FEMALE ORGASM FROM INTERCOURSE: IMPORTANCE,

PARTNER CHARACTERISTICS, AND HEALTH

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Previous research indicates that women prefer orgasms triggered by penile-vaginal intercourse (PVI) as compared to those triggered by direct manual stimulation of the clitoris. However, for reasons that are not well understood, most women are unable to reach PVI orgasms as often as they desire. In addition, it is unclear why many women prefer PVI orgasms to those triggered by direct clitoral stimulation. This study developed a more precise measure of PVI orgasm frequency and evaluated key predictors of this frequency, including duration of intercourse, physical and psychological health, and partner traits with implications for either mating quality or relationship quality. The present study also measured PVI orgasm importance and investigated why it is important for many women. The sample consisted of 835 adult women with experience in PVI. Mean PVI orgasm frequency was 50%, with 39.4% of women never or rarely having PVI orgasms, 37.1% sometimes having PVI orgasms, and 23.5% almost always or always having PVI orgasms. As a median response, women believed that PVI orgasm was "very important" and perceived importance was correlated with orgasm frequency ($r = .31$, $p < .001$), as were reasons for importance. Duration of intercourse showed a linear relationship with PVI orgasm frequency, but this finding was qualified for women at the low and high extremes of the orgasm frequency distribution. Body esteem, anxiety during intercourse, exercise, and general pain

predicted PVI orgasm frequency. Sensitive male traits, although valued by women even more highly than alpha male traits, showed notably weaker relationships with PVI orgasm than did male alpha traits. This is consistent with evolutionary theories of orgasm, and it supports the view that the female orgasm may function to favor some males over others in terms of sire choice. Clinical and theoretical implications of the present findings are discussed.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Page

CHAPTER 1

INTRODUCTION

Female orgasm achieved through intercourse is one of the most

pleasurable aspects of many women's lives, but it is also one of the least well

understood. This deficit in understanding has generated an influx of new

research. Although this research has been valuable, it has also generated a

number of unresolved questions. These questions include: "How many women

can have orgasms from intercourse and how many do so with high frequency?";

"For women, how important is having orgasms from intercourse?"; "What are the

problems with current measures of intercourse orgasm and how can this

methodology be improved?", and "What differentiates women who are able to

have orgasms from intercourse with high frequency from those who cannot?"

Differences between Types of Orgasm

Women often experience penile-vaginal intercourse (PVI) orgasms

differently than orgasms obtained through other methods (e.g., direct manual

stimulation of the clitoral area). While orgasms triggered from direct manual or

other stimulation of the clitoris (clitoral orgasms) are described as "intense"

(Butler, 1976; Clifford, 1978; Davidson & Darling, 1989; Hite, 1976;

Robertiello1970), "sharp" (Singer & Singer, 1972), and "localized" (Hite, 1976),

PVI orgasms are typically described as more "satisfying" (Butler, 1976, Lehman

et al., 2004; Clifford, 1978; Davidson & Darling, 1989; Masters & Johnson, 1966; Singer & Singer, 1972), "diffuse," (i.e., less tied to a specific part of the body) (Hite, 1976), and producing higher levels of tension relief (Wallin, 1960). Although both orgasms are described as positive experiences, most women who report experiencing both PVI and clitoral orgasms prefer those from PVI vaginal orgasms (Brody, 2007; Clifford, 1978; Fugl-Meyer et al., 2006).

Women subjectively experience these two types of orgasms differently, but are there physical differences as well? The debate about the quality, health implications, and desirability of clitoral versus PVI orgasms has been going on for nearly a century, beginning with Sigmund Freud (1905), who believed that PVI orgasms are more developmentally "mature" and thus superior to clitoral orgasms. Initially, Freud's theory was widely accepted; however, with time his theory was challenged. Masters and Johnson (1966) proposed that regardless of the method used to obtain orgasm, all orgasms are physiologically identical. Recent research, however, has shown something quite different from what Masters and Johnson initially postulated. For example, Levin (1991; 2006) noted that compared to clitoral orgasms, PVI orgasms involve a greater number of stimulated organs. Nerve impulses from these stimulated organs reach the brain by a different set of nerves than those of clitoral orgasms (Levin, 1991; 2006). Moreover, with PVI orgasms, there is a 400% greater prolactin release than with masturbatory orgasms (Brody & Krüger, 2006). Prolactin release has been linked to tension relief and satiation (Krüger, Haake, Hartmann, Schedlowski, &

Exton, 2002), which may explain the enhanced positive experience associated with PVI orgasm.

Importance

The importance of PVI orgasms has not yet been studied in either a quantitative or a systematic fashion. Qualitative accounts describe PVI orgasms as the "ideal female orgasm" (Lavie-Ajayi & Joffe, 2009) and the ultimate goal of sex (Lavie-Ajayi & Joffe, 2009; Potts, 2000). Perhaps PVI orgasms are considered more pleasurable than clitoral orgasms because the act of intercourse creates simultaneous pleasure for both partners involved. This mutual simultaneous action may seem more elegant and involve less effort than a sequential stimulation of the genitals. In comparison, manual stimulation of the clitoris (whether with or without PVI) is highly effective in producing orgasm, but it may appear awkward and less romantic than orgasm from PVI alone. As such, the media portrays PVI orgasm almost exclusively in romantic sex scenes (Moszynski, Firmin, & Moufflet, 2003). On television and in the movies it is rare to see partnered sex depicted in terms of manual stimulation.

Unfortunately, many women report that the inability to reach PVI orgasms increases feelings of inadequacy (Nicolson & Burr, 2003; Ellis, 1998). Internalized negative emotions may be caused by pressure from the media and from peers to reach orgasm from PVI. Consequently, this pressure may contribute to feelings of shame and inferiority for women (Lavie-Ajayi & Joffe,

2009; Lavie & Willig, 2005; Nicolson & Burr, 2003). Clifford (1978) suggested

that frequent reactions associated with the inability to have PVI orgasms include

worrying about what the partner may think and feeling insecure. In fact, difficulty

with reaching orgasm is the second most reported sexual disorder for women

(Meston, 2004) and one of the most common reasons to seek assistance from a

sexual treatment center (Darling, Davidson, & Jennings, 1991; Kilmann & Mills,

1983).

PVI orgasms are not only valued by women, but many men believe that as

long as their sexual performance is satisfactory, the woman should orgasm

during intercourse (Hite, 2006). Many men see it as their duty to "give" women

orgasms. However, this implies a passive sexual role for women. By placing a

woman in this passive role, the man takes responsibility for her orgasm. This

may in turn make PVI orgasms more difficult to attain because the man does not

have direct access to the women's sense perceptions and she may be hesitant to

direct him on how to sexually please her. Furthermore, because of this role

structure, men may have placed themselves in a bind; they either have to guess

how to sexually please their partners or admit that they are incompetent. Albert

Ellis (1998) reported that many men think that if they are unable to bring their

partner to orgasm during intercourse, then they are sexually weak or inept.

Moreover, if the woman is unable to have an orgasm, it is often thought that she

is not a real woman or he is not a real man (Hite, 2006). These negative

thoughts may cause additional pressure for the woman to have PVI orgasms

because many women believe that their orgasms are important to their partners (Lavie & Willig, 2005; Nicholas & Burr, 2003).

Past research has not differentiated between women who do and do not think PVI orgasms are important. There is no clear basis in either theory or empirical knowledge for anticipating which women place the highest value on PVI orgasms. It may be the case that women who have never had a PVI orgasm do not place much importance on it because they have not had the experience. Conversely, women who never or rarely have PVI orgasms may attribute high importance to PVI orgasms because they feel that they are missing out on something that is especially meaningful. From a market perspective, when a commodity is scarce it is often perceived to be of higher value and this may apply to PVI orgasms as well. On the other hand, women who reach orgasms primarily through PVI may put more weight on the importance of PVI orgasm than women who reach orgasms through other methods (e.g., manual stimulation). If PVI is the primary and most coveted mode of female orgasm, its importance may depend, in part, on how reluctant women would be to give it up. To clarify these issues and gain further insight into which women place the most importance on PVI orgasm, this study examined the relationship between importance and PVI orgasm frequency.

Lastly, it is necessary to determine why women think having PVI orgasms are important. Research suggests that women place importance on PVI orgasms for numerous reasons, including societal pressure, partner pressure,

feeling of inadequacy from not having PVI orgasms, perceived quality of PVI

orgasms compared to clitoral orgasms, considerations stemming from the

perceived aesthetic beauty of intercourse, and factors such as efficiency or

economy of effort. A systematic evaluation is needed on how much the

importance of PVI derives from extrinsic reasons (i.e., external factors), such as

societal, peer, or partner expectations, versus how much of the importance

stems from intrinsic reasons, such as a woman's desire to reach PVI orgasm

because it feels better to her, is more satisfying, or seems more intimate.

Extrinsic factors, including magazines, movies, and television, tell women that

PVI is the "normal" way to reach an orgasm. It may also be important because of

the pressure a partner may place on a woman to have PVI orgasms. A woman

may not want to disappoint her partner or make him think that there is something

wrong with her. In contrast, women may want PVI orgasms because of their

greater perceived pleasure and satisfaction or because they enhance the feeling

of intimacy between partners. Women may also feel that PVI orgasms are more

efficient and require less effort than orgasms involving manual stimulation, and

because of this, think of PVI orgasms as having a sense of natural beauty. As

aesthetic beauty in many areas of life is linked to elegance, parsimony, and the

alignment of form and function, PVI orgasms may seem more beautiful and

romantic than other forms of orgasm. The present study measured PVI orgasm

importance directly and used existing research to identify the most relevant

reasons for PVI orgasm importance. It also used these reasons as predictors to determine the extent to which they contribute to PVI orgasm importance.

Frequency

Many women want to know how their experiences with PVI orgasm frequency compare to those of other women. Also, many question whether their experiences are "normal." To answer these questions it would be useful to determine how many women are able to have PVI orgasms with high frequency. Unfortunately, it appears that past researchers have not phrased their questions precisely enough to provide accurate estimates of PVI orgasm frequency (e.g., Cohen and Belsky, 2008; Nicholas, Brody, Sutter, & de Carufel, 2008; Wallin, 1960; Chambless et al., 1984). Instead, many simply determine whether an orgasm occurred during a sexual encounter, without identifying whether the orgasm was triggered by stimulation prior to PVI, after PVI, or by manual stimulation during PVI. Although this may initially make sense in the early phases of research investigation, at some point it becomes important to identify the exact trigger of the orgasm. As noted above, for many people the link between intercourse and orgasm appears to be of great importance. Moreover, intercourse is a complex social interaction involving many various forms of physical and emotional stimulation. For example, many different behaviors could be occurring before, during, and after PVI. Also, multiple forms of stimulation could be going on during PVI or even in the seconds prior to orgasm. Previous

researchers have not taken into consideration this complexity, and because of this, methodological errors have been introduced, such as not being clear on what PVI orgasm is or not asking the woman to try to identify the specific stimulation that she believes triggered her orgasm. The following studies are examples of the more common methods of calculating PVI orgasm frequency.

Many researchers have either offered qualitative measures or only minimally quantitative measures of PVI orgasm frequency. Typically, participants are provided with a limited range of responses (e.g., never, sometimes, or always) or asked "yes/no" questions (e.g., Have you ever had an orgasm during intercourse?). For example, in one study, participants were asked, "In the sexual intercourse with your husband, do you experience an orgasm" with the options of "never, sometimes, usually, or always" (Wallin, 1960). Not only does providing only four options severely limit the precision of measurement, but it also limits our understanding of the meaning behind these responses. What *sometimes* means for one person may be different from what it means to another person. Also, it is difficult to determine a quantitative difference between sometimes and usually. Other researchers further simplify the responses by providing only two answers. For instance, one study asked if the participant "had ever had an orgasm solely by movements of the penis" and gave the options of "yes" or "no" (Fugl-Meyer, 2006). This one-dimensional way of asking a complex question limits the quality and quantity of responses provided. Would it be accurate to group women who have PVI orgasms 100% of the time with those who have had only one PVI

orgasm? This methodology limits the true differences among women by combining them into broad categories and not making use of more quantitative measures of orgasm frequency.

In addition to limiting the range of responses, the language used in these questions may be difficult for participants to understand. Wording may be confusing and have different meanings for different women. For example, some women may not understand what the researcher means by "coital orgasm," a term used in Chambless et al.'s (1984) study. "Coital" is a word that the general public does not use frequently; therefore, there may be some uncertainty as to which acts are included or excluded by this term, especially in a community sample of women. Whereas some women may consider oral sex "coital" activity, others may not. In order to prevent this confusion, researchers should select terminology that the public understands clearly. When in doubt, the scale used to measure orgasm frequency should define any terms that may be unclear to participants.

Defining the specific sexual act for which you are studying is also important to accurately measure orgasms. For instance, Cohen and Belsky (2008) asked participants "how often do you experience orgasm during sexual intercourse?" To some people, "intercourse" is a broad description and may include all sexual activities that occur during a sexual encounter (Lloyd, 2005, p. 26). Participants may mistakenly take this vague wording to mean other sexual acts (e.g., oral sex) instead of just penile-vaginal intercourse. This may artificially

inflate PVI orgasm frequency by including acts which may have occurred shortly before or shortly after PVI.

