Sexual-Enhancement Drug Use in College-Age Men

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Abstract

Viagra and other erectile-dysfunction (ED) medications are typically associated with older men. There is thus little research on their use in college-age men. The purpose of the present study was to explore the use of sexual-enhancement drugs (SEDs) in college men and to compare the men who had used SEDs to those who had not used them. Eighty-two male college students completed a questionnaire that included open-ended questions about their use of SEDs and items assessing their sexual history and motives for having sex. The majority of the 16 men who reported having used SEDs used Viagra, followed by herbal products and Ecstasy. Users of these substances reported having had more sex partners and endorsed enhancing pleasure as being a more important reason for having sex than did those who had not used them. Results suggest that the SED users are more sexually exploratory than the nonusers.

Introduction

Viagra (sildenafil) is a phosphodiesterase-5 (PDE-5) inhibitor that was originally developed for the treatment of angina. It received Food and Drug Administration (FDA) approval for the treatment of erectile dysfunction (ED) in the spring of 1998 (Jackson, Gillies, & Osterloh, 2005). Due largely to a massive, global, advertising campaign, the drug quickly became a cultural icon (Tiefer, 2006), with one million prescriptions written in the US in less than two months following its approval and 177 million prescriptions written in over 120 countries by 2005 (Jackson et al., 2005). With the success of Viagra, the PDE-5 inhibitors Levitra (vardenafil) and Cialis (tadalafil) were introduced to the ED-treatment market (Jackson et al., 2005).

The cultural impact of Viagra, particularly its role in the construction of gender and sexuality, has been critiqued. Historically, declining sexual functioning was considered a normal and acceptable component of the aging process. The advancement of technology in sexual health, however, has provided new standards for the aging body (Marshall, 2006). This technology has both physical and cultural implications, as ED is often conflated with the loss of manhood. Viagra can therefore be construed as a tool for the repair and construction of masculinity, contributing to the medicalization of the male body (Loe, 2001). Considering the role that Viagra and other ED medications plays in the conceptualization of masculinity and sexuality, research concerning these substances can help further the study of human sexuality.

Erectile Dysfunction

Prevalence estimates of ED are positively associated with age (Feldman, Goldstein, Hatzichristou, Krane, & McKinlay, 1994; Laumann, Paik, & Rosen, 1999; Rosen et al., 2004). In a national probability sample of men and women ages 18–59, Laumann and colleagues found

that 7% of men ages 18–29 and 18% of men ages 50–59 reported trouble obtaining or maintaining an erection. In a multinational study by Rosen et al. (2004), 16% of men ages 20–75 reported experiencing erectile difficulties. Self-reported ED increased relatively linearly with increasing age. For example, 8% of men between the ages of 20 and 29, 15% between 40 and 49, and 37% between 70 and 75 reported the condition (Rosen et al., 2004).

Erectile dysfunction has been associated with various psychological characteristics. Compared with healthy men, men seeking treatment for ED have endorsed experiencing lower satisfaction with their sexual lives as well as with their overall lives (Mallis et al., 2006). Latini, Penson, Wallace, Lubeck, and Lue (2006) found that compared with men with less severe ED, men with more severe ED reported poorer functioning across various psychological domains, including belonging/loneliness, positive affect, depression, sexual self-efficacy, and well-being. Men with mild ED were more likely to be classified as having nonorganic ED than those with severe ED, and the latter group reported worse psychological outcomes than the former group (Latini et al., 2006). Improvements in self-esteem, confidence, sexual relationship satisfaction, and overall relationship satisfaction were found in men with ED after treatment with Viagra, compared with a placebo (Althof et al., 2006). Erectile dysfunction, particularly more severe expressions of it, thus appears to be related to a variety of adverse psychosocial outcomes. It is important to note, however, that these studies do not indicate that erectile problems cause such outcomes.

Despite the psychosocial factors associated with ED, up to 70% of men with the condition do not seek treatment for it (Kubin, Wagner, & Fugl-Meyer, 2003). Research suggests that less than 16% of men with ED maintain their use of PDE-5 inhibitors (Rosen et al, 2004). A multinational study of men with ED found that few men with mild ED reported perceiving their

condition as permanent, but the majority of those with severe ED perceived it as such (Fisher et al., 2004). The authors also found that 10%, 23%, and 33% of the men with mild, moderate, and severe ED, respectively, had used Viagra on multiple occasions. The number of men who had used Viagra more than once increased by decade from the participants in their 20s to those in their 50s and dropped slightly when men reached their 60s and 70s. Overall, Fisher and colleagues found that men were more likely to use Viagra if they perceived their erectile difficulties as severe, believed that ED medication is safe, and perceived support from referent others.

Viagra Use in Non-ED Samples

Few studies have explicitly examined the use of Viagra and other ED drugs in college-age samples. Some research, however, has explored the effects of Viagra in individuals without ED as well as the recreational use of the medication. Kamin, Zion, Chudakov, and Belmaker (2006) examined the effects of Viagra on a sample of men without ED, ages 22–34. The men ingested Viagra for 2 weeks and placebo for 2 weeks at home, respectively, one hour before having sex and rated their experiences. The researchers found no major effects of the drug on sexual functioning when compared with placebo. Another study with asymptomatic men, ages 28–37, found a reduction in post-ejaculatory refractory times for Viagra when compared with a placebo but found no differences in seminal or erectile parameters (Aversa et al., 2000).

The majority of studies regarding recreational use of Viagra fall within the HIV-prevention literature, and most of them focus on men who have sex with men (MSM; Smith & Romanelli, 2005; Swearingen & Klausner, 2005). A study that annually surveyed British nightclub attendees for Viagra use from 1999 to 2003 found from its 2003 data that 17% of the men had used Viagra at some point in their lives and that 6% had used it in the past month

(McCambridge, Mitcheson, Hunt, & Winstock, 2006). The authors concluded that the men might have been using it to overcome the temporary erectile difficulties associated with alcohol and stimulant drugs. Halkitis, Moeller, and DeRaleau (2008) found a significant relationship between steroid use and recreational use of ED medications in MSM who attend gyms in New York City. Swearingen and Klausner (2005) reviewed 14 studies concerning Viagra use, sexual risk behavior, and sexually transmitted infections (STIs). The majority of the studies reviewed involved MSM, who had a range of Viagra use from 3% to 32%; furthermore, several of the studies found an association between ED medication use and sexual risk behavior (e.g., unprotected anal sex) and increased risk for STIs. Most of the reviewed studies employed convenience samples, and their rates of Viagra use might thus not reflect that in the general population. When recreational use of Viagra and other ED medications occurs concurrently with club drugs (e.g., ecstasy), users may be at risk for fatal drug interactions (Smith & Romanelli, 2005).

Viagra Use in College-age Men

Two studies were found that specifically focused on the use of Viagra and other ED medications in college-age men. Musacchio, Hartrich, and Garofalo (2006) examined ED and ED medication use in a sample of 234 sexually active men, ages 18–25, from three Chicago universities. Thirteen percent of the sample reported ED, defined as ever having difficulty obtaining or maintaining an erection, and 25% of the sample reported ED with condom use. Viagra and other ED medications were used by 6% of the sample (14 men). Of these men, 54% reported obtaining the medications from friends, and 39% reported obtaining them from other non-medical sources (source was missing for one participant). Reported reasons for using the drugs included treating ED (57%), having more sex (29%), and other reasons (14%).

Furthermore, 64% of the men who used ED medications did so with other substances such as alcohol, marijuana, and GHB (Musacchio et al., 2006).

A recent study explored the use of PDE-5 inhibitors in a sample of 360 men drawn from 18 randomly selected colleges in Brazil, ages 18–30 (Freitas, Menezes, Antonialli, & Nascimento, 2008). None of the students reported receiving a medical diagnosis of ED. Fifteen percent of the participants (53 men) reported previously using PDE-5 inhibitors, with 53% using Viagra, 37% using Cialis, and 10% using Levitra. Reasons for using these medications included curiosity (70%), improving erection (12%), avoiding premature ejaculation (12%), and increasing pleasure (6%; Freitas et al., 2008).

The Present Study

There is thus a dearth of research examining the use of Viagra and other ED medications in college-age men. Research suggests that these men—even those with normal erectile functioning—do sometimes use these drugs. The present study used qualitative and quantitative methods to explore the use of sexual-enhancement drugs and other substances in college-age men. More specifically, it has two major objectives. The first objective concerns collecting descriptive data, such as which sexual-enhancement drugs or other substances were used, the reasons for using them, and sexual behaviors and motivations of the men who used them. The second objective is to compare the men who have used sexual-enhancement drugs or substances with those who have not used them on a variety of variables, including sexual experience and motivation. We broadly use the term *sexual-enhancement drugs* (SEDs) to include the PDE-5 inhibitors, such as Viagra, in addition to other non-pharmaceutical products, such as herbal supplements.

