. First, these data were only collected from one institution. Second, there were only 15 individuals with SPP. Third, with regard to 100% receipt of e-mails for those with SPP, there may be some recall bias due to the perceived importance of the topic.

CONCLUSION

In conclusion, spam e-mail for Sexual Performance Products are opened and purchased from those with Sexual Performance Problems. Those who send these spam e-mails have a receptive market segment. We do not advocating sending such spam. There is a demand for e-mail marketing of Sexual Performance Products and this should be performed with appropriate marketing channels that meet ethical standards.

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