Additionally, researchers may phrase their questions in a way that causes women to include intercourse accompanied by manual stimulation when the manual stimulation is the actual trigger of the orgasm, not the intercourse itself. For instance, Brody, Laan, and Van Lunsen (2003) looked at the percentage of times per month a participant reached orgasm during penile-vaginal intercourse. Participants may have included penile-vaginal intercourse that also involved simultaneous manual stimulation. This phrasing may artificially inflate PVI orgasm frequency by including orgasms that are actually triggered by direct external clitoral stimulation.

Hite (1976) was one of the first researchers to look at this methodological problem. In her survey, she asked separate questions for each of several forms of stimulation, asking participants if they had orgasms during intercourse (vaginal penetration), manual stimulation by a partner, and intercourse plus manual clitoral stimulation (p. 19). Although Hite's attempt was an improvement in methodology, her method contained a number of weaknesses, such as not using a quantitative measure of frequency and using confusing phrases which were too inclusive or too vague. A woman may understand "during intercourse" to include orgasms produced by manual stimulation during intercourse unless specifically told otherwise.

Recently, researchers have improved their methodology and attempted to clarify phrasing. However, when researchers specifically ask about PVI orgasm, such as "vaginal orgasm (triggered solely by penile-vaginal stimulation)" (Nicholas, Brody, Sutter, & de Carufel, 2008), some women may not count the orgasm if they participated in other sexual acts that contributed to their level of sexual arousal (e.g., manual or oral stimulation) earlier in the sexual encounter, prior to penile penetration. Researchers must specify that they are looking at the method that triggered the orgasm even if other sexual activities were included prior to or after the orgasm.

In addition, current literature only presents a limited amount of the data. Studies typically report data either in terms of arbitrary verbal frequency categories, such as occasionally or usually (e.g., 33% of women sometimes have PVI orgasms), or they report average frequency for the sample as a whole (e.g., Thornhill, Gangestad, and Comer's 1995 study's reported that in their sample of 86 women, 60% percent of copulations resulted in orgasm). No studies have reported results in terms of both percent of women who have orgasm at a particular rate and average orgasm rate for the sample as a whole. As a result it makes comparisons across studies almost impossible. Researchers need to report the percentage of women who have orgasms at each of several numerically defined categories (e.g., 12% of sample never have PVI orgasms; 21% of sample have PVI orgasms 10% of the time, etc.) and report the average for the sample as a whole.

In order to prevent these errors, researchers should have a clear description of what sexual encounter they are researching (e.g., the term PVI orgasm must clearly be defined to all participants) and what responses they are interested in (e.g., state 30% instead of only using the word "sometimes"). The present study improved upon previous methodology by providing a more accurate way of measuring PVI orgasms by:

- Measuring PVI orgasm frequency on a quantitative frequency scale that runs from 0% to 100%

- Giving participants a sufficient number of qualitative responses (e.g., never, rarely, sometimes, half of the time, usually, almost always, always); using both a quantitative frequency scale paired with verbal labels so that the numerical and verbal labels can support and clarify each other

- Specifying exactly what PVI orgasm means to ensure there is no confusion (i.e., orgasm triggered by vaginal penetration by the penis without additional simultaneous direct clitoral stimulation)

- Making sure participants include PVI orgasm even if they participated in sexual acts prior to or after orgasm (e.g., the present study will include PVI orgasms if the participant participated in foreplay before intercourse but believes the act of intercourse triggered the orgasm)

- Providing all data including the means for each frequency group (e.g., how many women report experiencing PVI orgasms 90% of the time), standard deviations, full distribution of orgasm frequency, and overall average for how

often women orgasm (i.e., 50% of intercourse encounters result in orgasm from intercourse)

No current studies in the literature have employed all the procedures and safeguards specified above. One reason for the lack of precision was that researchers were solely concerned with whether or not an orgasm occurred during a sexual encounter. However, women appear to place considerable value on the frequency of PVI orgasms, even when they can have clitoral orgasms with ease, and it has become clear that PVI orgasms differ from clitoral orgasms. In addition, as evidence from evolutionary psychology has emerged suggesting that PVI orgasm may have reproductive and evolutionary consequences separate from those of clitoral orgasm (Baker & Bellis, 1993; Fox, Wolff, & Baker, 1970), the need for a more precise measurement of PVI orgasm has become apparent.

The present study focused on the above mentioned improvements in measuring PVI orgasm frequency and apply this to examine linkages between PVI orgasm and duration of intercourse, partner characteristics, and female physical and psychological health.

Duration

The relationship between intercourse duration and PVI orgasm frequency has been investigated using several different methodologies, and these have produced a pattern of inconsistent findings. While several studies have shown that duration of intercourse plays a role in a woman's ability to reach orgasm

during intercourse (Schnabl, 1980; Gebhard, 1966; Weiss & Brody, 2009), additional research shows contradictory findings (Huey, Kline-Graber, & Graber, 1981; Terman, 1951). Three methods have been employed to investigate duration: asking women how satisfied they are with their typical duration of intercourse, comparing orgasm rates for women who differ in typical duration of intercourse or comparing intercourse duration for women who differ in typical orgasm rates, and calculating the correlation between typical duration and orgasm frequency.

The first method investigates how satisfied women are with their typical duration of intercourse. Hamilton (1928) found that 48% of women in his sample thought their partners' climax came too soon for their own pleasure (page 205-206). Similarly, Miller and Byers (2004) found a large difference between women's ideal duration of intercourse and their actual duration of intercourse. Women reported having sex for 7 minutes on average, but they desired to have intercourse for 14 minutes on average. It is not clear, however, whether women's PVI orgasm frequency would have significantly increased if duration had reached desired levels.

Other studies compared orgasm rates for women who differ in typical duration of intercourse or compared duration of intercourse for women who differ in typical PVI orgasm frequency. For instance, in a sample of East German women, Schnabl (1980) found that 25% of women were able to have an orgasm within 2 minutes of intercourse, while 60% of women could have an orgasm after

10 minutes of intercourse. Using Kinsey's (1953) research data, Gebhard (1966)

analyzed group differences of women, and found that duration of intercourse

increased with PVI orgasm frequency. Gebhard found that after 16 minutes of

intercourse, approximately two-thirds of women reported experiencing a high (90-

100%) rate of PVI orgasm. For the women who typically had intercourse for at

least 16 minutes, only 5% were unable to have PVI orgasm at all. Thus, for most

women, as long as intercourse duration reaches 16 minutes, it appears that PVI

orgasm is possible, but it is not necessarily an event that occurs at high

frequency. In a study of women who were being treated for sexual dysfunction

(Huey, Kline-Graber, & Graber, 1981), those who were nonorgasmic by any

method of stimulation did not differ on intercourse duration from those who could

have PVI orgasms. Of course, it may be the case that results from a clinical

sample may not generalize to the nonclinical population. Furthermore, Terman

(1951) interviewed a large sample of married women and compared those whose

orgasmic functioning was characterized as adequate to those described as

inadequate and found no relationship between adequacy of orgasmic functioning

and duration. By restricting his analysis to only two categories (inadequate or

adequate), however, he was not able to compare durations for those with low,

medium, and high orgasm frequencies. As indicated below, these may be

important comparisons.

It is possible that the association between duration and PVI orgasm

frequency may be different for different frequency groups. For women who never

or rarely have PVI orgasm, intercourse duration may not make a difference. Even with a longer duration of intercourse, this group of women may not see an increase in PVI orgasm. These results would be consistent with recent studies that have shown a strong correlation between the thickness of urethrovaginal tissue and orgasm frequency (Gravina et al., 2008). It may be that women who rarely or never have PVI orgasm have less of this tissue and would not benefit from longer intercourse duration. In addition, women who are able to reach orgasm within 2 minutes (Gebhard, 1966; Schnabl, 1980) may have more of the urethrovaginal tissue and they may also have a high frequency of PVI orgasm, so that an increase in intercourse duration would also not alter this group's PVI orgasm outcome. For the group of women who have PVI orgasms, but not at a high frequency (i.e., those who sometimes have PVI orgasms), duration of intercourse may have the largest impact. It is possible that in other research studies in which PVI orgasm frequency group differences were not explored, the never/rarely and always/almost always groups' results were obscuring the relationship between duration and orgasm frequency in the middle/sometimes group. Consistent with this hypothesis, the Schnabl findings and Gebhard findings indicating that over 60% of women with longer average intercourse durations had high frequency PVI orgasm, may have included the 25% of women who always orgasm regardless of duration with the roughly one third of women who sometimes have PVI orgasm and would most benefit by longer duration.

Calculating the correlation between typical duration and orgasm frequency is another method used. Weiss and Brody (2009) found a relationship between duration and PVI orgasm frequency when looking at European women, but it was weak (r = .18). Although the relationship was statistically significant, it may not have been strong enough to be counted as socially meaningful. Although their study used a percentage frequency scale and a non-clinical sample, an improvement upon their methodology is needed. One problem with Weiss and Brody's methodology was that that instead of specifically asking about PVI orgasms, the researchers asked about participants' "orgasmic frequency with partner." As previously mentioned, this is problematic because women may include other forms of sexual stimulation, such as oral sex or manual stimulation by partner, instead of just orgasms triggered by PVI.

In each previous study that has investigated the relationship between duration and orgasm frequency, only one of the three methods identified above has been used, making comparisons across methodologies either difficult or impossible. The present study investigated the relationship between duration and orgasm frequency using all three methodologies: comparing difference between actual and preferred intercourse duration, comparing orgasm rates for women who differ in typical duration of intercourse and comparing intercourse duration for women who differ in typical orgasm rates, and examining the correlation between duration and orgasm frequency for the sample as a whole.

Health

Problems with psychological and physical health may impair a woman's ability to have PVI orgasms (Brody & Weiss, 2011; Costa & Brody, 2011). Although it is unlikely that good health will guarantee that a woman will have PVI orgasms with high frequency, those with poor health (both psychological and physical) may have difficulty reaching PVI orgasm.

Psychological Health

Poor psychological health and negative emotions can affect, disrupt, or damage physical behaviors or physical systems. For example, feelings of sadness may result in fatigue, loss of appetite, and tears (Keller & Nesse, 2006). Mental stress often produces increased heart rate and elevated blood pressure (Pary, Matushka, Lewis, Caso, & Lippmann, 2003). Similarly, psychological distress may have negative sexual effects.

Poor psychological health has been linked to sexual dysfunctions, such as delayed orgasm and anorgasmia (Clayton & Balon, 2009). Specifically, emotions, such as depression and anxiety, may affect whether or not women are able to have the physical response of orgasm during intercourse. Women who experience depression may have sexual distress (e.g., inhibited cognitive sexual excitement) that leads to lack of sexual desire and decreased arousal (Rosen et al., 2009; Kennedy & Rizvi, 2009). Women who are depressed may also have sex less frequently than non-depressed women. When those with depression do

have intercourse, they are less likely to enjoy the experience, which may make them less likely to have a PVI orgasm. Moreover, antidepressant medications (e.g., selective serotonin reuptake inhibitors) often have a negative impact on orgasm functioning (Shifren & Monze, 2009), which can also decrease the chances of PVI orgasm. Depression may also reduce energy levels, which could dampen sexual excitement. Research is needed to explore the effects of depression on orgasm specifically triggered by PVI alone. No studies were found that directly studied the relationship between PVI orgasm and depression.

As with depression, anxiety may also reduce a woman's ability to have PVI orgasms. If a woman is worried about what her partner is thinking, if she is tense during the sexual encounter, or if she is questioning her sexual performance, she may not be able to relax enough to experience the pleasure of intercourse (Ellis, 1998). Anxiety may also inhibit or disrupt the sexual thoughts, feelings, and fantasies that may assist her in reaching orgasm. Only a few studies have looked at the effects of anxiety on orgasm function. For example, Bradford and Meston (2006) found that both state and trait anxiety were negatively correlated with orgasmic functioning. Although previous research has looked at the relationship between anxiety and sexual functioning in general (e.g., Aksaray, Yelken, Kaptanoglu, Oflu, & Ozaltin, 2001; Figueira, Possidente, Marques, & Hayes, 2001), research is needed to evaluate the relationship between anxiety and orgasms that are specifically triggered by PVI alone.

Defense mechanisms, ways in which people cope with anxiety, have been linked to PVI orgasm (Brody & Costa, 2008). Brody and Costa (2008) found that women who use immature defense mechanisms experience fewer PVI orgasms. Immature defense mechanisms involve a restriction of awareness (e.g., repression) and this may be applied to sexual sensations during PVI. In particular, some of the types of immature defenses associated with low PVI orgasm frequency include isolation, devaluation, displacement, and dissociation (Brody & Costa, 2008). Immature defense mechanisms are a symptom of poor mental health, and this suggests that those with poor mental health may also experience PVI orgasms less frequently.

Body self-esteem is another psychological variable that may be linked to PVI orgasm. If a woman feels good about herself she may be more likely to be comfortable expressing her sexual needs to her partner. In addition, she will be less likely to be self-conscious during intercourse, which would allow her to more fully relax, focus on genital sensations, and experience greater pleasure, possibly leading to a PVI orgasm. She may also feel more secure about asking for the types of stimulation that she may think would help bring her to orgasm, thus increasing her chance of PVI orgasm. No previous research has looked at PVI orgasm frequency in relation to body self-esteem.