Method

Participants

Participants were male introductory psychology students at the University of Kansas. They participated as one way to fulfill a course research requirement. At the beginning of each semester, students in this course complete an online screening survey. This survey includes general demographic questions, as well as specific questions related to studies being conducted that semester. For this study, the following question was used in the screening survey:

> Have you ever tried any drug or other substance aimed at enhancing sexual performance? For example, this could include drugs such as Viagra, Cialis, or Levitra, or herbs or other substances, such as maca root, yohimbe extract, or goat weed, or anything aimed at enhancing sexual performance. This could include a prescription drug, an over-the-counter drug or herb, or any other drug or herb.

Out of the 1,248 male students who completed the survey, 58 (4.65%) answered "Yes" to this question. All the men who answered "Yes" were informed that they were eligible to sign up for this study. A small percentage (randomly determined) of the men who answered "No" were also informed that they were eligible; our reasons for including these men were to provide a comparison group of SED nonusers and to increase participants' privacy by including some participants who had used these drugs/substances and some who had not. They did not know the topic of the study in advance. Data were collected across two semesters.

An initial sample of 89 male students participated in the study. Seven were disqualified: Three did not follow the instructions; three failed a carefulness check, described below; and one was an international student, who was excluded because of the impact that culture has on sexual

behaviors and attitudes. The final sample consisted of 82 men, 16 of whom endorsed using SEDs (users).

The mean age of participants was 19.65 years (SD = 2.37; range = 18–31). Users (M = 20.75, SD = 3.68) were significantly older than nonusers (M = 19.38, SD = 1.87), $F(1, 80) = 4.50$, $p = .037$. Table 1 presents data on race/ethnicity, sexual orientation, and relationship status. The majority of the participants identified as European American/White and heterosexual. Most participants reported not dating anyone at the time of the study (44.44%) or dating one person exclusively (30.86%).

Table 1

Sample Characteristics

	Nonusers		Users	
Characteristic	*n*	%	*n*	%
Race or ethnicity[a]				
African American or Black	1	1.52	0	0
European American or White	60	90.91	16	100
Hispanic American or Latino	1	1.52	0	0
Biracial or Multiracial	3	4.55	0	0
Other	1	1.52	0	0
Sexual Orientation				
Heterosexual	65	98.48	15	93.75
Homosexual	1	1.52	0	0
Bisexual	0	0	1	6.25
Relationship Status[b]				
Never dated anyone	3	4.62	2	12.50
Not dating anyone now	33	50.77	3	18.75
Dating one person casually	5	7.69	0	0
Dating more than one person casually	3	4.62	3	18.75
Dating one person exclusively	19	29.23	6	37.50
Engaged	0	0	2	12.50
Married	1	1.54	0	0
Other	1	1.54	0	0

Note. Unless otherwise noted, n = 66 nonusers and n = 16 users.
[a]No one checked Asian American or Native American or American Indian.
[b]One nonuser did not answer this section, n = 65 nonusers and 16 users.

Questionnaire

The questionnaire consisted of three sections (see Appendix A). Section 1 asked about previous use of "substances aimed at enhancing sexual performance" and provided examples (i.e., "Drugs such as Viagra, Cialis, or Levitra," "Commercially available performance enhancers such as Enzyte," "Herbs or other substances, such as maca root, yohimbe extract, goat weed, topical creams, etc."). Participants were then asked to check which of the following three options applied to them: (a) "I have used a drug or other substance aimed at enhancing sexual performance," (b) "I have not used a drug or other substance aimed at enhancing sexual performance, but I know guys who have," (c) "I have not used a drug or other substance aimed at enhancing sexual performance, and I do not know any guys who have." For the second semester of data collection, the final two options were changed to "I have not used a drug or other substance aimed at enhancing sexual performance, but I have done something similar to this" and "I have not used a drug or other substance aimed at enhancing sexual performance, and I have not done something similar to this," respectively. We altered these responses to identify participants who had used SEDs but did not view themselves as doing so (false-negatives).

Participants who endorsed (a) having used SEDs were instructed to answer the questions in Section 1 based on their experience, choosing the time that stood out most if they had multiple experiences. Men who endorsed (b) not having used SEDs but knowing men who had were instructed to answer questions the way they thought such men would answer them. Participants who endorsed (c) not having used SEDs and not knowing men who had (first semester) or not having done something similar (second semester) were instructed to answer questions the way they thought a man might answer them if he had used such drugs or substances. The second semester participants who checked (b) not having used SEDs but having done something similar

were instructed to answer the questions based on their experience, choosing the time that stood out most if they had multiple experiences. We asked all participants to write answers regardless of their previous behaviors to protect their privacy.

Participants then completed a general item asking them to describe the situation (i.e., what led up to the situation, what substance they used, and what happened in the situation). The remainder of Section 1 included more specific open-ended questions, including how they obtained the drug or substance, their reasons for taking it, expected and actual consequences, and other drugs or substances used at the time. This section also included two closed-ended questions that asked respondents to indicate the sexual activities in which they engaged when using the SEDs and to indicate their relationship status at the time they used them.

Section 2 consisted of general items that all participants answered based on their own experiences. The first item provided a list of SEDs and asked the participants to indicate the number of times they had used each item that they endorsed. The remaining questions focused on topics such as general drug-use history, erectile difficulties, opinions and attitudes regarding sex, and desired and actual sexual outcomes. Section 2 also included the Sex Motives Scale (SMS; Cooper, Shapiro, & Powers, 1998).

The SMS (Cooper et al., 1998) is a 29-item, self-administered measure that is based on a functionalist perspective of human behavior and consists of two dimensions (i.e., approach vs. avoidance, autonomy vs. relatedness). These two dimensions cross to form four broad categories of motives: self-focused approach, self-focused aversive, social approach, and social aversive motives (Cooper et al., 1998).

Participants indicated how important each of the reasons was to them, using a scale ranging from 1 (*not at all important*) to 5 (*extremely important*). Cooper at al. (1998) reported

that the items load onto six factors: intimacy motives (e.g., “How important is it for you to have sex to become closer with your partner?”), enhancement motives (e.g., “How important is it for you to have sex just for the excitement of it?”), self-affirmation motives (e.g., “How important is it for you to have sex because it makes you feel more self-confident?”), coping motives (e.g., “How important is it for you to have sex because it helps you feel better when you’re feeling low?”), peer pressure motives (e.g., “How important is it for you to have sex so that others won’t put you down about not having sex?”), and partner approval motives (e.g., “How important is it for you to have sex because you worry that your partner won’t want to be with you if you don’t?”). Each scale has five items, except for partner approval, which has four items. Intimacy and enhancement are social approach and self-focused approach motives, respectively. Self-affirmation and coping are self-focused aversive motives, and peer pressure and partner approval are social aversive motives.

Studies in both college student and community samples have demonstrated the psychometric adequacy of these scales. Data from a community sample of sexually experienced college students, with an average age of 21.5 years, yielded the following reliability coefficients (Cronbach’s alpha), respectively: .90, .87, .89, .69, .87, and .84. The sex motives also related to distinctive patterns of sexual risk taking (Cooper et al., 1998). We included a carefulness check within the SMS that instructed participants to “cross out the one” to show that they are reading the items.

Section 3 included questions about demographic information and sexual behaviors. It presented a list of sexual activities and asked participants to indicate whether or not they had engaged in each, the number of times they had done so, and the number of individuals with whom they had engaged in each behavior. A question also asked respondents to indicate the

number of individuals with whom they had engaged in sexual activity (including oral, penile-vaginal, and/or anal sex) during the past year. We assessed lifetime sexual history by asking participants to indicate the age at which they had engaged in various sexual activities for the first time and the number of people with whom they had engaged in these activities. Finally, a question asked about masturbation frequency; it provided a list of response options ranging from having never masturbated to doing so multiple times a day.

Procedure

Participants anonymously completed the questionnaire in groups of no larger than 15. They were seated in alternate seats to protect their privacy. They were given a consent form to read, which included the purpose of the study and their rights as participants. The questionnaire was structured so that everyone could complete it, regardless of their experiences with SEDs. When finished, participants turned in their completed questionnaires in manila envelopes and were given a debriefing form. The study was approved by the university's institutional review board. See Appendices B, C, and D for the consent form, debriefing form, and protocol, respectively.