In hopes of gaining a better understanding of the relationship between mental health and PVI orgasm, the present study evaluated symptoms of

psychological distress, specifically depression, anxiety, and low body self-esteem.

Physical Health

Research has shown that physical health affects sexual functioning, including sexual desire, arousal, pain, and orgasm (Kisler, 2006; Costa & Brody, 2012). Although previous research has looked at severe medical issues, such as spinal cord injury (Alexander & Rosen, 2008) and heart disease (Træen, 2007), no studies were found that evaluate the linkage between PVI orgasm and mild to moderate physical health issues. Those with mild to moderate physical health issues may be more susceptible to having difficulty with PVI orgasms than those whose health is adequate or good. Factors such as general health, physical fitness, and body type may all be associated with ability to have PVI orgasm.

General health issues may have an effect of PVI orgasm. Health problems that may be present in younger populations include fatigue, headaches, general sickness, and pain. If a woman is not feeling sexy or attractive or if she lacks the energy necessary to participate in a meaningful sexual experience, she may be less likely to experience PVI orgasm. No previous research has examined the relationship between general health issues and PVI orgasms.

Body type may also play a role in a woman's ability to reach orgasm. Research has shown that those who have pear-shaped body types (bottom

heavy) are healthier than apple shaped women (top heavy) (Nielsen et al., 2009).

Apple-shaped women tend to have intra-abdominal body fat which has been

linked to diabetes and cardiovascular disease (Wickelgren, 1998). Although no

research has looked at PVI orgasm and body type before the present study, it is

hypothesized that healthy body types (non-apple body types) will be positively

associated with PVI orgasm frequency.

Additionally, a healthy body mass index (BMI; calculation of body fat using

a person's height and weight) may also be associated with more frequent PVI

orgasms. Those that are more fit may be able to position their body in ways

more conducive for PVI orgasm. If a woman is more physically fit, she may be

more capable of controlling her hip movements, have more muscle tone, and be

more able to move in synchrony with her partner. Together, these abilities may

lead to a higher orgasm rate. Studies have shown inconsistent findings when

looking at BMI and orgasm frequency. For example, Burri, Cherkas, and Spector

(2009) found no correlation between BMI and orgasm frequency during

intercourse, but participants may have included clitoral stimulation when

answering the questions about orgasm. Conversely, Abu Ali, Al Hajeri, Khader,

and Ajlouni (2009) found that obese participants were more likely to have

impaired capability of reaching orgasm than those with healthy BMI levels, but

participants did not specifically report on orgasms triggered by PVI alone. More

research is needed to determine whether BMI is correlated with orgasm

specifically triggered by PVI alone.

Exercise may also have a positive effect on PVI orgasm (Meston & Gorzalka, 1996). First, exercise causes a release of endorphins which are typically followed by enhanced mood (Dishman, 2009). This may then lead to a woman having greater sexual desire, arousal, and experience of pleasure during sexual activity. Furthermore, exercise may increase a woman's sense of attractiveness and self-esteem, which may cause a woman to feel more relaxed during sexual activity and assist her with reaching PVI orgasm. Meston and Gorzalka (1996) found that acute exercise increases vaginal pulse amplitude (VPA) and vaginal blood volume (VBV) responses in some women, which are both related to orgasm. To date, however, the effects of long-term exercise on PVI orgasms have not been investigated. The present study evaluated the relationship between physical activity and PVI orgasm frequency.

Brody, de Sutter, P., and de Carufel (2008) observed the manner in which women moved and found a relationship between walking style and orgasm frequency. Raters evaluated the participants on degree of free-flowing, graceful movements, as indicated by greater vertebral rotation and longer stride length. The observed positive association between walking gracefully and PVI orgasm suggests that lack of chronic muscle tension in women's thighs, abdomen, and hips may make it easier to trigger PVI orgasm. As physically fit women are less likely to experience chronic muscle tension, they may also report higher PVI orgasm frequency.

In this study, various health issues, both psychological and physical, were expected to have an impact on a woman's ability to have PVI orgasms. Although good health may not guarantee a high orgasm frequency, poor health may negatively affect the ability to reach PVI orgasm with high frequency.

Partner Characteristics

Two dominant psychological theories can be identified that relate partner traits to PVI orgasms: evolutionary psychology and relationship-oriented social psychology. Under the widely held assumption that female orgasm may function to favor some males over others in terms of sire choice (Baker & Bellis, 1993; Fox, Wolff, & Baker, 1970), evolutionary psychology has emphasized male traits that would have aided long-term female reproductive success in ancestral environments: the male's ability to provide for and protect females and their children, and indicators of genetic quality, which would enhance the children's survival and reproductive success. Evolutionary psychology has emphasized that certain male traits are important in mate selection across species (Pollet & Nettle, 2008; Thornhill, Gangestad, & Comer, 1995; Thornhill & Gangestad, 1996; Kowner, 2001; Euler, Thoma, Parks, Gangestad, & Yeo, 2008; Furlow, Armijo-Prewitt, Gangestad, & Thornhill, 1997). It also suggests that similar traits might also be related to female PVI orgasm in humans (Pollet & Nettle, 2008; Thornhill, Gangestad, & Comer, 1995).

The ability to provide and protect is one indicator of alpha male status. This has been measured in previous research through various methods. For example, one of the more direct methods of measuring ability to provide is through income level. Pollet and Nettle (2008) found that male income was positively related to PVI orgasm frequency in a sample of Chinese adult females. The amount of money a man earned is a direct reflection of his ability to provide for his mate and offspring. The evolutionary rationale runs as follows: Ancestral women who were more attracted to, more likely to bond with, and more likely to have PVI orgasm with men who controlled resources would experience greater reproductive success and would be likely to pass some of this genetic preferences on to later generations.

A man's weight is another variable that may be associated with his ability to provide and protect. Thornhill, Gangestad, and Comer (1995) found that men's weight was positively correlated with their female partners' ability to have PVI orgasms. For ancestral women, partner weight may be a sign of a man's ability to provide because he is able to keep himself nourished and satiated. Also, a larger man may be able to physically protect his partner and children. If PVI orgasm increases chances of conception, then ancestral women who were attracted to and more likely to orgasm with heavier men would have had greater reproductive success than other women. These women may have then passed these preferences to their female offspring.

Overall genetic quality is another factor that females across species look for in a potential mate. Thornhill and colleagues (1995) found that an increase in PVI orgasm frequency was associated with bilateral symmetry. Bilateral symmetry (i.e., dimensions of the left half of the body match those of the right half of the body) is linked to attractiveness (Thornhill & Gangestad, 1996), intelligence (Kowner, 2001; Euler, Thoma, Parks, Gangestad, & Yeo, 2008, Furlow, Armijo-Prewitt, Gangestad, & Thornhill, 1997), more sexual partners (Gangestad, Bennett, & Thornhill, 2001), physical violence (Kowner, 2001; Furlow, Gangestad, & Armijo-Prewitt, 1998), facial masculinity (which women prefer during ovulation) (Gangestad & Thornhill, 2003), resistance to disease (Yeo, Gangestad, & Thoma, 2007), and better overall immunity across species (Leung & Forbes, 1997; Thornhill & Møller, 1997; Gangestad, Bennett, & Thornhill, 2001). Women also prefer men who are more symmetrical during times when they are fertile (Gangestad & Thornhill, 1999). Together, these factors are associated with alpha male status. This research suggests that men who show higher levels of health and immunity to infection may be more likely to have partners with high frequency of PVI orgasm.

Finally, social status is another key element of alpha male status. Nonhuman primates have been studied to determine how social dominance rank affects orgasm (Troisi & Carosi, 1998). Researchers found that female primates were more likely to engage in orgasm-like behavior with the more socially dominant males, especially if the males were of higher rank among males than

the females were among females. If this generalizes to humans, it is expected that women, especially those who are less dominant, will orgasm more with higher status males than with lower status males. Puts, Welling, Burriss, and Dawood (2011) found that women reported earlier and more frequent orgasms during intercourse when having intercourse with men who were more masculine and dominant (as rated by observers). Although this provides evidence that women that have intercourse with alpha males may have higher orgasm frequency, it is unknown whether this greater frequency relates to intercourse with or without additional stimulation.

Relationship-oriented social psychology also provides a basis for identifying female preferences for mate choice with a possible linkage to female orgasm. This area of psychology has emphasized male traits that would aid emotional bonding with the female and enhance relationship quality of the relationship. Women prefer prosocial traits in their mates (Eagly, Wood, & Johannesen-Schmidt, 2004), such as empathy, compassion, social skills, understanding, comfort, and ability to talk about one's feelings. Sensitive males may be more open to communication with their sexual partners, which may aid them in learning how to physically please their mates. The sensitive male may also be more in tune to his partner's sexual wants and needs by being more empathetic and more skillful at decoding her nonverbal behaviors.

Previous research shows that characteristics associated with the sensitive male, such as relationship quality, marital happiness, and emotional appeal (i.e.,

men who are compassionate, loving, and sincere), may increase the likelihood of a woman experiencing PVI orgasm (Costa & Brody, 2012; Weiss & Brody, 2011; Costa & Brody, 2007; Singh, Meyer, Zambarno, & Hurlbert 1998). For example, Costa and Brody (2007) found in a sample of Portuguese women that orgasm frequency was higher in couples with better reported quality of relationship. Relationship satisfaction, intimacy, love, and overall relationship quality all correlated with PVI orgasm. Research suggest that women who are with men who listen to them and who are affectionate and supportive, report having more positive relationships. These types of men are categorized as "sensitive." Thus, male sensitivity may increase the likelihood of a woman having PVI orgasms.

Marital happiness, which is associated with a harmonious, compatible relationship, is also correlated with PVI orgasm frequency (Singh, Meyer, Zambarno, and Hurlbert, 1998). Gebhard (1966) also found an association between marital happiness and higher frequency intercourse orgasm. Specifically, those who report the happiest relationships showed higher PVI orgasm rates than those who were least happy.

Emotional appeal is another characteristic associated with mate selection. Buss (1994) reported that women seek emotional qualities in their partners because they want to have reliable parental care for their future offspring. Buss (1989; 2001) found that women desire partners who have a pleasing disposition and are emotionally stable and mature. McGraw (2002) found that American women rated emotional appeal as the most preferred partner trait.

Many men tend to fall into one of the two categories of males described above: alpha male or sensitive male. Each type is suggested by a different major psychological theoretical framework (evolutionary psychology and relationship-oriented social psychology) to be related to PVI orgasm. The present study tested whether extent of alpha characteristics or of sensitive male characteristics is related to PVI orgasm frequency. It was proposed that although women may desire to have a long-term partner who is sensitive, PVI orgasm is likely to be higher with alpha males. During times of ovulation, women are more likely to cheat with males who have alpha qualities (e.g., bilaterally symmetrical, socially dominance, masculine faces, greater social presence, deeper voices, and more dominant) than other males (Gangestad & Thornhill, 1998; Thornhill & Gangestad, 1999; Thornhill et al., 2003, Johnston, Hagel, Franklin, Fink, & Grammer, 2001; Gangestad, Simpson, Cousins, Garver-Apgar, & Christensen, 2004; Puts, 2005). If women are more likely to cheat with alpha males than with other males, this suggests that PVI orgasm may be more closely related to alpha male traits than to sensitive male traits.

The present study had participants rate their current or recent significant sexual partner on sensitive and alpha traits drawn from the research literature from both evolutionary and relationship-oriented social psychology. The sum of alpha trait ratings and the sum of sensitive trait ratings was used to predict orgasm frequency. It is possible, however, that women will rate partners that produce many orgasms more highly on trait dimensions than will women whose

29

partners do not produce many orgasms; thus, orgasm rate with partner may affect how positively a female rates her partner. If sensitive traits are thought of as more positive or more valuable for partners, women with higher orgasm rates could rate their partner as higher on sensitive traits not because sensitive traits lead to more orgasm, but because orgasm leads to higher ratings of sensitivity. To control for this, women first rated all traits for how positive and valuable they think the trait is for a dating partner. Then alpha positivity and sensitive positivity bias were controlled for in predicting orgasm consistency.

Statement of Purpose

Previous research used qualitative methods to suggest that PVI orgasm is important for women, but this provides only a limited amount of information. The present study examined the importance of PVI orgasm quantitatively and systematically to determine how important PVI orgasms are, determined whether perceived importance is related to orgasm frequency, identified the reasons why PVI orgasm is thought to be important, and evaluated whether importance is related more to intrinsic personal preferences or to extrinsic social pressures.

The present study sought to improve upon the measurement of PVI orgasm frequency. A new measure to describe the PVI orgasm frequency distribution was developed and this measure was used to examine the ability of key variables to predict orgasm frequency. These variables included importance

of PVI orgasm, duration of intercourse, psychological health, physical health, and partner characteristics as indicated by alpha male traits and sensitive male traits.

Research Questions and Hypotheses

Research Question 1: How Frequently Do Women have Orgasms when Orgasm is Triggered by PVI Alone, Without Additional Simultaneous Direct Clitoral Stimulation?

The present study provided a more systematic and detailed description of intercourse orgasms than previous research. PVI orgasm frequency was measured separately from other prior, simultaneous, or later forms of stimulation. Participants completed the Sexual Response Scale, which examined frequency of orgasms from various forms of sexual stimulation.

Research Question 2: How Important is PVI Orgasm?

The present study quantified how important PVI orgasm is to women, determined if importance is related to orgasm frequency, identified which reasons for importance were the best predictors of perceived importance of PVI orgasm, and drew preliminary conclusions as to whether orgasm importance is more closely related to intrinsic (e.g., physical pleasure, feelings of satisfaction, and feelings of intimacy) or to extrinsic (e.g., general social pressures and expectations to have PVI orgasms, pressures and expectations from the sexual partner) factors.

Hypothesis 1: Duration of Intercourse

I hypothesized that duration of intercourse will be more highly correlated with PVI orgasm frequency for women who sometimes orgasm from PVI orgasm than for women who never or rarely orgasm from PVI or from women who always or almost always orgasm from PVI and that the correlation for those who sometimes have PVI orgasm will be greater than the correlation for the sample as a whole. To determine if duration predicts PVI frequency, participants completed the Sexual Response Scale.

Hypothesis 2: Health Factors

2a. I predicted that those with poor psychological health will have lower PVI orgasm frequencies than those with better health, but those with good health will not typically show high levels (> 80%) of orgasm frequency. Thus, poor psychological health will be correlated with lower PVI orgasms frequency rates, but good health will not guarantee high orgasm frequency.

2b. I predicted that participants with poor physical health, such as pain, frequent illness, etc., will have lower PVI orgasm frequencies than those with better physical health.

2c. I hypothesized that participants who are physically fit will show higher PVI orgasm frequencies than those who report physical health impairments or poor health behaviors. Physical fitness will be positively correlated with PVI orgasm frequency.

Hypothesis 3: Partner Characteristics

I hypothesized that alpha traits and sensitive traits would be related to PVI orgasm frequency, with alpha traits showing a stronger relationship to orgasm frequency than sensitive traits when alpha positivity and sensitive positivity are held constant.

Sensitive and alpha traits will be determined using the Inventory of Partner Characteristics.

CHAPTER 2

METHOD

Participants

Participants included 835 sexually active female undergraduate students

from the University of North Texas and women from the community ranging from

18 to 45 years old. Each participant currently or recently (within the last two

years) engaged in a sexual relationship that involved penile-vaginal intercourse

(PVI) with a male partner. The study was identified as research on female sexual

response.   Undergraduate participants were recruited from psychology classes

and received research credit upon completion of their participation. In order to

receive credit, undergraduate participants gave their names and university e-mail

addresses. All information collected online was stored on password protected

computers. Once surveys were collected, participants names were removed

from the data file and participants were assigned a study ID number. Their name

and contact information were kept in a different file. According to federal

institutional review board (IRB) regulations, all study records will be maintained

for three years following the end of the study.

Women from the community were recruited by posting flyers around the

community (Denton, Texas and Houston, Texas). Refer to Appendix G to view

the flyer. Places flyers were posted included coffee shops, restaurants, clothing

stores, copy centers, etc. Community members were also recruited through

e-mails. Twenty women's groups were contacted requesting their members be informed about the present study. Only one group, a local women's community bunko (social dice game) organization, agreed to contact members about the study, and this group contributed less than four women to the sample. Due to the number of bunko participants being relatively small, it is unlikely that these women biased the sample. Refer to Appendix H to view the e-mail sent out to this group. Each woman from the community participated as a volunteer and was not compensated for her participation. Data collection took place over the spring 2011, summer 2011, and fall 2011 semesters.

Measures

Demographic Inventory

This inventory included participants' self-report of demographic information including age, ethnicity, religious background, marital status, parent's income, country of birth and country where raised, current relationship status (e.g., single and not dating, single and dating, married, divorced, etc.), and years in college.

Health Scale

The health scale was created for the present study to evaluate healthy lifestyle behaviors and mild physical complaints. No previously used scales matched the specific criteria needed to evaluate common health issues and

behaviors for college females. Thus, this questionnaire was developed for the present study.

Items of the health scale included health behaviors such as cigarette smoking, consumption of alcohol, prescribed medication use, recreational drug use, as well as body type, age, height, and weight. It also inquired about the frequency of common health complaints for college students including lack of energy, fatigue, headaches, common cold, dizziness, and pain.

Inventory of Desired Partner Qualities and Inventory of Partner Characteristics

These measures were developed for the current study by drawing from relationship-oriented social psychology and evolutionary psychology as well as incorporating some of the characteristics from the BEM Androgyny Test (Bem, 1974). Both measures had 15 alpha male characteristics (e.g., assertive, masculine), 15 sensitive male characteristics (e.g., compassionate, warm), and filler items that were neither alpha nor sensitive male characteristics (e.g., friendly, reliable). Each item was rated on a 7-point Likert scale. The Inventory of Desired Partner Qualities measure was developed to evaluate the degree to which women valued or believed these characteristics were important for male partners. The Inventory of Partner Characteristics measure was developed to determine how participants compared their current or recent partner to other men their partner's age. A Cronbach's alpha for the Inventory of Desired Partner Characteristics for the alpha importance scale was .86 and for the sensitive

importance scale was .93. A Cronbach's alpha for the Inventory of Partner

Characteristics for the alpha partner scale was .91 and for the sensitive partner

scale was .96.

Sexual Response Scale (SRS)

This measure was developed for the present study to measure the

frequency of orgasms from various forms of sexual stimulation. Forms of

stimulation included masturbation by manual stimulation, masturbation by

vibrator, hand stimulation of clitoral area by partner, finger penetration of vagina

by partner, oral sex, intercourse with simultaneous manual stimulation of clitoral

area, intercourse alone without additional direct manual or other clitoral

stimulation, and anal sex. A blank space was also provided for participants to

add any additional form of stimulation that may bring them to orgasm.

Participants were provided with descriptions of each form of sexual

stimulation and asked to indicate how frequently they have orgasms triggered by

each activity, using a 0-100% scale with 10% increments (e.g., 0%, 10%, 20%,

etc.). This measure also specified exactly what PVI orgasm means in order to

reduce the chance that participants would include simultaneous direct manual

stimulation of the clitoris when they were asked specifically about PVI orgasm.

Participants were also given qualitative markers (i.e., never, rarely, sometimes,

half of the time, usually, almost always, and always) to use as a guideline for

determining their responses.

This measure allowed the calculation of mean scores for each frequency group (never/rarely, sometimes, and almost always/always) and provided an average score for how often women had PVI orgasm.

Measure of Orgasm Importance

The Measure of Orgasm Importance was created for the present study to systematically and quantitatively evaluate the importance of PVI orgasm. This measure asked participants to indicate how important it was for them to be able to have frequent orgasms triggered by intercourse alone without additional direct manual or other clitoral stimulation. Potential responses ranged on a Likert scale from *very unimportant* (1) to *extremely important* (6). This measure also included the question "to the extent that having orgasms from intercourse alone (that is, intercourse that does not include any additional simultaneous direct clitoral stimulation) is important to you, how much would you agree or disagree with each of the following reasons for why it is important?" Participants were provided with 11 different possible reasons to rate on a 7-point Likert scale.

Body Esteem Scale (BES)

The BES (Franzoi & Shields, 1984) measure has 35 items on which participants rated how they felt about their specific body parts and functions on a 7-point Likert scale with verbal phrases (i.e., "I have strong negative feelings" to "I have strong positive feelings").

38

The BES had moderate convergent construct validity when correlated with the Rosenberg Self-Esteem Scale (Rosenberg, 1965). The BES has shown to be both a reliable and valid measure with the coefficient alpha showing good internal consistency (Franzoi, 1994). In the present study, the Cronbach's coefficient alpha for this scale was .94.

Quick Inventory of Depressive Symptomatology Self-Report (QIDS-SR-16)

The QIDS-SR-16 (Rush et al., 2003) is a 16-item self-report scale that assesses the severity of a person's depressive symptoms using the major depressive episode criterion symptoms found in the *American Psychiatry Association Diagnostic and Statistical Manual of Mental Disorders* - 4th edition (American Psychiatric Association [*DSM-IV-TR*], 2000). The QIDS is a brief rating scale that was derived from the 30-item Inventory of Depressive Symptomatology (IDS).

The QIDS has been widely used in research and clinical settings. The psychometric properties of the QIDS has been shown to be acceptable in various studies (Rush et al., 2005; Rush et al., 2003; Trivedi et al., 2004). Cronbach's alpha was .86 for the QIDS-SR (Trivedi et al., 2004). In the present study Cronbach's coefficient alpha for this scale was .76.

Each item is on a 4-point Likert scale where a score of 0 represents an absence of depressive symptom and a score of 3 represents severe intensity or frequency of depressive symptoms. Items are divided into 9 symptom domains

(e.g., depressed mood, loss of interest or pleasure, etc.). Domains have varying number of items. For example, four items are used to assess the sleep disturbance domain, but only one item is used to assess the decreased energy domain. The QIDS is scored by totaling the highest value in each domain with total scores ranging from 0 (if no symptoms endorsed) to 27 (if each domain had at least one item rated a 3, which is the highest possible value). The QIDS was used in the present study to look at how depression relates to PVI orgasm consistency. .

Self-Rating Anxiety Scale (SAS)

The SAS has 20 items (e.g., "I have nightmares," "I can breathe in and out easily," "I get upset easily or feel panicky") evaluating participants' anxiety level (Zung, 1971).

To score the SAS, a value of 1, 2, 3, or 4 is assigned to each of the four possible responses with a value of 1 representing *none or a little of the time* to a value of 4 representing *most or all of the time*. Five of the items (Items 5, 9, 13, 17, and 19) are reverse scored. Scores between 20 and 44 signify normal anxiety, 45 to 59 mild to moderate anxiety, 60 to 74 marked to severe anxiety, and 75 to 80 extreme anxiety.

Zung (1971) showed the SAS was able to significantly differentiate patients with anxiety from patients with other diagnoses. The SAS was found to

have a Cronbach's coefficient alpha of .77 (Ossa, Martinez, Herazo, & Campo, 2009). The present study's Cronbach's coefficient alpha for this scale was .82.

Sex-Guilt Inventory-Revised

The Sex Guilt Inventory is a subsection of the Revised Mosher Guilt Inventory and consists of 50 items, which are arranged in pairs of responses to the same sentence completion stem (Mosher, 1987; Mosher, 1998). For example, one pair on this scale is "Masturbation is . . . all right" and "Masturbation . . . should not be practiced." The inventory uses a 7-point Likert scale where a response of 0 represents *not at all true for me* and a score of 6 represents *extremely true for me*. The scale has shown discriminant validity with the two other sections of the Revised Guilt Inventory, Hostility-Guilt and Guilty-Conscience (Mosher, 1998). To score the inventory you total each response while reverse scoring the non-guilty items (Davis, Yarber, Bauserman, Schreer, & Davis, 1998).   The Revised Sex-Guilt Inventory has been found to have a coefficient alpha of .95 (Janda & Bazemore, 2011). In the present study, the Cronbach's coefficient alpha for this scale was .88.

Procedures

Approval from the University of North Texas Institutional Review Board for Human Subjects was provided. Participants were recruited using the SONA system at the University of North Texas and through flyers posted around the

community and through e-mail (see previous description at beginning of the

method section for more detail on recruitment). Each participant accessed the

study's survey by logging onto the SurveyMonkey link provided. After reading

the informed consent (see Appendix A and B) and agreeing to participate, the

participant clicked on the agree button which began the study. If requested,

participants could obtain a copy of the informed consent or print off a copy while

completing the study. After completion of all measures, participants were given a

debriefing statement (see Appendices O and P).

CHAPTER 3

RESULTS

All data were put into a database using SPSS version 20. Means,

medians, standard deviations, and ranges were computed for all primary

variables (see Table 1). One thousand one hundred thirty-eight women agreed

to participate in the study. Of those women, 302 were not included in the final

data analysis. Participants were excluded who were not within the age range of

18 to 45 years old. Women over 45 years old (n = 7) were excluded because of

potential menopause issues that may alter the results, especially since

symptoms of menopause were not collected. To participate in the study, all

participants had to agree that they were at least 18 years old to meet

requirements for consent. Five community members who were under 25 years

old were removed from the data analysis because this group included too few

people to accurately compare to other participants. Eighty-three women were

removed because they dropped out of the study before completing the PVI

orgasm frequency question. Thus, these women completed less than a third of

the survey. Fifty-two women were removed who completed the PVI orgasm

frequency question, but did not complete the survey. A t-test revealed that there

was no significant difference in PVI orgasm frequency between women who

completed the study and those who did not complete the study ($t(892)$ = -.17$, p$ =

.86). An additional 155 women were removed because they reported that they

did not participate in penile-vaginal intercourse without direct manual or other clitoral stimulation, which was the primary dependent measure of the present study. Mean age for women who were included in the sample was compared to those who were not included. An independent samples t-test ($t(1,135) = 2.79$, $p < .01$) showed that those removed from the study ($M = 22.17$ years) were slightly older than those included in the sample ($M = 21.15$ years). This is possibly because older participants were recruited from the community, where attrition was higher than it was for students, who completed the study for class credit.