Data Analysis

We first analyzed the participants' experiences of using SEDs reported in Section 1 of the questionnaire. For these analyses, we only used the data from participants who had used an SED. We used the constant comparison method (Glaser & Strauss, 1967) to code the responses. More specifically, we and a group of undergraduate research assistants developed and modified coding categories based on themes that emerged from the narratives. Participants' responses were coded with these categories. We supplemented frequencies of the user characteristics with quotes from their narratives to illustrate the findings.

Before analyzing participants' reports of their sexual activity during that the past year (number of times and individuals) and lifetime (age at first time, number of individuals), we checked the data for inconsistencies. For example, the number of individuals with whom a participant engaged in a sexual activity in the past year should have been less than or equal to the number of individuals with whom he has ever engaged in the sexual activity. In the few cases inconsistencies could not be resolved, we treated the data as missing.

Although we requested numerical responses for the sexual activity questions, many participants wrote answers such as "a lot" or "not sure." We estimated these data for past year number of times and past year and lifetime number of individuals, respectively, by using the 90^{th} percentile scores for each sexual activity. We assumed that if a participant did not know or remember how many times or with how many people he had engaged in an activity, he likely did so many times or with a lot of people, respectively. For the number of times activities were performed during the past year, we analyzed only penile-vaginal intercourse (PVI) and performing penile-anal intercourse (PAI). Respondents' estimates of the number of times they engaged in these activities were likely more accurate than those for activities such as kissing, and only one participant reported ever receiving PAI. If the 90^{th} percentile score for the number of individuals with whom a participant engaged in a sexual activity was greater than the number of individuals with whom he had ever engaged in the activity, we used the lifetime response as the estimate for the past year response. We did not estimate participants' age for engaging in each behavior for the first time, and we treated inappropriate responses (e.g., nonnumeric responses that did not suggest a particular age) as missing.

Next, we compared user and nonuser data with each other. We used chi-square analyses to compare their frequencies of engaging in each sexual activity. Chi-square might not have been

valid in these tests because 25% or more of the cells had expected values less than five, so we derived *p* from Fisher's exact test. We then analyzed the continuous sexual activity data (e.g., number of sexual partners for various behaviors) using multiple analyses of variance (ANOVAs). Our rationale for performing multiple ANOVAs and thus increasing the risk for Type I Error was that the study is exploratory and we did not want to lose participants who did not report engaging in certain activities.

Finally, we compared the user and nonuser SMS data using a MANOVA and analyzed the individual factors via the univariate tests.

Results

SED User Characteristics

SEDs used. Table 2 lists the SEDs reported by the users. Seven participants (43.75%) described a situation in which they used Viagra. Three participants (18.75%) reported using multiple SEDs but did not indicate which specific experiences they were discussing in their narratives. Their narratives likely consisted of an amalgamation of multiple episodes of SED use. For example, one man wrote, "last Summer I worked at [name of supplement company] so was able to try a lot of products for relatively no charge" (Participant #203; except for correcting misspellings, quotes are verbatim), and he later reported having used Enzyte, yohimbe extract, l-arginine, and Ecstasy for the purpose of enhancing sexual performance via the list of SEDs provided in Section 2 of the questionnaire. The other two participants who reported using multiple SEDs used Viagra and Cialis and Viagra and Pro Solutions, respectively. The majority of the users (56.25%) thus reported having used Viagra.

Many participants reported using substances other than PDE-5 inhibitors. Although it is considered a recreational drug, two men described situations in which they used Ecstasy to

enhance their sexual performance. One man reported using a topical cream called Mandelay. Participant #126 wrote, “I do not remember exactly what the name of the substance was called but I believe it had the word blue in it and it was a shot of some type of liquid.” Based on this response, we classified him as using Liquid Blue, which is sold as a male sexual-enhancement product.

The source of the SEDs. Although seven men described situations in which they used the prescription drug Viagra, only one man reported having a prescription for it at the time (see Table 2). Three participants who had used Viagra described obtaining it from a friend or coworker. Two participants who had used Viagra described stealing or taking it from someone—that is, they obtained the drug from someone without that person’s knowledge or consent. For example, Participant #130 wrote, “I found one in my father’s medicine box, and tried one,” and Participant #136 wrote, “In my buddy’s house there was a prescription of Viagra. I stole one took it. It worked and I proceeded to sexual intercourse.” The remaining man who used Viagra wrote, “When I was in Mexico over spring break of that year [senior year of high school] I found some Viagra for sale there in a shop at my resort” (Participant #240). We coded his source as *Other*, as opposed to *Retail or store*, because purchasing the SED from a resort in Mexico is qualitatively quite different from purchasing it at a retail store. We coded a participant who reported obtaining SEDs by working at a supplement store (Participant #203) as *Other* because having access to products due to one’s employment is a different experience than purchasing them at a store.

Three men (18.75%) reported obtaining the SEDs from the internet; two of these three men described using multiple SEDs. One of the men who reported using Ecstasy reported obtaining it from “drug dealers. Non-pharmaceutical means” (Participant #112).

Table 2

SED Characteristics

Characteristic	*n*	%
SED		
Viagra	7	43.75
Enzyte	1	6.25
Magna RX	1	6.25
Ecstasy	2	12.50
Liquid Blue	1	6.25
Topical Cream	1	6.25
Multiple SEDs	3	18.75
Source		
Prescription	1	6.25
Friend or coworker	3	18.75
Relative	1	6.25
Sex partner	1	6.25
Retail or store	2	12.50
Internet	3	18.75
Drug dealer	1	6.25
Stolen or taken	2	12.50
Other	2	12.50

Note. SED = sexual-enhancement drug.

When they used the SEDs. The mean age at which participants used the SEDs was 19.17 years (*SD* = 2.69; range = 16–27). One user did not clearly indicate an age. Five of the men who reported using SEDs (31.25%) did so when they were 17 years old or younger. One man described an experience that occurred when he was 27; the remaining users were 21 or younger at the time.

Reasons for using SEDs. As shown in Table 3, half of the users reported reasons for using SEDs that concerned curiosity or experimentation. For example, the participant who reported buying Viagra at a resort in Mexico wrote, "I was curious because I had done a big project over erectile dysfunction and I wanted to test the products I researched" (Participant #240). Four of the men (25%) reported using the SED to enhance their sexual performance or experience (e.g., "use it for lasting longer," Participant #127). Notably, three men (18.75%) reported using SEDs because of sexual difficulties; Participant #231 indicated that he "was having problems with premature ejaculation or erectile dysfunction" and Participant #136 reported that he "got whiskey dick and couldn't get a boner." One man (Participant #203) reported using multiple SEDs because they were "free and I wondered if they worked," which we coded as *Curiosity* and *Other* (to account for the SEDs being free).

Table 3

Reasons for using SEDs

Reasons	*n*	%
Erectile or sex difficulties	3	18.75
Curiosity or experimentation	8	50.00
Increase penis or erection size	2	12.50
Enhance sexual performance	4	25.00
Other	1	6.25
Vague	1	6.25

Note. SED = sexual-enhancement drug. Percentages do not add to 100% because some participants reported multiple reasons for using the SED.

Expected and actual consequences for using SEDs. Overall, the men who used SEDs reported expecting positive consequences concerning enhancing sexual functioning (see Table 4). For example, one man wrote, "I expected buck wild crazy sex all night, but once you run out of energy, you just run out of energy" (Participant #209). Another respondent wrote "pleasing women" (Participant #121) as an expected outcome of using the SED. The modal negative consequence expected by the users was financial concerns—but this was reported by only two men (12.50%). Interestingly, three users (18.75%) reported expecting no consequences.

The SED users also reported actually experiencing largely positive consequences. Four participants (25.00%) indicated that using the SED resulted in their "lasting longer" during sexual activities, and three (18.75%) described obtaining multiple erections. Participant #127 wrote the following narrative:

> What led up was my girlfriend having a house to herself and inviting me over for a night. I used Viagra in order to be able to go multiple times, what happened in the situation was what was intended I was able to go multiple times. (Participant #127)

None of the participants discussed pleasing their sex partner as a consequence of using the SED. Mirroring the expected consequences, two men (12.50%) described the drug's cost as a negative outcome of using it. Both of these men reported using multiple substances, including Viagra. Two men (12.50%)—who had used Viagra and Liquid Blue—reported experiencing no consequences from using the SED. One man reported expecting "Nothing, as I knew I didn't have any sexual arousal problems"; he reported that, as expected, "Nothing happened" (Participant #106). Another man reported expecting "better more enjoyable sex" but finding that "I did not feel any difference" (Participant #126).

Table 4

Consequences from Using SEDs

	Expected		Actual	
Consequence	*n*	%	*n*	%
Positive				
Enhance erection	3	18.75	2	12.50
Obtain an erection	2	12.50	2	12.50
Obtain multiple erections	2	12.50	3	18.75
Enhance sex experience	3	18.75	3	18.75
Last longer	3	18.75	4	25.00
Increase sex drive	0	0	2	12.50
Please sex partner	1	6.25	0	0
Negative				
Money or cost	2	12.50	2	12.50
Medical risks	1	6.25	0	0
Legal risks	1	6.25	0	0
Inconvenience of SED	0	0	1	6.25
Erection not go down	1	6.25	1	6.25
None	3	18.75	2	12.50
Other	0	0	3	18.75
Vague	3	18.75	2	12.50

Note. SED = sexual-enhancement drug. Percentages do not add to 100% because some participants reported multiple expected and/or actual consequences from using the SED.

Relationships and sexual activities performed when using SEDs. Table 5 lists the frequencies of the sexual behaviors performed while using the SEDs and the users' relationships with the individuals with whom they engaged in these behaviors. All of the users reported engaging in sexual activity when they used the SED; 15 reported engaging in sexual activity with another person, and one reported only masturbating. Fourteen of the 16 users (87.50%) reported engaging in PVI. Both of the participants who performed PAI also engaged in PVI.

The modal response for the users' relationship with their sexual partners was girlfriend (37.50%) followed by a one-night stand or someone they had just met (18.75%; e.g., "friend/stranger met her earlier that night," Participant #203). Concerning their relationship at the time they used the SEDs (see Table 6), seven men (43.75%) reported dating one person exclusively; these participants consist of the six men who engaged in sexual activity with their girlfriend and the man who engaged in sexual activity with a dating partner, respectively.

Table 5

Characteristics of Sexual Activities during SED Use

Characteristic	*n*	%
Relationship with sexual partner		
No sexual activity with another person	1	6.25
Girlfriend	6	37.50
Dating partner	1	6.25
Friend or acquaintance	2	12.50
Friend with benefits	1	6.25
One-night stand or someone just met	3	18.75
Vague or did not specify	2	12.50

Table 5 *(continued)*

Characteristics of Sexual Activities during SED Use

Characteristic	*n*	%
Sexual activity[a]		
Kissing	15	93.75
Having someone stimulate your genitals	15	93.75
Stimulating someone's genitals	13	81.25
Performing oral sex	12	75.00
Receiving oral sex	14	87.50
PVI	14	87.50
Performing PAI	2	13.33
Receiving PAI	0	0
Masturbation	7	43.75

Note. SED = sexual-enhancement drug; PVI = penile-vaginal intercourse; PAI = penile-anal intercourse.
[a]Percentages do not add to 100% because most participants reported engaging in multiple sexual activities.

Table 6

Relationship Status at Time of SED Use

Relationship	*n*	%
Never dated anyone	1	6.25
Not dating anyone at the time	4	25.00
Dating one person casually	1	6.25
Dating more than one person casually	3	18.75
Dating one person exclusively	7	43.75

Note. SED = sexual-enhancement drug.

Other substances used during SED use. Eight of the participants reported using alcohol and/or recreational drugs at the time they used the SED, as is shown in Table 7. Reported recreational drugs included marijuana, cocaine, and Ecstasy (this participant did not report using Ecstasy for sexual-enhancement purposes). Three men (18.75%) were unclear about their use of alcohol and recreational drugs; for example, one respondent wrote that he used "everything except heroine and crystal meth" (Participant #112). A few men reported that using alcohol and/or recreational drugs influenced their decision to use the SED; Participant #136, for example, wrote that he used the SED "Because I got whiskey dick and couldn't get a boner."

Some of the participants also reported that they had been using psychiatric medications at the time they used the SED (e.g., Adderall, Lamictal, Seroquel, Xanax). One man noted that his using Adderall influenced his decision to use Viagra because "Adderall also kills your stiffy" (Participant #136). Seven (43.75%) of the users indicated using substances to enhance physical

performance, such as products containing protein and creatine, and none of them described the substances as influencing their decision to use an SED.

Table 7

Other Substances Used at Time of SED Use

Substance	*n*	%
Alcohol and recreational drugs		
None	5	31.24
Alcohol	5	31.25
Alcohol and recreational drugs	3	18.75
Vague	3	18.75
Mental-performance enhancing substances		
None	12	75.00
Adderall	3	18.75
Caffeine	1	6.25
Physical-performance enhancing substances		
None	9	56.25
Athletic supplements	7	43.75
Prescription drugs		
None	13	81.25
Psychiatric medications	3	18.75

Note. SED = sexual-enhancement drug.

Comparisons between SED Users and Nonusers

Sex Motives Scale. A MANOVA indicated a difference between the SED users and nonusers in the SMS data, Wilks' Lambda = 0.85, $F(6, 75) = 2.28$, $p = .04$. The univariate analyses revealed that the users endorsed the enhancement motives as being more important reasons for them to have sex than did the nonusers, $F(1, 80) = 8.26$, $p = .0052$ (see Table 8). We found no other significant differences between the two groups among the SMS factors.

Table 8

Sex Motives Scale (SMS) Subscale Scores of the SED Users and Nonusers

	Nonusers		Users		
SMS subscales	*M*	*SD*	*M*	*SD*	*F*
Intimacy Motives	3.98	0.97	4.24	0.97	0.88
Enhancement Motives	4.03	0.82	4.64	0.36	8.26**
Self-Affirmation Motives	2.78	0.88	2.73	1.13	0.05
Coping Motives	2.38	0.83	2.65	1.08	1.23
Peer Pressure Motives	1.45	0.65	1.45	0.62	0.00
Partner Approval Motives	1.64	0.77	1.69	0.80	0.05

Note. SMS subscale scores can range from 1 (*not at all important*) to 5 (*extremely important*).
SED = sexual enhancement drug.
**$p < .01$.

Sexual activities. Tables 9 and 10 summarize the sexual activity data for SED users and nonusers. Penetrative PAI yielded the most differences between the two groups. We did not include receptive PAI in the analyses because only one man reported having ever engaged in this activity. More of the users than the nonusers reported performing PAI in the past year (53.33%

and 20%, respectively) and across their lifetime (56.25% and 21.88%, respectively). Furthermore, participants who had used SEDs reported performing PAI with more individuals over the past year (M = 0.73 and M = 0.20, respectively) and lifetime (M = 1.19 and M = 0.28, respectively) than their nonuser counterparts. We did not find such differences, however, in the number of times participants engaged in penetrative PAI or the age at which they first engaged in the behavior.

Differences between SED users and nonusers in PVI also emerged from the data but not to the same extent as PAI. Although users were not more likely to have engaged in PVI during the past year or their lifetime, they had engaged in PVI with more sex partners (M = 8.75) during their lives than did nonusers (M = 4.87). In contrast to the PAI findings, SED users also engaged in PVI more times (M = 76.07 times) during the past year than did nonusers (M = 41.95 times). Interestingly, we found no differences in the age at which the participants engaged in the various sexual activities for the first time. The users were older than the nonusers, however, and still might have had more time to find partners even if they did not start doing so earlier in life.

Participants indicated how often they currently masturbate on a scale ranging from *I have never masturbated* to *I masturbate more than once a day*. We dichotomized the scale into *once a week or less* and *more than once per week*. Twelve users (80.00%) and 41 nonusers (64.06%) reported masturbating more than once per week, respectively (not a significant difference, Fisher's exact test, p = .36, phi = .13).