Of the 835 women who remained in the sample, 800 were from the student population and 35 were from the community. A comparison was made between community participants over 25 years old ($n = 35$) and students over 25 years old ($n = 58$). An independent samples t-test showed that PVI orgasm frequency did not differ for these groups ($t(91) = -.77$, $p = .44$). Women in both groups over 25 years old were approximately the same age, with community members being on average 29.74 years old and students being on average 29.95 years old ($t(91) = .21$, $p = .83$).

<center>Power Analyses</center>

The Cohen (1988) guidelines were used to complete a power analysis. This study's power was acceptable for all correlation analyses. Power analysis was conducted using G*Power 3.1.2. Power for a correlation attempting to detect a moderate effect size was 1.00 and to detect a small effect size was .89.

Power for multiple regression using 10 predictors (approximate number of predictors in most analyses) to detect a moderate effect size was 1.00 and for a small effect size it was .99.

<center>Missing Data</center>

The Mosher Sex Guilt Survey was formatted with questions close in proximity, which appeared to lead to more participants accidentally skipping some questions. One hundred sixty-five women did not complete every question of this survey. Of those who did not complete the survey, 164 women completed over 80% of the questions and one participant completed only 34% of the questions. The one participant who did not complete most of the questionnaire was removed from the analysis investigating sex guilt. After evaluating the response pattern of the remaining 164 women, questions appeared to be skipped at random. To prevent a significant decrease in sample size for analyses requiring this survey, case mean (each individual participant's mean for completed items on this scale) substitution was utilized for the Mosher Sex Guilt Survey. Of the 164 women who skipped less than 20% of the questions, 225 responses required case mean substitutions.

Furthermore, one free response question inquired about the typical duration of intercourse. For this question, 50 women provided information that was not interpretable (e.g., "a long time," "unsure"). Thus, these women were removed from analyses requiring this information. All other variables had

<center>45</center>

minimal missing data. According to Tabachnick and Fidell (2007), when only a few data points are missing and the sample is large (in this case N = 835) most procedures which handle missing data lead to comparable results. To deal with all other data that were missing, cases were excluded pairwise, which excluded participants only if they were missing the data required for the particular data analysis, as recommended by Pallant (2010).

Descriptive Statistics for Demographic Information

The mean age of participants was 21.15 years (SD = 3.79, range 18 – 44 years, N = 835). All participants were female. Four hundred ninety-seven participants (59.5%) were White/Caucasian, 135 (16.2%) were Black/African American, 127 (15.2%) were Hispanic/Latina, 42 (5.0%) were Asian, eight (1.0%) were Native American, and 24 (2.9%) reported being mixed race or another race not listed. Fifty-two (6.2%) of participants were married, 156 (18.7%) were single and not dating, 199 (23.8%) were single and dating, 386 (46.2%) were single and in a committed relationship, 27 (3.2%) were engaged, one (0.1%) was divorced, and one (0.1%) was widowed. Refer to Table 1 for additional descriptive statistics for demographics.

Research Questions and Hypotheses

Research Question 1: How Frequently Do Women Have Orgasms when Orgasm is Triggered by PVI Alone, Without Additional Simultaneous Direct Clitoral Stimulation?

Data from the Measure of Orgasm Frequency, which examined frequency of orgasms from various forms of sexual stimulation, was calculated to determine descriptive statistics, including standard deviation, mean, and distribution for PVI orgasm frequency.

Frequency of PVI orgasm was also evaluated to determine if data were normally distributed. PVI orgasm frequency was assessed for skewness (-.149) and kurtosis (-1.426). The Kolmogorov-Smirnov statistic ($p < .001$) and the Shapiro-Wilk statistic ($p < .001$) were significant, indicating PVI orgasm frequency was not normally distributed. Tabachnick and Fidell (2007, p. 80) state that with larger samples, such as the case in this study, skewness will not "make a substantive difference in the analysis." Although negative kurtosis may underestimate the variance, with a large sample (greater than 200 cases) this risk is reduced (Tabachnick & Fidell, 2007, p. 80). As the present study included 835 women, not meeting the assumption of normality would not appear to be problematic for analyses.

Descriptively, Figure 1 displays the frequency distribution of the 11 (0 – 100%) frequency levels for PVI orgasm. Participants were asked "on average, what percentage of the times that you participate in this sexual activity (intercourse alone without additional direct manual or other clitoral stimulation) do you experience an orgasm that was triggered by this activity?" One hundred sixty-eight women (20.1%) reported experiencing PVI orgasm 0% of the time, 54 (6.5%) reported 10% of the time, 41 (4.9%) reported 20% of the time, 41 (4.9%)

reported 30% of the time, 38 (4.6%) reported 40%, 81 (9.7%) reported 50%, 56 (6.7%) reported 60%, 77 (9.2%) reported 70%, 83 (9.9%) reported 80%, 85 (10.2%) reported 90%, and 111 (13.3%) reported having PVI orgasms 100% of the time. The mean for PVI orgasm frequency was 50.66% (SD = 36.11).

PVI orgasm frequency groups were also formed. In the present sample, 329 (39.4%) women reported never or rarely (0-10% of the time), 310 (37.1%) reported sometimes (20-80% of the time), and 196 (23.5%) reported always or almost always (90-100% of the time) having PVI orgasms. Participants were also asked "have you ever had an orgasm that you believe was triggered by the movements and sensations of intercourse itself, without any simultaneous manual or other direct stimulation of the clitoral area?" Five hundred (60.5%) women said "yes" while 326 (39.5%) women responded "no" to this question.

Frequency of PVI orgasm was compared to other methods that may trigger orgasm. Participants reported that compared to PVI orgasm frequency, orgasm was triggered somewhat more frequently with masturbation (M = 59.58%, SD = 40.59), masturbating with a vibrator (M = 58.44%, SD = 43.08), and intercourse with additional stimulation (M = 59.64%, SD = 35.63). Paired sample t-tests showed differences in orgasm frequency between PVI and masturbation (t(646) = -5.24, p < .001), between PVI and masturbation with a vibrator (t(410) = -4.90, p < .001), and between PVI and intercourse with additional stimulation (t(771) = -7.00, p < .001). Participants reported that frequency of orgasms were similar for PVI and oral sex (M = 50.71%, SD =

35.85) and PVI and intercourse with a vibrator (*M* = 44.15%, *SD* = 40.53). Paired

samples *t*-tests showed no difference between PVI and oral sex (*t*(763) = -.25, *p*

= .81) or between PVI and intercourse with a vibrator (*t*(368) = .28, *p* = .78).

Women reported that compared to frequency of PVI orgasm, orgasm was

triggered somewhat less frequently with hand stimulation by partner (*M* =

42.57%, *SD* = 34.45) and with finger penetration by partner (*M* = 35.03%, *SD* =

32.93). Paired sample *t*-tests showed differences in orgasm frequency between

PVI and hand stimulation by partner (*t*(808) = 5.06, *p* < .001) and PVI and finger

penetration by partner (*t*(799) = 11.37, *p* < .001). Anal sex was the sexual

activity with the lowest frequency of orgasm (*M* = 20.19%, *SD* = 32.21). Refer to

Table 4 for additional statistics on methods of triggering orgasm.

Demographic information was evaluated for potential differences in PVI

orgasm frequency. A Pearson's correlation indicated that age was significantly

correlated with PVI orgasm frequency with PVI orgasm frequency decreasing

with age (*r* = -.07, *p* = .04). To control for this, age was held constant in

regression analyses. Participants were asked to identify either a current sexual

partner or recent sexual partner when answering questions about their orgasm

functioning. In this sample, 67.2% identified a current partner and 32.8%

identified a recent partner. An independent samples *t*-test showed group

differences in PVI orgasm frequency between women who identified a current

partner and women who identified a recent partner (*t*(833) = 4.40, *p* < .001). PVI

orgasm frequency was higher for participants who identified a current sexual

partner (M = 54.46%) as compared to those who identified a recent sexual partner (M = 42.88%). To control for this difference, current/recent partner was held constant in regression analyses. Current/recent partner did not impact duration of intercourse ($t(783)$ = 1.07, p = .28) or rated degree of importance of PVI orgasm ($t(797)$= .30, p = .76).

ANOVAs were used to evaluate group differences in PVI orgasm frequency for religion, ethnicity, and relationship status. To test the assumption that the variances of groups were equivalent, Levene's test for homogeneity-of-variance was used which showed that religion, ethnicity, and relationship status came from populations of equal variance (p = .31, p = .22, and p = .66 respectively). The ANOVA analyses showed no differences for religion ($F(7, 750)$ = 1.54, p = .15) or ethnicity ($F(4, 828)$ = .26, p = .91) in PVI orgasm frequency. Relationship status showed a relationship with PVI orgasm frequency with $F(5, 818)$ = 2.66, p = .02. The only difference ($p < .01$) in relationship status was between those single and not dating (M = 42.82% PVI orgasm frequency) and those single and in a committed relationship (M = 54.46% PVI orgasm frequency). Once current/recent partner was controlled for in regression analyses, relationship status did not make a unique contribution to prediction. This is likely due to the fact that of those who identified a recent sexual partner, 49% said that they were currently single and not dating.

Refer to Table 2 for descriptive statistics and Table 3 for correlations for major variables used in this study.

Research Question 2: How Important is PVI Orgasm?

Results quantified PVI orgasm importance by using the Measure of Orgasm Importance. Participants indicated how important it was for them to be able to have frequent orgasms triggered by intercourse alone without additional direct manual or other clitoral stimulation. Responses ranged on a Likert scale from *very unimportant* (1) to *extremely important* (6). Thirty-six women selected "non-applicable" for degree of importance. Of these women, 75% choose 0% for PVI orgasm frequency. Of the participants who responded to the importance question, 3.5% said they thought PVI orgasm was very unimportant, 3.6% said they thought it was moderately unimportant, 13.7% said they thought it was neither unimportant nor important, 22.6% said they thought it was moderately important, 27.7% said they thought it was very important, and 24.7% thought it was extremely important. On average, women responded midway between moderately important and very important (M = 4.48) with a median rating of very important (Mdn = 5.00). Rated degree of PVI orgasm importance was positively correlated with PVI orgasm frequency (r = .31, p < .001). A one-way analysis of variance (ANOVA) showed that women who never or rarely had PVI orgasms (M = 4.25) and women who sometimes had PVI orgasms (M = 4.35) rated PVI orgasms as less important than women who always or almost always had PVI orgasms (M = 5.04) with $F(2, 796)$ = 25.51, p < .001.

Hierarchical multiple regression analysis was performed to determine whether perceived PVI orgasm importance would predict PVI orgasm frequency

after controlling for age, ethnicity, and current/recent partner. Age, ethnicity, and current/recent partner were entered into Block 1, which explained 3.1% of the variance accounted for in PVI orgasm frequency. Age (β = -.09, p = .02) and thinking of a current partner instead of a recent partner (β = .16, p < .001) made significant contributions to prediction. The entry of rated degree of PVI orgasm importance into Block 2 resulted in an R^2 change of .10, with F change (1, 762) = 82.74, p < .001. The final model accounted for 12.6% of the variance in PVI orgasm frequency with F(6, 762) = 18.24, p < .001. Thinking of a current partner instead of a recent partner (β = .16, p < .001) and degree of importance of PVI orgasm (β = .31, p < .001) made unique notable contributions to prediction. Refer to Table 6 for a summary of the regression analysis. Block 3 involved a nonlinear component for degree of PVI orgasm importance, as represented by degree of PVI orgasm importance squared. R^2 change = .00 and F change (1, 761) = .00, p = .98.

Women were also asked "to the extent that having orgasms from intercourse alone (that is, intercourse that does not include any additional simultaneous direct clitoral stimulation) is important to you, how much would you agree or disagree with each of the following reasons for why it is important?" Participants were provided with 11 different possible reasons to rate on a 7-point Likert scale (see Table 5 for descriptive analyses for reasons why PVI orgasm is important). These reasons included physical pleasure, feeling of satisfaction, feeling of intimacy, this type of orgasm is less "work," this type of orgasm has a

natural beauty, would like to have orgasms from several different methods, "I might feel inferior if I could not," "I might feel ashamed if I could not," pressure from peers, pressure from partner, and pressure from media/society.

Pearson correlation analyses showed that degree of PVI orgasm importance was positively correlated with several of the reasons for importance, including physical pleasure ($r = .32$, $p < .001$), feeling of satisfaction ($r = .29$, $p < .001$), and feeling of intimacy ($r = .22$, $p < .001$). PVI orgasm importance also had a negative correlation with pressure from peers ($r = -.08$, $p < .05$).

A simultaneous regression was used to assess the ability of these reasons for importance to predict overall degree of PVI orgasm importance. The reasons for importance explained 15.2% of the variance accounted for in PVI orgasm importance with $F(11, 745) = 12.14$, $p < .001$. Physical pleasure ($\beta = .23$, $p < .001$), this type of orgasm has a natural beauty ($\beta = .15$, $p < .001$), and pressure from peers ($\beta = -.18$, $p < .01$) made unique contributions to prediction.

Several intrinsic reasons were positively correlated with PVI orgasm frequency. The three with the largest effect included physical pleasure ($r = .17$, $p < .001$), feeling of satisfaction ($r = .17$, $p < .001$), and this type of orgasm has a natural beauty ($r = .14$, $p < .001$). Two intrinsic reasons were negatively correlated with PVI orgasm frequency. These negative correlations were "I might feel inferior or inadequate if I cannot" ($r = -.08$, $p = .02$) and "I might feel ashamed if I cannot" ($r = -.11$, $p < .01$). All three extrinsic reasons for thinking PVI orgasm is important were negatively correlated with PVI orgasm frequency, including

pressure from peers ($r = -.13$, $p < .001$), pressure from partner ($r = -.12$, $p <$ 0.001), and pressure from media or society ($r = -.17$, $p < .001$). Refer to Table 5 for additional correlations.

Hierarchical multiple regression was used to assess whether reasons for PVI orgasm frequency importance would predict PVI orgasm frequency after controlling for the influence of age, ethnicity, and current/recent partner. Age, ethnicity, and current/recent partner were entered into Block 1, which explained 3.1% of the variance accounted for in PVI orgasm frequency. Age ($\beta = -.09$, $p = .02$) and identifying a current partner instead of a recent partner ($\beta = .16$, $p < .001$) made unique notable contributions to prediction. The entry of the 11 possible reasons for PVI orgasm importance into Block 2 resulted in R^2 change of .08 and F change $(11, 773) = 6.32$, $p < .001$. The final model accounted for 11.1% of the variance in PVI orgasm frequency, with $F(16, 773) = 6.01$, $p < .001$. Age ($\beta = -.09$, $p = .01$), identifying a current partner instead of a recent partner ($\beta = .14$, $p < .001$), this type of orgasm has a natural beauty ($\beta = .13$, $p < .01$), this type of orgasm is less work ($\beta = .08$, $p < .05$), and pressure from media/society ($\beta = -.14$, $p = .01$) made unique notable contributions to prediction. Refer to Table 7 for a summary of the regression analysis. Block 3 involved a nonlinear component for reasons for PVI orgasm importance, as represented by each reason for importance squared. R^2 change $= .01$, with F change $(10, 763) = 1.09$, $p = .37$.

Lastly, to increase their chances of having PVI orgasms, 45.6% of the sample reported that they would consider seeking pharmacological treatment and 60.4% of the sample reported that they would consider seeking psychological treatment.

Hypothesis 1: Duration of Intercourse

To examine whether duration of intercourse was associated with PVI orgasm frequency, participants completed the Sexual Response Scale, which measured participants' average intercourse duration (refer to Table 8), typical time required to have a PVI orgasm (refer to Table 9), and ideal time spent having PVI. Participants were also asked if they believed that increasing the duration of intercourse would increase their chance of having an orgasm, with responses ranging from greatly decreases chances to greatly increases chances on a 7-point Likert scale (refer to Table 10).

Pearson's correlations examined the relationships between the PVI orgasm frequency and variables related to duration of intercourse. Results showed a positive correlation between PVI orgasm frequency and average minutes engaged in intercourse ($r = .19$, $p < .001$), PVI orgasm frequency and the difference between typical duration and duration required to reach orgasm ($r = .28$, $p < .001$), and PVI orgasm frequency and whether women believed that increasing duration of PVI increased chances of PVI orgasm ($r = .16$, $p < .001$). The question regarding the belief that increasing duration of intercourse

increased chances of having PVI orgasms included 157 women who selected

non-applicable, with 75% of these women reporting that they had never

experienced a PVI orgasm. PVI orgasm frequency had a negative correlation

with minutes it typically takes to have an orgasm during intercourse without

additional clitoral stimulation ($r = -.15$, $p < .001$). No correlation was found

between PVI orgasm frequency and difference between ideal versus actual time

spent during typical PVI ($r = -.02$, $p = .55$). Pearson's correlations were also used

to examine relationships among all duration of intercourse variables (refer to

Table 11). A Pearson's correlation was calculated between duration of

intercourse and PVI orgasm frequency for women who sometimes (20-80%)

orgasm from PVI. With these women, PVI orgasm frequency was not associated

with duration of intercourse ($r = .11$, $p = .06$).

In line with previous research, an analysis was conducted to explore the

relationship between intercourse duration and PVI orgasm frequency groups.

Participants were divided into three groups according to their PVI frequency

(never or rarely, sometimes, and almost always or always). First, a test of

homogeneity of variances was conducted, which indicated that there was a

violation of the assumption of homogeneity of variances. Thus, Welch ($t(2,$

$423.57) = 10.08$, $p < .001$) and Brown-Forsythe ($F(2, 482.89) = 11.34$, $p < .001$)

tests were utilized, which indicated there were differences among groups. The

never or rarely group had an mean intercourse duration of 23.24 minutes, the

sometimes group had a mean intercourse duration of 27 minutes, and the almost

always or always group had a mean intercourse duration of 34.64 minutes (refer to Figure 2).

Hierarchical multiple regression was used to assess whether intercourse duration would predict PVI orgasm frequency after controlling for the influence of age, ethnicity, and current/recent partner for the whole sample. Age, ethnicity, and current/recent partner were entered into Block 1, which explained 3.1% of the variance accounted for in PVI orgasm frequency. Age ($\beta = -.09$, $p = .02$) and identifying a current partner instead of a recent partner ($\beta = .16$, $p < .001$) made unique notable contributions to prediction. The entry of intercourse duration into Block 2 produced an R^2 change of .04 and F change $(1, 774) = 28.6$, $p < .001$. The final model accounted for 6.7% of the variance in PVI orgasm frequency, with $F(6, 744) = 8.84$, $p < .001$. Identifying a current partner instead of a recent partner ($\beta = .16$, $p < .001$) and intercourse duration ($\beta = .20$, $p < .001$) made notable unique contributions to prediction. Refer to Table 12 for a summary of the regression analysis. Block 3 involved a nonlinear component for intercourse duration, as represented by intercourse duration squared. R^2 change = .00 and F change $(1, 743) = 2.83$, $p = .09$.

After removing participants who reported never having PVI orgasms, participants were divided into two groups based on typical minutes required to reach PVI orgasm. One group included women who typically reached orgasm within five minutes (15.6% of the remaining sample) and the other group reported requiring more than five minutes to reach orgasm during PVI (84.4% of the

remaining sample). A *t*-test showed that women who typically require less than five minutes to reach PVI orgasm had an average PVI orgasm frequency of 71.41% compared to women who typically require more than five minutes to reach PVI orgasm who had an average PVI orgasm frequency of 57.38% ($t(632)$ = 4.02, $p < .001$). Also, women who reach orgasm within five minutes had a shorter intercourse duration than women who need more than five minutes to reach orgasm (20.90 minutes versus 30.30 minutes respectively, $t(610) = -3.28$, $p < .01$). Of those women who need only five minutes or less of PVI to orgasm, 45.5% reported having PVI orgasm almost always or always. Of the women who almost always or always have PVI orgasms, women who reached orgasm within five minutes had intercourse for only 23.83 minutes compared to women who required more than five minutes who had intercourse for 39.35 minutes ($t(172) = -2.78, p < .01$).

Women were also evaluated on whether they typically had intercourse for a long enough time for them to typically reach orgasm. This was calculated by determining the difference between typical duration of intercourse and minutes of PVI typically required to reach orgasm. In the present sample, 76.1% of women typically had intercourse long enough to trigger orgasm whereas 23.9% did not. Those who usually do not typically have intercourse for long enough time to reach orgasm had a PVI frequency of 40.46% while those who did had a PVI orgasm frequency of 63.2% ($t(630) = -7.62, p < .001$). Of women who always or almost always had PVI orgasm (90-100% of the time; 23.5% of the sample),

92.5% reported that they typically had PVI for enough time required to reach

orgasm and they typically required 14.89 minutes to reach orgasm. Of women

who sometimes had PVI orgasms (20-80% of the time; 37.1% of the sample),

70.2% typically had intercourse for enough time required to reach orgasm and

they typically required 20.85 minutes to reach orgasm. Of women who never or

rarely had PVI orgasm (0-10% of the time; 39.4% of the sample), 69.5% typically

had PVI for enough time required to reach orgasm and they typically required

21.05 minutes to reach orgasm. However, it is important to note that of those

who never or rarely have PVI orgasm, 140 of the 329 women in this group were

unable to provide the amount of time required to reach orgasm because they

have never reached orgasm. So this category mainly represents women who

experience orgasm 10% of the time.

Hypothesis 2: Health Factors

       This study analyzed whether those with poor health would have lower PVI

orgasm frequencies than those with better health.

       2a. Scores on the Quick Inventory of Depressive Symptomatology – Self

Report, the Body Esteem Scale and the Self-Rating Anxiety Scale were used to

identify psychological factors. Participants were also asked to what degree they

experience anxiety during intercourse. A Pearson's correlation analysis

measured the relationships between PVI orgasm frequency and psychological

factors. The results revealed a negative correlation between PVI orgasm

frequency and anxiety during intercourse (r = -.14, p < .001). They also showed

a positive relationship between PVI orgasm frequency and body self-esteem (r =

.16, p < .001). The results showed only a marginal correlation between PVI

orgasm frequency and generalized anxiety (r = -.07, p = .06) and between PVI

orgasm frequency and depression (r = -.07, p = .05).

Women were also grouped based on the severity of their depression and

anxiety. An ANOVA showed no group differences in PVI orgasm for depression

(F(3, 831) = 1.56, p = .20) or anxiety (F(2, 832) = .26, p = .77). The mean PVI

orgasm frequency for women with no depression was 55.76%, for mild

depression was 54.83%, for moderate depression was 53.33%, and for severe

depression was 52.22%. The mean PVI orgasm frequency for women with

normal anxiety levels was 54.63%, for mild to moderate anxiety levels was

55.10%, and for marked to severe anxiety levels was 57.50%.

Hierarchical multiple regression analysis was used to assess whether

psychological factors (anxiety, anxiety during intercourse, depression, and body

esteem) would predict PVI orgasm frequency after controlling for the influence of

age, ethnicity, and current/recent partner. Age, ethnicity, and current/recent

partner were entered into Block 1, which explained 3.1% of the variance

accounted for in PVI orgasm frequency with F(5, 779) = 4.92, p < .001. Age (β =

-.09, p = .02) and identifying a current partner instead of a recent partner (β =

.16, p < .001) made unique notable contributions to prediction. The entry of

psychological factors into Block 2 resulted in an R^2 change of .03, with F change

(4, 775) = 6.75, p < .001. The final model accounted for 6.3% of the variance in PVI orgasm frequency, with F(9, 775) = 5.82, p < .001. Age (β = -.08, p = .03), identifying a current partner instead of a recent partner (β = .14, p < .001), experiencing anxiety during intercourse with higher anxiety leading to lower PVI orgasm frequency (β = -.10, p < .01), and body esteem with higher body esteem leading to higher PVI orgasm frequency (β = .15, p < .001) made unique notable contributions to prediction. Refer to Table 13 for a summary of the regression analysis. Block 3 involved a nonlinear component of the psychological factors, as represented by depression squared, anxiety squared, anxiety during intercourse squared, and body esteem squared. R^2 change for Block 3 = .00, with F change (4, 771) = .58, p = .68.

2b. The Health Scale provided information on common physical health complaints. Correlations were found only between PVI orgasm frequency and fatigue (r = -.07, p = .04) and between PVI orgasm frequency and pain (r = -.09, p = .01).

Hierarchical multiple regression was used to assess whether health complaints (how often they develop a cold, get headaches or migraines, lack energy, have pain, feel dizzy, and feel fatigued) would predict PVI orgasm frequency after controlling for the influence of age, ethnicity, and current/recent partner. Age, ethnicity, and current/recent partner were entered into Block 1, which explained for 3.1% of the variance accounted for in PVI orgasm frequency. Age (β = -.09, p = .02) and identifying a current partner instead of a recent

partner (β = .16, p < .001) made unique notable contributions to prediction. The entry of the health complaints into Block 2 resulted in an R^2 change of .02, with F change (6, 789) = 2.19, p = .04. The final model accounted for 4.7% of the variance in PVI orgasm frequency, with F(11, 789) = 3.50, p < .001. Age (β = -.08, p = .03), identifying a current partner instead of a recent partner (β = .17, p < .001), and pain with more pain leading to lower PVI orgasm frequencies (β = -.09, p = .03) made unique notable contributions to prediction. Refer to Table 14 for a summary of the regression analysis. Block 3 involved a nonlinear component of degree of health complaints, as represented by each health complaint squared. R^2 change for Block 3 = .01, with F change (6, 783) = .87, p = .52.

2c. The Health Scale provided information on health behaviors, such as exercising, alcohol use, and smoking habits. Body mass index (BMI) was calculated using height and weight information provided by participants. A Pearson's correlation analysis showed a positive association between PVI orgasm frequency and exercising (r = .09, p = .01). PVI orgasm frequency was not associated with smoking cigarettes (r = -.05, p = .17), alcohol use (r = -.03, p = .42), or body mass index (r = -.01, p = .68).