Table 9

Numbers and Percentages of the SED Users and Nonusers Who Reported Having Engaged in Various Sexual Activities

	Nonusers		Users		
Sexual Activity	*n*	%	*n*	%	*p*
		Past year			
Kissing	65	98.48	15	93.75	.35
Having someone stimulate					
your genitals	58	87.88	15	93.75	.68
Stimulating someone's[a]					
genitals	55	83.33	13	81.25	1.00
Performing oral sex	49	75.38	14	87.50	.50
Receiving oral sex	55	83.33	14	87.50	1.00
PVI	51	77.27	14	87.50	.50
Performing PAI[b]	13	20.00	8	53.33	.02*
Receiving PAI	1	1.56	0	0	1.00
		Lifetime prevalence			
Kissing[c]	65	100	16	100	.45
Having someone stimulate					
your genitals[d]	59	90.77	16	100	.59
Stimulating someone's					
genitals[e]	57	87.69	13	81.25	.45

Table 9 *(continued)*

Numbers and Percentages of the SED Users and Nonusers Who Reported Having Engaged in Various Sexual Activities

	Nonusers		Users		
Sexual Activity	*n*	*%*	*n*	*%*	*p*
Lifetime prevalence					
Performing oral sex[f]	53	81.54	15	93.75	.45
Receiving oral sex[g]	57	87.69	15	93.75	.68
PVI[h]	52	80.00	15	93.75	.28
Performing PAI[i]	14	21.88	9	56.25	.01*
Receiving PAI[j]	1	1.59	0	0	1.00

Note. SED = sexual enhancement drug; PVI = penile-vaginal intercourse; PAI = penile-anal intercourse. Unless otherwise noted, n = 66 nonusers and n = 16 users. For these analyses, *p* was based on Fisher's exact test; chi-square tests might not have been valid because some of the cells had an expected value less than 5.
[a]n = 65 nonusers and 16 users.
[b]n = 65 nonusers and 15 users.
[c]n = 65 nonusers and 16 users.
[d]n = 65 nonusers and 16 users.
[e]n = 65 nonusers and 16 users.
[f]n = 65 nonusers and 16 users.
[g]n = 65 nonusers and 16 users.
[h]n = 65 nonusers and 16 users.
[i]n = 64 nonusers and 16 users.
[j]n = 63 nonusers and 15 users.
*$p < .05$.

Table 10

Sexual History Variables for the SED Users and Nonusers

	Nonusers		Users		
Sexual activity	*M*	*SD*	*M*	*SD*	*F*
Number of sexual partners for this behavior during the past year					
Kissing	5.83	6.06	6.56	6.43	0.18
Having someone stimulate your genitals	2.75	2.69	3.75	3.86	1.49
Stimulating someone's genitals	2.33	2.21	3.50	3.61	2.73
Performing oral sex	1.58	2.12	2.75	4.04	2.59
Receiving oral sex	2.57	2.72	3.19	4.15	0.52
PVI	2.40	2.74	3.13	3.95	0.75
Performing PAI	0.20	0.40	0.73	0.88	12.68***
Number of sexual partners for this behavior across their lifetime					
Kissing	22.75	24.02	32.70	19.19	2.21
Having someone stimulate your genitals	8.32	11.47	14.59	12.86	3.64
Stimulating someone's genitals	7.33	8.92	13.00	13.64	4.09*
Performing oral sex	3.26	3.79	7.00	8.70	6.60*
Receiving oral sex	7.10	11.19	11.91	14.77	2.04
PVI	4.87	6.08	8.75	8.40	4.40*
Performing PAI	0.28	0.58	1.19	1.42	15.96***
Age of first experience with this sexual behavior					
Kissing	13.29	3.12	12.33	2.89	1.16

Table 10 *(continued)*

Sexual History Variables for the SED Users and Nonusers

	Nonusers		Users		
Sexual activity	*M*	*SD*	*M*	*SD*	*F*
Age of first experience with this sexual behavior					
Having someone stimulate your genitals	15.66	1.61	15.00	1.93	1.94
Stimulating someone's genitals	15.58	1.63	15.38	1.89	0.14
Performing oral sex	16.32	1.37	16.40	1.68	0.04
Receiving oral sex	16.26	1.20	15.67	1.68	2.46
PVI	16.63	1.12	16.07	1.27	2.63
Performing PAI	17.79	1.53	16.56	6.00	0.55
Estimated number of times they engaged in selected sexual behaviors in the past year					
PVI	41.95	50.57	76.07	48.44	5.32*
Performing PAI	1.09	6.21	1.71	2.79	0.13
Reported number of sex partners in the past year (including oral sex, PVI, and/or PAI)					
Number of partners	3.51	4.05	4.13	4.38	0.29

Note. SED = sexual enhancement drug; PVI = penile-vaginal intercourse; PAI = penile-anal intercourse. We excluded receiving PAI from these analyses because only one participant reported having ever engaged in this activity.
*$p < .05$. ***$p < .001$.

Discussion

Sixteen participants reported using a substance to enhance sexual performance. Of the men who completed the screening questionnaire, 4.65% endorsed using a substance to enhance sexual performance. This percentage is somewhat lower than that found by Musacchio and colleagues (2006; 6%) and much lower than that found by Freitas and colleagues (2008; 15%).

Considering that the current study had more inclusive criteria for SEDs than did these two studies, it is interesting that the screening question resulted in a smaller prevalence than they found. These findings, however, must be interpreted with caution because the majority of these men did not participate in the study, and the behaviors they were referencing are thus unclear.

Characteristics of SED Users

Viagra was the most commonly used SED, followed by herbal blends (e.g., Enzyte, Magna RX, Liquid Blue) and Ecstasy. Although the efficacy of herbal and plant-derived products is unclear, they are popular alternatives to medical approaches for sexual health; furthermore, these products are not regulated by the FDA, and can be easier to obtain and cheaper to purchase than the PDE-5 inhibitors (Rowland and Tai, 2003). The SEDs reported in this study promote a variety of claims, such as ED treatment (Viagra), penis enhancement (Magna RX), and premature ejaculation prevention (Mandelay).

Although it is often viewed as a club drug, two men reported using Ecstasy for sexual purposes. These participants' conceptualizations of the drug as a means of enhancing sexual performance suggests that their experiences might have been qualitatively different if they had used them for other recreational purposes (e.g., to enhance a rave experience). Ecstasy can enhance sexual experiences by increasing physical sensation and sexual desire. It can also, however, result in temporary ED, and there are reports of men using Viagra along with Ecstasy ("sextasy") to overcome these effects (Smith & Romanelli, 2005). Neither of the men who used Ecstasy to enhance their sexual experiences reported erectile difficulties or the use of an ED medication to treat such effects. Furthermore, a participant who had access to multiple herbal products due to his job reported using alcohol, cocaine, and Ecstasy, noting that he used the SEDs but did not need them.

Only one of the men who used Viagra reported obtaining it from a medical professional, and the means by which the other men obtained the drug included receiving it from a friend or coworker and taking it from someone. These findings are consistent with those of the before-mentioned studies of ED medication use in college-age men in that the majority of these men did not have prescriptions for the medication.

Most of the men who reported using SEDs did not indicate that they were experiencing sexual difficulties when they took them. They discussed reasons relating to curiosity and enhancing sexual performance, and their narratives suggested that their sexual performance without drugs was within normal limits. Because ED is less common in younger men than older men, younger men might conceptualize Viagra and other SEDs as means of enhancing sexual experiences as opposed to treating sexual problems. College-age users of SEDs, therefore, might not view Viagra as a medical treatment, per se, and thus underestimate the risk of potentially adverse outcomes. Although two men alluded to the possibility of experiencing a priapism, most of the Viagra users did not express concerns about the possible adverse health effects of taking the ED medication, which is concerning considering that many of them reported using other substances at the time.

Comparisons between SED Users and Nonusers

Participants who endorsed having had used an SED were more likely to have engaged in penetrative PAI and did so with more individuals than those who did not endorse having had used such substances. Muehlenhard and Shippee (in press) suggested that, for men, PAI might be "a proxy for some other characteristic such as being more sexually adventurous, having sex with more partners or with partners they did not know well, or having sex in more novel situations" (p. 12). This idea is consistent with various findings of the current study. Users reported having

engaged in multiple sexual activities with more partners than those who did not use SEDs, and curiosity or experimentation was a commonly endorsed reason for using these substances. The act of using a product to enhance sexual performance in itself can be viewed as adventurous, particularly considering that most of these men did not report experiencing ED.

Men who reported SED use endorsed self-enhancement as being a more important reason for them to have sex than did the men who did not report SED use. Enhancement motives are self-focused and positively reinforcing (Cooper et al., 1998). Considering that they reported using substances to enhance sexual performance, their endorsing enhancing pleasure as a more important reason for sex than their nonuser counterparts is understandable. Interestingly, this motivational difference was not limited to the particular episodes of SED use and extended to their sexual behaviors in general.

We found no group differences in the ages at which users and nonusers engaged in various sexual activities for the first time. Although the men who used SEDs did not begin experimenting with partnered sexual behaviors before those who did not use them, the former group was older than the latter group and thus had more time to engage in these behaviors and to do so with more people. The majority of the narratives, however, occurred when the SED users were younger than the current mean age of the nonusers (i.e., 9 of the users were younger than 19.38 when they used the SED).