Hierarchical multiple regression was used to assess whether health behaviors would predict PVI orgasm frequency after controlling for the influence of age, ethnicity, and current/recent partner. Age, ethnicity, and current/recent partner were entered into Block 1, which explained 3.1 % of the variance

accounted for in PVI orgasm frequency. Age (β = -.09, p = .02) and identifying a

current partner instead of a recent partner (β = .16, p < .001) made unique

notable contributions to prediction. The entry of health behaviors into Block 2

resulted in an R^2 change of .01, with F change (4, 777) = 1.46, p = .21. The final

model accounted for 3.8% of the variance in PVI orgasm frequency, with F(9,

777) = 3.40, p < .001. Age (β = -.08, p = .03), identifying a current partner

instead of a recent partner (β = .16, p < .001), and exercising (β = .08, p = .02)

made unique notable contributions to prediction. Refer to Table 15 for a

summary of the regression analysis. Block 3 involved a nonlinear component of

health behaviors, as represented by each health behavior squared. R^2 change =

.01, with F change (4, 773) = 1.47, p = .21.

     2d.   An ANOVA explored the impact of body type on PVI orgasm

frequency, as measured by the Health Scale. Participants selected 1 of 4 body

types (banana, pear, apple, or hourglass), which best represented their bodies.

Levene's test of homogeneity of variances showed that the assumption that the

variances of the groups did not differ was met (p = .22). Results showed no

difference in PVI orgasm frequency among the four body types with F(3, 831) =

.57, p = .64. Descriptively, the mean PVI orgasm frequency tended to be lowest

for apple shaped women (46.79%, SD = 36.57), followed by pear (49.54%, SD =

34.73), banana (50.17%, SD = 35.89), and hourglass (52.35%, SD = 52.35)

figures.

Hierarchical multiple regression was used to assess whether all health variables (psychological factors, health complaints, and health behaviors) would predict PVI orgasm frequency after controlling for the influence of age, ethnicity, and current/recent partner. Age, ethnicity, and current/recent partner were entered into Block 1, which explained 3.1% of the variance accounted for in PVI orgasm frequency. Age (β = -.09, p = .02) and identifying a current partner instead of a recent partner (β = .16, p < .001) made unique notable contributions to prediction. The entry of health measures into Block 2 resulted in an R^2 change of .05, with F change (14, 765) = 2.71, p < .01. The final model accounted for 7.6% of the variance in PVI orgasm frequency with F(19, 765) = 3.33, p < .001. Age (β = -.07, p < .05), identifying a current instead of a recent partner (β = .14, p < .001), having pain with more pain leading to lower PVI orgasm frequencies (β = -.09, p = .04), better body self-esteem (β = .14, p < .01), and experiencing anxiety during intercourse with higher anxiety leading to lower PVI orgasm frequencies (β = -.10, p = .01) made unique notable contributions to prediction.

Hypothesis 3: Partner Characteristics

The Inventory of Partner Characteristics and the Inventory of Desired Partner Qualities were used to evaluate the relationship between perceived partner characteristics and PVI orgasm frequency.

A factor analysis was performed on the 30 sensitive partner and alpha partner traits from the Inventory of Partner Characteristics. The Kaiser-Meyer-

Olkin value was .96, which was above the recommended value of .6 (Kaiser, 1970, 1974) and Bartlett's test of sphericity (Bartlett 1954) was statistically significant, supporting the factorability of the correlation matrix.

Factor analysis yielded four factors that exceeded eigenvalues of 1, explaining 44.66%, 14.30%, 3.75%, and 3.58% of the variance respectively. An evaluation of the scree plot showed a clear break after the third factor. It was decided to retain three factors for additional investigation (Cattell, 1966). The three remaining factors explained 62.71% of the variance. Factor 1 contributed 44.66% of the variance, Factor 2 contributed 14.30% of the variance, and Factor 3 contributed 3.75% of the variance. Orthogonal rotation was performed to assist in the interpretation of the three components. This rotation showed the presence of all variables loading substantially on two factors (Factor 1 and Factor 2). None of the hypothesized sensitive partner or alpha partner traits loaded more highly on the third factor than its reference factor. Refer to Table 16 for factor loadings for each of the three components.

Two clear patterns were identified among the Inventory of Partner Characteristics. Factor 1 showed that characteristics of sensitive partner traits grouped together (i.e., sensitive to others needs, kind, compassionate, eager to soothe hurt feelings, good listener, good communicator, thoughtful, emotionally expressive, easy to talk to, gentle, warm, understands me, and does not use harsh language). Factor 2 revealed that alpha partner traits grouped together (i.e., leader, willing to take risks, competitive, athletic, masculine, self-reliant,

65

strong personality, dominant, physically strong, likely to be a good provider, makes me feel safe, other men respect him, physically attractive, assertive, and hardly ever gets sick). However, two of these traits (likely to be a good provider and makes me feel safe) had similar factors loadings (less than .02 difference) for both Factor 1 and Factor 2. As these differences were minimal, these traits were removed from the analysis. The factor loadings for hardly ever gets sick and does not use harsh language were both less than .40 on both factors, so these traits also were removed from the analysis. To ensure the alpha partner scale and the sensitive partner scale had an equal number of characteristics, the two sensitive characteristics (good communicator and easy to talk to), which had the lowest remaining factor loadings, were also removed. After removing these six traits, the final sensitive partner scale and alpha partner scale consisted of 12 traits each.

The mean total score for sensitive partner traits was (M = 54.94, SD = 16.99, range = 12 - 84) slightly lower but similar to the mean total score for alpha partner traits (M = 55.28, SD = 13.43, range = 12 - 84). A paired samples t-test showed no difference between total alpha partner traits and total sensitive partner traits with $t(834)$ = -.60, p = .55. Tables 17 and 18 show the means and standard deviations for all 24 of the sensitive and alpha partner traits. To test for internal consistency, a Cronbach's alpha was calculated for both the alpha partner scale (α = .91) and for the sensitive partner scale (α = .96). Both scales were found to have excellent internal consistency (George & Mallery, 2003). A

Pearson's correlation was used to look at the association between partner traits and PVI orgasm frequency. PVI orgasm frequency was positively correlated with both the total of sensitive partner traits ($r = .11$, $p < .01$) and the total of alpha partner traits ($r = .21$, $p < .001$). A Pearson's correlation analysis was also used with each of the 24 individual partner characteristics. The characteristic with the strongest correlation was physically attractive ($r = .20$, $p < .001$). Refer to Table 17 and 18 for all other partner trait correlations.

Hierarchical multiple regression was used to assess whether, after controlling for the influence of age, ethnicity, and current/recent partner, the alpha partner traits and the sensitive partner traits established with the factor analysis would predict PVI orgasm frequency. It was proposed that women might rate partners that produce many orgasms higher on valued trait dimensions than women who do not have partners who produce many PVI orgasms. It was also possible that reported orgasm rate with partner would have been affected by how positively a female viewed her partner. If alpha male traits were thought of as more important, women with higher PVI orgasm frequencies might rate their partner higher on alpha traits, not because alpha traits cause more orgasms, but because orgasms may lead to higher ratings of alpha. The Inventory of Desired Partner Qualities was used to control for any potential positivity rating bias. A paired samples t-test showed that women rated the importance of sensitive traits ($M = 68.41$) higher than alpha traits ($M = 58.88$) with $t(834) = -24.92$, $p < .001$. Age, ethnicity, and current/recent partner were

entered into Block 1, which explained 3.1% of the variance accounted for in PVI orgasm frequency with $F(5, 795) = 5.02$, $p < .001$. Age ($\beta = -.09$, $p = .02$) and identifying a current partner instead of a recent partner ($\beta = .16$, $p < .001$) made unique notable contributions to prediction. The entry of the rated importance or value of sensitive male qualities and sensitive male qualities in Block 2 resulted in an R^2 change of .01, with F change $(2, 793) = 3.45$, $p = .03$. Age ($\beta = -.07$, $p = .04$), identifying a current partner instead of a recent partner ($\beta = .16$, $p < .001$), and total for rated importance of alpha male characteristics ($\beta = .10$, $p = .01$) made unique notable contributions to prediction. The entry of the alpha partner traits and sensitive partner traits into Block 3 resulted in a R^2 change of .02, with F change $(2, 791) = 9.99$, $p < .001$. The final model accounted for 6.3% of the variance in PVI orgasm frequency, with $F(9, 791) = 5.88$, $p < .001$. Although the alpha partner traits made a unique notable contribution to PVI orgasm frequency ($\beta = .18$, $p < .001$), sensitive partner traits did not ($\beta = .01$, $p = .78$). In addition, identifying a current partner instead of a recent partner ($\beta = .12$, $p < .01$) made a unique notable contribution to prediction. Refer to Table 19 for a summary of the regression model. Block 4 involved a nonlinear component of partner traits represented by alpha partner traits squared and sensitive partner traits squared. R^2 change equaled .00, with F change $(2, 789) = 1.82$, $p = .16$.

A 2 x 2 ANOVA was used to further evaluate the relationship between partner traits and PVI orgasm frequency. Alpha partner traits and sensitive partner traits were divided into high and low scores by using the median score as

the cutoff score. Results showed a main effect for the alpha partner traits ($F(1,$ 831) = 13.78, $p < .001$) with women who rated their partners high on alpha traits having higher PVI orgasm frequencies (M = 55.44%) than women who rated their partners low on alpha traits (M = 45.75%). There was not a main effect for sensitive traits ($F(1, 831) = 2.93, p = .94$). Women who rated their partner high on sensitive traits had a similar PVI orgasm frequency (M = 52.86%) as compared to women who rated their partner low on sensitive traits (M = 48.37%). No interaction effect was found. Descriptively, women who rated their partner high on both alpha traits and sensitive traits had the highest PVI orgasm frequency (M = 57.57%), followed by women who rated their partner high on alpha traits but low on sensitive traits (M = 53.22%), women who rated their partner low on alpha traits but high on sensitive traits (M = 48%), and women who rated their partner low on alpha and low on sensitive traits (M = 43.52%).

Major Predictors of PVI Frequency

Hierarchical multiple regression was used to assess the extent to which major variables (degree of PVI orgasm importance, duration of intercourse, psychological factors, health complaints, health behaviors, and partner traits) would predict PVI orgasm frequency after controlling for the influence of age, ethnicity, and current/recent partner. Age, ethnicity, and current/recent partner were entered into Block 1, which explained 3.1% of the variance accounted for in PVI orgasm frequency. Age ($\beta = -.09, p = .02$) and identifying a current partner

instead of a recent partner (β = .16, p < .001) made unique notable contributions

to prediction. The entry of major variables into Block 2 resulted in an R^2 change

of .16, with F change (18, 726) = 7.75, p < .001. The final model accounted for

19% (adjusted R^2 = .16) of the variance in PVI orgasm frequency with F(23, 726)

= 7.25, p < .001. Identifying a current partner instead of a recent partner (β =

.14, p < .001), experiencing pain with more pain leading to lower PVI orgasm

frequency (β = -.09, p = .03), degree of PVI orgasm importance (β = .28, p <

.001), duration of intercourse (β = .15, p < .001), and body esteem (β = .08, p <

.05) made unique notable contributions to prediction. Refer to Table 20 for a

summary of the regression analysis.

Additional Analyses

Perceived effects of alcohol intoxication were evaluated to see if there was

a relationship between alcohol intoxication and PVI orgasm frequency.

Participants were asked whether they believed drinking alcohol increased their

chances of having an orgasm. A Pearson's correlation showed no association

between alcohol intoxication and PVI orgasm frequency. Of those who

responded, 14% said alcohol greatly increases their chance of experiencing an

orgasm, 16.8% said alcohol somewhat increases their chance of orgasm, 16%

said alcohol slightly increases their chance of orgasm, 24.2% said alcohol neither

increases nor decreases chance of orgasm, 9.4% said alcohol slightly decreases

chance of orgasm, 9.4% said alcohol somewhat decreases chance of orgasm, and 10.2% said alcohol greatly decreases chance of orgasm.

Sex guilt was calculated by using the total score for the Mosher Sex Guilt Survey. A Pearson's correlation showed that sex guilt was not associated with PVI orgasm frequency ($r = -.05$, $p = .18$).

Participants were also asked how often they are comfortable (e.g., feeling at ease or relaxed) during intercourse. A Pearson's correlation showed a positive relationship between experiencing comfort during intercourse and PVI orgasm frequency ($r = .21$, $p < .001$). Hierarchical multiple regression was used to assess whether feeling comfortable during intercourse would predict PVI orgasm frequency after controlling for the influence of age, ethnicity, and current/recent partner. Age, ethnicity, and current/recent partner were entered into Block 1, which explained 3.1% of the variance accounted for in PVI orgasm frequency. Age ($\beta = -.09$, $p = .02$) and identifying a current instead of a recent partner ($\beta = .16$, $p < .001$) made unique notable contributions to prediction. The entry of frequency of feeling comfortable during intercourse into Block 2 resulted in an R^2 change of .03, with F change $(1, 787) = 26.46$, $p < .001$. The final model accounted for 6.2% of the variance accounted for in PVI orgasm frequency, with $F(6, 787) = 8.70$, $p < .001$. Age ($\beta = -.09$, $p < .05$), identifying a current partner instead of a recent partner ($\beta = .11$, $p < .01$), and frequency of feeling comfortable during intercourse ($\beta = .18$, $p < .001$) made unique notable contributions to prediction. Block 3 involved a nonlinear component of feeling

comfortable during intercourse represented by feeling comfortable during

intercourse squared. R^2 change equaled .00, with F change $(1, 786) = .04$, $p =$

.84. Additionally, as frequency of feeling comfortable during intercourse

increased across women, their typical anxiety during intercourse decreased ($r = -$

.28, $p < .001$).