Limitations and Future Directions

The current study explored male college students' experiences of using SEDs and compared characteristics of these men to those of men who had not used them. Previous research suggests a relationship between recreational ED medication use and increased risk for STIs (Swearingen & Klausner, 2005). Considering that curiosity and pleasure enhancement emerged

as reasons underlying characteristics of the users' sexual behaviors, it could be useful to further explore the associations between motivations for sex, SED use, and risky sexual behaviors in college men. The current study did not assess risk behaviors such as unprotected sex or outcomes such as STIs.

Our sample was small and heavily White and heterosexual, limiting generalizability. Future research might look at SED use and sex motives in other college-age groups of men. Research on more diverse sexual populations would contribute to the literature concerning the association between ED medication use and sexual risk behaviors in MSM. It would also be interesting to explore the phenomenon of SED use in college-age women. What substances do they use? How do they obtain these substances? Do women who use SEDs endorse enhancement motives as more important for having sex than those who do not?

We provided broad inclusion criteria for SEDs, which encompassed PDE-5 inhibitors, herbal and plant-derived products, topical creams, and Ecstasy in some cases. In contrast to ED medications such as Viagra, the herbal products in this study tended to be advertised for sexual enhancement rather than treatment. A larger sample might provide insight into differences based on the substances that men choose to use. For example, do men who use Viagra engage in more sexual risk behaviors than those who use nonprescription enhancers?

Conclusions

Male college students reported using substances to enhance sexual performance. Their reasons for taking these SEDs focused more on exploration and enhancement and less on actual sexual dysfunction. Further research investigating the use of ED medications and other sexual-enhancement products could contribute to the study of male sexuality and risk.

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Appendix A

DO NOT PUT YOUR NAME OR KUID ON THIS QUESTIONNAIRE

This study is about college men's use of drugs or other substances aimed at enhancing sexual performance. This could include the following:

- Drugs such as Viagra, Cialis, or Levitra.
- Commercially available performance enhancers such as Enzyte
- Herbs or other substances, such as maca root, yohimbe extract, goat weed, topical creams, etc.

1. Check which of these applies to you, and follow the directions for that choice. *(check one)*

☐ I have used a drug or other substance aimed at enhancing sexual performance (Viagra, Cialis, Levitra, Enzyte, herbs, or other substance).
DIRECTIONS: Answer the questions on pages 1-5 (questions 2-17) thinking about your experience. If you have had more than one experience like this, choose the time that stands out most in your mind.

☐ I have not used a drug or other substance aimed at enhancing sexual performance, but I have done something similar to this.
DIRECTIONS: Answer the questions on pages 1-5 (questions 2-17) thinking about your experience. If you have had more than one experience like this, choose the time that stands out most in your mind.

☐ I have not used a drug or other substance aimed at enhancing sexual performance, and I have not done something similar to this.
DIRECTIONS: Answer the questions on pages 1-5 (questions 2-17) the way you think a guy might if he had used these drugs or substances. (The purpose is to protect everyone's privacy by having everyone write, regardless of their experience.)

2. Describe a time that you used this drug or substance. Include:
   • what led up to the situation,
   • what substance you used, and
   • what happened in the situation.

Section 1: Continue, describing the same situation as on p. 1.

3. When did you use this drug/substance: How old were you? What was your year in high school or college?

4. How did you obtain this drug/substance? (Answer in general terms; do not use anyone's name.)

5. What were your reasons for using this drug/substance?

6. What positive and/or negative consequences did you *expect* from using this drug/substance?

7. What positive and/or negative consequences *actually occurred* after using this drug/substance?

Section 1: Continue, describing the same situation as on p. 1.

8. At the time, did you use any alcohol or recreational drugs? If so, what did you use? How, if at all, did this influence your decision to use the sexual-enhancement drug/substance?

9. In which sexual activities did you engage when using the sexual-enhancement drug/substance?

No____ Yes____ Kissing

No____ Yes____ Having someone stimulate your genitals

No____ Yes____ Stimulating someone's genitals

No____ Yes____ Performing oral sex

No____ Yes____ Receiving oral sex

No____ Yes____ Penile-vaginal intercourse

No____ Yes____ Performing penile-anal intercourse

No____ Yes____ Receiving penile-anal intercourse

No____ Yes____ Masturbation

No____ Yes____ Other: _____

10. If you engaged in sexual activity with someone, what was your relationship with this person?

11. Had you been using a drug or other substance for the purpose of enhancing your ***mental*** performance (such as a drug/substance to help you stay awake or concentrate better)? If so, what did you use?

How, if at all, did this (in reference to item 11) influence your decision to use the sexual-enhancement drug/substance?

Section 1: Continue, describing the same situation as on p. 1.

12. Had you been using a drug or other substance for the purpose of enhancing your ***physical*** performance (such as a drug/substance to help you work out or build muscle)? If so, what did you use?

    How, if at all, did this (in reference to item 12) influence your decision to use the sexual-enhancement drug/substance?

13. Had you been using any prescription drugs (such as antidepressants), whether or not they were prescribed to you, for medical or mental health purposes? If so, what did you use?

    How, if at all, did this (in reference to item 13) influence your decision to use the sexual-enhancement drug/substance?

14. What do you think would have happened if you had not used the sexual-enhancement drug/substance? How do you think the situation would have been different?

Section 1: Continue, describing the same situation as on p. 1.

15. What best describes the relationship(s) you were in at the time you used the sexual-enhancement drug/substance? (*check one)*

___never dated anyone
___not dating anyone at the time
___dating one person casually (i.e., with no agreement to be exclusive)
___dating more than one person casually (i.e., with no agreement to be exclusive)
___dating one person exclusively
___engaged
___married
___other: _____

16. Would you use the sexual-enhancement drug/substance again? Why or why not?

17. Have you told anyone that you used the sexual-enhancement drug/substance? If so, who did you tell and why did you tell them?

Section 2: General Questions
Regardless of which instructions you followed in Section 1,
in this section, answer based on your own experiences and opinions.

1. Have you **ever** used any of the following drugs/substances for the purpose of enhancing sexual performance? If so, indicate the number of times you have used it.

No____ Yes____ Number of times____ Viagra

No____ Yes____ Number of times____ Cialis

No____ Yes____ Number of times____ Levitra

No____ Yes____ Number of times____ Enzyte

No____ Yes____ Number of times____ Maca Root

No____ Yes____ Number of times____ Yohimbe Extract

No____ Yes____ Number of times____ Horny Goat Weed (Epimedium grandiflorum)

No____ Yes____ Number of times____ Long Jack (Eurycoma longifolia)

No____ Yes____ Number of times____ Tribulus Terrestris

No____ Yes____ Number of times____ L-Arginine

No____ Yes____ Number of times____ Topical cream (specify): _____

No____ Yes____ Number of times____ Other (specify): _____

2. If you have **never** taken a drug/substance for the purpose of enhancing sexual performance, would you do so if you had access to one? Why or why not?

3. Have you **ever** used a drug or other substance for the purpose of enhancing your ***mental*** performance (such as a drug/substance to help you stay awake or concentrate better)? If so, what did you use, and what were the circumstances?

4. Have you **ever** used a drug or other substance for the purpose of enhancing your ***physical*** performance (such as a drug/substance to help you work out or build muscle)? If so, what did you use, and what were the circumstances?

Section 2: General Questions (continued)

5. Have you **ever** been diagnosed with a mental condition or major medical condition? If so, which one(s)?

6. Have you **ever** had difficulty getting or maintaining an erection? Explain your answer.

7. What percentage of time that you have wanted to get or maintain an erection have you had difficulty doing so?

8. If you could change something about yourself related to sex, what would it be, and why?

9. In your opinion, what are the biggest difficulties or stresses that men face related to sex?

10. If you had a younger *brother* and he asked your advice about sex, what three things would you tell him?

    1.

    2.

    3.

Section 2: General Questions (continued)

11. In your opinion, what are the biggest difficulties or stresses that *women* face related to sex?

12. If you had a younger *sister* and she asked your advice about sex, what three things would you tell her?

    1.

    2.

    3.

13. What are you looking for in a sex partner?

14. Think about the type of people to whom you are attracted. What do you think they are looking for in a sex partner?

15. How many orgasms would you like to have within one sexual encounter? Explain your answer.

16. On average, how many orgasms do you have within one sexual encounter? Explain your answer.

Section 2: General Questions (continued)

17. How long would you like to be able to maintain an erection before having an orgasm? Explain your answer.

18. On average, how long are you able to maintain an erection before having an orgasm? Explain your answer.

19. How many sexual encounters would you like to have per month? Explain your answer.

20. On average, how many sexual encounters do you have per month? Explain your answer.

21. Think about the last time you engaged in sexual activity with another person. What are some of the reasons why you decided to do so?

Section 2: General Questions (continued)

Listed below are different reasons why people have sex. For each statement, circle the number which best describes how important each reason is for you to have sex, from *1 = Not at all important to 5 = Extremely important*. Remember -- there are no right or wrong answers. We just want to know what you think. Circle your answers.

HOW IMPORTANT IS IT FOR YOU TO HAVE SEX…	Not at all important				Extremely important
...because it helps you feel better when you're feeling low?	1	2	3	4	5
...because people will think less of you if you don't?	1	2	3	4	5
…out of fear that your partner won't love you anymore if you don't?	1	2	3	4	5
...to help you feel better about yourself?	1	2	3	4	5
...to prove to yourself that your partner thinks you're attractive?	1	2	3	4	5
...because it helps you feel better when you're lonely?	1	2	3	4	5
...to make an emotional connection with your partner?	1	2	3	4	5
...because you feel "horny?"	1	2	3	4	5
...to cope with upset feelings?	1	2	3	4	5
...because it feels good?	1	2	3	4	5
…just for the excitement of it?	1	2	3	4	5
...to feel emotionally close to your partner?	1	2	3	4	5
...because you're afraid that your partner will leave you if you don't?	1	2	3	4	5
…you worry that your partner won't want to be with you if you don't?	1	2	3	4	5
...to cheer yourself up?	1	2	3	4	5
...to express love for your partner?	1	2	3	4	5
...to satisfy your sexual needs?	1	2	3	4	5
...because it makes you feel more self-confident?	1	2	3	4	5
...because you don't want your partner to be angry with you?	1	2	3	4	5
…just because all your friends are having sex?	1	2	3	4	5
...because others will kid you if you don't?	1	2	3	4	5
...to help you deal with disappointment in your life?	1	2	3	4	5
...because you worry that people will talk about you if you don't have sex?	1	2	3	4	5
...just for the thrill of it?	1	2	3	4	5
…to show that you are reading this, cross out the one?	1	2	3	4	5
...because it makes you feel like you're a more interesting person?	1	2	3	4	5
…so that others won't put you down about not having sex?	1	2	3	4	5
...to become closer with your partner?	1	2	3	4	5
...to become more intimate with your partner?	1	2	3	4	5
...to reassure yourself that you are sexually desirable?	1	2	3	4	5

Section 3: Demographic Questions

1. What is your age? _____

2. What is your sexual orientation? *(check one)*
_____ Straight (Heterosexual)
_____ Gay (Homosexual)
_____ Bisexual
_____ Unsure
_____ Other (explain): _____

3. What is your race/ethnicity?
_____African American / Black
_____Asian American
_____European American / White
_____Hispanic American / Latino
_____Native American / American Indian
_____Biracial / Multiracial
_____Other: _____

4. Are you an international student? _____No _____Yes

5. What best describes your current relationship(s)? *(check one)*
___never dated anyone
___not dating anyone now
___dating one person casually (i.e., with no agreement to be exclusive)
___dating more than one person casually (i.e., with no agreement to be exclusive)
___dating one person exclusively
___engaged
___married
___other: _____

6. Have you done the following in the **past year**? If so, indicate the number times you have engaged in the activity and the number of individuals with whom you have engaged in it **during the past year**.

Sexual Activity in the Past Year	**No**	**Yes**	**# of Times**	**# of Individuals**
Kissing				
Stimulating someone's genitals				
Having someone stimulate your genitals				
Performing oral sex				
Receiving oral sex				
Penile-vaginal sex				
Performing penile-anal sex				
Receiving penile-anal sex				
Other: _____				

Section 3: Demographic Questions (continued)

7. With how many people have you engaged in sexual activity within the **past year**? Please include oral sex (receiving and/or performing), penile-vaginal sex, and anal sex (receiving and/or performing).

Number of Individuals: _____

8. Have you **ever** done the following? If so, indicate how old you were the first time you engaged in the activity and the number of individuals with whom you have engaged in it.

Lifetime Sexual History	**No**	**Yes**	**Age at first time**	**# of Individuals**
Kissing				
Stimulating someone's genitals				
Having someone stimulate your genitals				
Performing oral sex				
Receiving oral sex				
Penile-vaginal sex				
Performing penile-anal sex				
Receiving penile-anal sex				
Other: _____				

Section 3: Demographic Questions (continued)

9. Check the answer that best describes how often you currently masturbate (whatever that means to you), on average: *(check one)*

_____ I have never masturbated.
_____ I have only masturbated once in my whole life.
_____ I have only masturbated a few times in my whole life.
_____ I masturbate about once a year.
_____ I masturbate once every few months.
_____ I masturbate 1-3 times a month.
_____ I masturbate once a week.
_____ I masturbate 2-3 times a week.
_____ I masturbate 4-6 times a week.
_____ I masturbate once a day.
_____ I masturbate more than once a day.
_____ None of these really describe how often I masturbate. Explain why:

10. General comments: (Please include any comments that would help us better understand the use of sexual-enhancement drugs/substances in college men)

Appendix B

Approved by the Human Subjects Committee Lawrence Campus, University of Kansas. Approval expires one year from 5/6/2008. HSCL #17375

Information Sheet

INTRODUCTION: The Department of Psychology at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You are free to decide whether or not to participate in this study. Even if you agree to participate, you are free to withdraw at any time without penalty. If you do withdraw from this study, it will not affect the credit you received up to that point.

PURPOSE OF THE STUDY: The purpose of the study is to investigate the use of sexual-enhancement substances in male college students.

PROCEDURES and INFORMATION TO BE COLLECTED: This study involves a questionnaire. The questionnaire will be anonymous and will take no more than an hour of your time. The questionnaire will ask questions about college men's use of sexual-enhancement substances. Everyone will be able to fill out this questionnaire, whether or not he has ever had the experiences about which we ask.

ANONYMITY: The questionnaire is completely anonymous. Nowhere on the questionnaire do we ask for your name or KUID, and we have avoided asking questions that might identify you indirectly. As mentioned above, all participants will be able to fill out this questionnaire, regardless of their experience.

RISKS and BENEFITS: We do not anticipate that participating in this study will cause any risks. If you are uncomfortable with any of the questions, you may skip them.

Regarding benefits, we hope that this study will help us gain a better understanding of the use of sexual-enhancement substances in college men.

PAYMENTS: Although you will not receive financial compensation for your time and effort in your participation, you will receive one credit toward your research requirement for every half hour or portion thereof that you participate.

USE OF THE DATA: The data collected in this study will be used by graduate student Eddie Wright, Professor Charlene Muehlenhard, and Professor Muehlenhard's students to better understand sexual-enhancement substance use by college men and its relation to various behaviors and attitudes.

QUESTIONS ABOUT PARTICIPATION: You are free to ask questions during this session. In addition, questions about procedures can be directed to the researchers listed below, and/or to the Human Subjects Committee Lawrence Campus (see next section).

PARTICIPANT CERTIFICATION: I have read this Information Sheet. I have had the opportunity to ask, and I have received answers to, any questions I had regarding the study. I understand that if I have any additional questions about my rights as a research participant, I may call (785) 864-7429 or (785) 864-7385 or write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563, email dhann@ku.edu or mdenning@ku.edu.

Completion of the questionnaire indicates your willingness to participate in this project and that you are at least 18 years old.

Researcher Contact Information

Eddie Wright, B.A.
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Clinical Psychology Graduate Student
ejwright@ku.edu

Charlene Muehlenhard, Ph.D.
Faculty Supervisor
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(785) 864-9860
charlene@ku.edu

Appendix C

Debriefing Form

The purpose of this study is to investigate college men's use of sexual-enhancement substances such as Viagra, Cialis, or Levitra, or herbs such as maca root, yohimbe extract, or goat weed. The questionnaire asked questions about various aspects of using these substances as well as questions regarding sexual behaviors and attitudes. The purpose is to gain a better understanding of the prevalence and qualities of this behavior.

This study is an example of a *qualitative study*. By a *qualitative study*, we mean that rather than giving you a list of answers to choose from, we asked open-ended questions, and you could answer however you liked.

Many people assume that sexual-enhancement substances such as Viagra are only used by older men with erectile difficulties. The results of this study could help us understand the use of these substances in college-age men and its relation to their attitudes and behaviors concerning sex.

Thank you for your participation in this study!

Because of the nature of this research and the personal questions that it involved answering, you may have questions or issues that you would like to discuss further. We have provided information about how to contact us in case you would like to talk about your feelings concerning your participation in this study. We have also listed the phone numbers of some organizations on campus and in Lawrence that provide counseling services in case your participation in this study has raised some issues that you want to talk about with someone.

The graduate student conducting this study:

Eddie Wright

Email: ejwright@ku.edu

The faculty advisor for this study:

Charlene Muehlenhard, Ph.D.

Phone: (785) 864-9860

Email: charlene@ku.edu

Counseling services:

• KU Psychological Clinic, 340 Fraser Hall, (785) 864-4121. Small fee per session.

• Counseling and Psychological Services (CAPS), Watkins Health Center, (785) 864-9580. Small fee per session.

• Headquarters Counseling Center, available 24/7, free of charge, for any concern: (785) 841-2345.

24-hour crisis hotline available, (785) 841-2345. No charge.

To discuss your rights as a research participant:

Human Subjects Committee Lawrence, (785) 864-7429

David Hann, dhann@ku.edu, or Mary Denning, mdenning@ku.edu

Appendix D

PROTOCOL FOR RUNNING DATA-COLLECTION SESSIONS

To Do Prior to the Session:

1. Print a list of the students who have signed up for the study no earlier than 2 hours before the session. To find this, log on to http://ku.sona-systems.com. Username = xxxx, password = xxxx

Click on **My Studies**. Click on **Muehlenhard - Wright 1**. Then, scroll down and click on **View/Administer Time Slots**. You will see the names of students who are signed up for various times. If no students have signed up two hours prior to the start time, the session will automatically be cancelled and you don't have to show up. To print only the names of the people in your timeslot, highlight the names and print the highlighted area.

Research Assistant Timeslots

Day and Time	Research Assistants

2. Pick up our plastic box, which is labeled **Eddie's Study,** in room 452 Fraser. The code for the lockbox is xxxx. Put the key back in the lockbox.

3. Make sure you have enough of the following for your sessions: the protocol for data collection, consent forms, questionnaires, debriefing forms, envelopes, a sign-in sheet, the sign for the door stating the study number, pens, and tape.

To Do in the Classroom:

1. Arrive at the room where the testing session will take place **10-15 minutes before the participants are due**.
2. Post sign with study information on the door.
3. Place consent forms and empty envelopes on alternate chairs or farther apart if there is room. These will be in the box.
4. As students arrive, ask them to print their name legibly on the sign-in sheet.
5. Tell students as they arrive to sit in seats with consent forms. For the sake of privacy, ask a student to move if he or she is too close to another student. Students should not sit immediately side-by-side.
6. **Two minutes** after the session is scheduled to start or once all students who are expected have arrived, shut the door and begin introducing the study.
7. **If only one person shows up**, be aware that he *might* feel uncomfortable about it (but don't assume that he will). Let him know that he can either stay and complete the questionnaire or leave without penalty and sign up for a different session where he won't be the only one. (Remind him that he can seal the envelope and that no

one will ever know his responses.) If someone decides to leave, let Eddie know. He can cancel their participation so they'll be able to sign up again. *Do not bring up the option to leave unless the participant expresses discomfort.*

Introducing the Study:

1. Hello! My name is [YOUR NAME] and this is [THE OTHER RA'S NAME]. We're members of the research team for this study. We'd like to thank you for being here and for participating in this study.

2. Please be sure that your cell phones are off.

3. On your desk is a consent form which explains what we'll be asking you to do for this study. Please read it over. **(Pause.)**

We appreciate your being here and participating in our research. For this research project we will be giving you a questionnaire and asking you to answer some questions. We promise that all of your responses to this questionnaire will remain completely anonymous. We will give you more information about the study when you have completed the questionnaire.

4. **Has everyone had a chance to read the consent form?** (Pause and wait for people who look like they're reading to finish.) **Are there any questions about it?** (Pause)

5. **Okay, if you've decided to participate in this study, remain in your seat.** (People can choose to withdraw and still get credits if they want. If anyone wants to leave, ask them to wait briefly while you finish introducing the study, or, if convenient, the other RA can talk with them. Put a mark beside their name on the sign-up sheet so that you know to give them only one credit.)

6. Pass Out Questionnaires
We'll pass out the questionnaires now. (Pass out questionnaires)

7. We're asking you not to put your name or KUID number anywhere on the questionnaires. We haven't asked any questions that could identify you.

Does anyone have any questions?

Please take your time filling out the questionnaire; you will have until __:50 to complete it. When you are finished, put it in the envelope and turn it in to us. You do not have to seal the envelope, but you may do so if you wish. Do not take out any other materials after you have completed the questionnaire. Please pick up a debriefing form on your way out.
Please don't start until I'm finished giving you the instructions. In this questionnaire, you will be asked if you have used a drug or other substance aimed at enhancing sexual performance. (Pause)
The questionnaire has three sections:

Please look at item 1. (Pause and look) **If you have used a drug or substance aimed at enhancing sexual performance, you will check the first box and answer the questions in Section 1 based on your own experiences.** (Pause)

If you have not used a drug or substance aimed at enhancing sexual performance but you have done something similar, you will check the second box and answer the questions in Section 1 based on these experiences. (Pause)

If you have not used a drug or substance aimed at enhancing sexual performance and have not done something similar, you will check the third box and answer the questions in Section 1 the way you think a guy might if he had used these drugs or substances. Therefore, regardless of whether or not you have used these substances, everyone will be responding to the questions. We have done this to protect your privacy and to ensure that no one in the session will be able to tell who has or has not been in these situations based on who is writing.

Please don't forget to respond to item 2 on the first page. (Point out item 2) **Does anyone have any questions?**

For the other two sections, starting on page 6, you will answer the questions based on your own experiences, regardless of the instructions you followed in Section 1.

Please be sure to read the instructions and complete all parts of the questionnaire.

Again, make sure that your cell phones are turned off.

Does anyone have any questions? (pause) **If you have questions once you start, come up to the front, and we'll try to answer them. OK, you can begin.**

<u>To Do While Students Are Completing Questionnaires:</u>

1. **If a participant arrives a little late** (5-10 minutes late) and you think that they might have time to finish, one RA can give them the consent form and explain the questionnaire quietly in a corner of the room or in the hallway.

   If a participant arrives very little late (more than 10 minutes late), let them know they can sign up for a new time within one week without penalty. If there is another session scheduled immediately after, offer them the opportunity to begin late and finish up during the next session.

2. Try to keep busy (e.g., read a book or do homework) during the session so that participants do not feel self-conscious. Do not stare at them or glance at their answers. Keep discussion with the other RA to a minimum, and if you need to talk to each other, do so quietly.

3. When students have finished with the study, write their finish time on the sign-in sheet. Hand participants debriefing forms on their way out. **Be sure to write the date, number of credits to be awarded, and your initials on the debriefing form.** Each student who completes the study will get two credits.

4. If there is no clock in the room, at __: 40 tell the participants that there are 10 minutes left to complete the questionnaire. At __: 45 tell the participants that there are 5 minutes left to complete the questionnaire. With **5 minutes left**, tell any remaining students to finish up.

5. At __: 50 when the time is up, ask any remaining participants to place their questionnaires in the envelopes and turn them in to you.

<u>To Do After All Students Have Left:</u>

1. Put everything away, and pick up any extra forms in the room. Take down the sign on the door.

2. Leave the sign-in sheets in the box.

3. **Keep the questionnaires with you in a safe and secure place until you turn them in to Room 452 Fraser**

(in the cardboard box labeled **Eddie's Completed Questionnaires).**

Do not take the questionnaires out of the envelopes. Remember that we have promised our participants anonymity, so do not look at the questionnaires that have just been turned in.

4. The RA who takes the box back to the research space (FR 452) is responsible for making sure it is stocked with paperwork and envelopes. If there are 15 or fewer copies of materials, let Eddie know what is needed and he will make copies.

5. If anything unusual happened during the session that might affect the validity of the responses, email Charlene (charlene@ku.edu) and Eddie (ejwright@ku.edu).

6. **If a participant does not show up for a scheduled time**, send his name to Eddie. The participant will be offered the opportunity to sign up for a new time within one week without penalty.

7. Assign Credit: Log on to http://ku.sona-systems.com with the username = **xxxx** and password = **xxxx.** Click on **My Studies**. Click on **Muehlenhard - Wright 1.** Click on **view/administer timeslots** and assign credit. Participants who completed the study receive 2 credits; those who showed up but chose to withdraw before completing the study get 1 credit for every 30 minutes (or portion thereof) that they participated. **Credit must be assigned within 48 hours of completion of the study.**