CHAPTER 4

DISCUSSION

This study sought to improve upon the measurement of PVI orgasm

frequency by developing a more precise measure of this construct. In addition, I

evaluated the degree of PVI orgasm importance and reasons for why PVI

orgasm is important and I determined whether these variables showed any

systematic relationships with PVI orgasm frequency. Using the new measure of

PVI orgasm frequency, I examined the relationship between PVI orgasm and

duration of intercourse and between PVI orgasm and health (i.e., psychological

factors, health complaints, and health behaviors). I further investigated the

relationship between PVI orgasm and alpha partner traits and between PVI

orgasm and sensitive partner traits. Analyses were carried out in a fairly large

sample of adult women (N = 835).

PVI Orgasm Frequency

The current study sought to improve on the methodology used in previous

research to obtain a more accurate measurement of the number of women who

experienced PVI orgasm and how often it occurred. Intercourse was defined as

"vaginal penetration by the penis" and women were asked to determine whether

"intercourse alone without additional direct manual or other clitoral stimulation"

triggered their orgasms. This specificity may have reduced the chance of women

incorrectly reporting a PVI orgasm when another activity triggered the orgasm, such as additional clitoral or other stimulation that may have occurred prior to penetration, during intercourse, or after intercourse had ended. In a review of orgasm research, Lloyd (2006) concluded that because previous research lacked this specificity, no reliable judgment could be reached as to frequency of orgasm from intercourse itself. Although these measurement adjustments may seem unremarkable, they have been absent from previous research on female orgasm resulting in numerous ambiguities in interpreting results and in drawing conclusions as to the evolutionary function, if any, of female orgasm.

Furthermore, in order to accurately determine frequency of PVI orgasm, participants were provided with both a quantitative scale (0% to 100%) and qualitative responses (i.e., never, rarely, sometimes, half of the time, usually, almost always, and always) to help participants select the response that best captured their experience. This was the first study to separate PVI frequency into multiple frequency groups and report the number of women in each group. The current sample had a distribution of frequency responses which were not normally distributed, largely due to the relatively high frequencies at the extremes of the distribution and an absence of high frequencies in middle. The most commonly chosen response included 20% of women who reported never (0% of the time) experiencing orgasm from PVI. The second most commonly chosen response included 13% of women who always (100% of the time) experienced orgasm from PVI (Figure 1 shows distribution across the full range of orgasm

frequency). The distribution was relatively flat between these two extremes. The mean of PVI orgasm frequencies was 51% (*SD* = 36.11, Range = 0% – 100%) with a median of 50%.

A second question regarding PVI orgasm asked participants "have you ever had an orgasm that you believe was triggered by the movements and sensations of intercourse itself, without simultaneous manual or other direct stimulation of the clitoral area?" In the current sample, almost 61% of women said they had and about 40% of women said that they had not. Although 40% said they never had a PVI orgasm on this question, only 20% of women reported never (0% of the time) having a PVI orgasm (experiencing an orgasm that was triggered by "intercourse alone without additional direct manual or other clitoral stimulation") on the first question requesting specific frequencies of PVI orgasm. It is unclear why this discrepancy would exist between the two questions. The language of these two questions appears to be comparable, but some participants responded in what would appear to be a logically inconsistent manner. Women who reported on the first question experiencing PVI orgasm 10% of the time may have been somewhat unsure as to whether they had experienced PVI orgasm and reported that they had never experienced a PVI orgasm on the second question. It is the case that women are occasionally unsure as to whether they have had an orgasm during intercourse (Hite, 2006, p. 100), especially if this a rare occurrence.

PVI orgasm frequency groups (i.e., never or rarely, sometimes, and almost always or always) were also determined. In the present sample, approximately 40% of women reported never or rarely (0-10%), 37% of women reported sometimes (20-80% of participants), and 24% of women reported always or almost always (90-100%) having PVI orgasms.

It is noteworthy that in the current study only 24% of participants almost always or always experienced PVI orgasm, as other studies have reported higher percentages than this. It is possible that past researchers phrased their questions in ways that led women to include intercourse accompanied by manual stimulation when the manual stimulation may have triggered the orgasm, not PVI itself. Women may also have included orgasm from oral stimulation as part of the overall sexual "intercourse" or experience of events within a sexual interaction. For example, Lloyd (2005) found that 43% of women reported that they always or almost always had orgasm "during" intercourse, Laumann et al. (1994) found that 29% of American women always had an orgasm "during coitus," and Stanley (1995) found that 18% of women always and 42% of women nearly always experienced orgasm "during intercourse." Past researchers have used phrases such as "during intercourse" or "during coitus" without further explanation. It is possible that past studies may have artificially inflated PVI orgasm frequency by including orgasms that are actually triggered by some form of direct external clitoral stimulation.

Additionally, PVI orgasm frequency was measured within the context of other sexual behaviors that can also trigger orgasm. This may have helped respondents differentiate more clearly between PVI orgasm and other types of orgasm. This may also have provided a broader context for evaluating whether PVI orgasm frequency is relatively high or low compared to other methods of stimulating orgasm. No previous research has measured PVI orgasm within a broad context of other forms of orgasmic stimulation so that comparisons could be made across forms of stimulation.

PVI was found to result in lower frequencies of orgasm than masturbation, masturbating with a vibrator, and intercourse with additional clitoral stimulation. PVI resulted in about the same frequency of orgasm as did oral sex and intercourse with a vibrator. PVI resulted in higher orgasm frequencies than did hand stimulation by partner, finger penetration by partner, and anal sex. Interestingly, using a vibrator during masturbation was more effective in triggering an orgasm than PVI, but using a vibrator during intercourse was not more effective than PVI. It is possible that women may feel ashamed or embarrassed when they use a vibrator with their partner, which may lead to lower orgasm frequencies.

Many researchers and therapists have suggested that PVI is not a very effective or efficient way of producing orgasm (e.g., Laan, 2003; Wallen, 2006; Williams, 1984) and they frequently recommend oral sex or hand stimulation by partner as preferable methods of producing orgasm. Although this may be

77

accurate for many women, there appears to be individual differences among women as to which forms of stimulation are more effective for them. For women with low orgasm frequency from PVI, other forms of stimulation may be helpful or more effective, but it does not appear to be accurate to claim that, in general, PVI is not a very effective method for triggering orgasm.

Importance of PVI Orgasm

Previous literature has not studied the importance of PVI orgasm in a quantitative or systematic fashion. The present study bridged this gap in the understanding of PVI orgasm importance and examined how the importance of PVI orgasm relates to PVI orgasm frequency.

The present study directly measured the importance of PVI orgasms to female participants. Women rated PVI orgasm importance midway between "moderately important" and "very important" with a median at "very important." Although most women do not have PVI orgasms with high consistency, most women reported that experiencing PVI orgasms was at least moderately important to them and a majority of women reported that they would be interested in interventions that could increase PVI orgasm frequency.

The present results revealed that women with higher PVI orgasm frequencies rated PVI orgasm as more important to them than did those with lower PVI orgasm frequencies. Women who have never had a PVI orgasm did not place as much importance on it, perhaps simply because they have never

experienced it. Additionally, women who easily reach orgasm through PVI may place more weight on the importance of PVI orgasm because it is their primary way of reaching orgasm and they may find the potential loss of this experience as upsetting.

Reasons for why PVI orgasm was important were also explored. The three highest rated reasons for PVI importance were all positive intrinsic factors. These included physical pleasure, feeling of satisfaction, and feeling of intimacy. Although not rated as highly as these positive intrinsic factors, negative intrinsic factors, such as feeling inferior or ashamed if they could not have PVI orgasms, were chosen by some women. The reasons least chosen for PVI orgasm importance were the three extrinsic reasons, which included pressure from peers, pressure from partner, and pressure from media or society. Although these negative reasons have been proposed to cause additional pressure for women to have PVI orgasms (Lavie & Willig, 2005; Nicholas & Burr, 2003), this study shows that these reasons are the least likely to be believed or endorsed by women. It is possible, however, that many women may not be aware of the extent to which these extrinsic factors influence their beliefs about the importance of PVI orgasm. At the same time, it is clear that PVI orgasm is important for most women in its own right. It also appears important for some women because of unnecessary partner, peer, and social pressures and because of negative anticipated emotions, such as feeling ashamed or inferior if PVI orgasm does not occur.

The relationship between reasons for PVI orgasm importance and PVI orgasm frequency was also assessed. Several intrinsic reasons were positively associated with PVI orgasm frequency. The three with the largest effect sizes included physical pleasure, feeling of satisfaction, and this type of orgasm has a natural beauty. Thus, as PVI orgasm frequency increased, so did the chances of women selecting these positive intrinsic beliefs for why PVI orgasm is important. On the other hand, two intrinsic reasons were negatively associated with PVI orgasm frequency. These reasons, "I might feel inferior or inadequate" and "I might feel ashamed if I cannot," were the only intrinsic reasons that had negative connotations. The more women were motivated by avoiding negative affective states (feeling inferior, inadequate, or ashamed if PVI orgasm did not occur) the lower was their orgasm frequency. All three extrinsic reasons for thinking PVI orgasm was important were also negatively associated with PVI orgasm frequency. This included pressure from peers, pressure from partner, and pressure from media or society. It appears that women who experience external pressure to have PVI orgasms, or want PVI orgasms in order to prevent the experience of negative emotions, were less likely to reach orgasm from intercourse. Although it is not known whether a decrease in perceived pressure or negative emotions would yield higher PVI orgasm frequencies, this unnecessary stress would not be helpful and would be unlikely to contribute to sexual satisfaction. It is possible that if women try to increase their PVI orgasm frequency for healthier reasons (i.e., for feelings of satisfaction or intimacy), this

change in motivation may be helpful in producing or allowing orgasm; on the other hand if the reason is unhealthy (i.e., because they would feel ashamed or inferior if they cannot have a PVI orgasm) or due to external pressure, it may become a hindrance to PVI orgasm.

After controlling for demographics, PVI orgasm frequency was predicted by three reasons for believing PVI was important. Women who thought that PVI orgasms were either more naturally beautiful or less work than other types of orgasms were more likely to experience PVI orgasms; those who felt pressure from media or society were less likely to experience PVI orgasms.

Duration of PVI

No prior studies were found that reported an average duration of intercourse as high as what was found in the current study (M = 27 minutes, Mdn = 20 minutes). A previous study with a national sample of Czech women found an average estimated duration of penile-vaginal intercourse of 16.2 minutes compared to American women's average of about eight minutes (Weiss & Brody, 2009). See Weiss and Brody (2009) for more information on duration in past research. Previous research found similar duration results as the American mean noted by Weiss and Brody (2009).

Several factors may have accounted for the difference in duration of intercourse between this study and previous research. First, sampling differences may explain the differential findings. Weiss and Brody (2009) used a

national sample of a European country. Huey, Kline-Graber, and Graber (1981) used a sample of women who were experiencing a sexual dysfunction. Miller and Byers (2004) used a sample of Canadian married university alumni. Gebhard (1966) used Alfred Kinsey's sample which consisted of married women recruited from various groups (e.g., a parent-teacher group, a business office). The current study allowed women to volunteer to participate after viewing a description of the research study rather than having women be directly contacted and asked to participate and this self-selection process may have influenced duration of intercourse. The present study is the only intercourse duration study to use a sample made up largely of college students. Unlike most prior research, the present study asked about duration of PVI by referencing only one sexual partner. When women focus on one specific sexual partner instead of an informal average across all previous partners, they may be more likely to provide more precise estimates of duration and these more significant relationships may also involve longer durations than would brief affairs. Another fact is that previous research has shown that people often do not estimate intercourse duration accurately. Levitt (1983) found that medical students, especially females, observed a tape of a couple having intercourse and they tended to overestimate the duration of intercourse.

The present study sought to reconcile inconsistent findings in previous research on the relationship between orgasm and intercourse duration. The current results were consistent with previous research (Schnabl, 1980; Gebhard,

1966; Weiss & Brody, 2009) which showed a relatively small positive linear relationship between orgasm frequency and duration of intercourse. On the other hand, the current findings differ from previous research, which found no relationship between orgasm and duration of intercourse (Huey, Kline-Graber, & Graber, 1982; Terman, 1951). It is possible that the studies finding no relationship were merely reflecting failures of statistical power to detect a weak relationship.

I hypothesized that correlations would be greater for the sometimes PVI orgasm group than for the sample as a whole. This hypothesis was based on the rationale that increasing intercourse duration would not have much of an effect on women who never or rarely have PVI orgasms or women who almost always or always have PVI orgasms. First, I proposed that the never or rarely PVI orgasm group would not benefit from an increase in duration of intercourse. I thought that these women may have tried to increase intercourse duration in the past, but they may have been unlikely to achieve PVI orgasm for other reasons (e.g., anxiety, distraction, biological differences, etc.). Second, I proposed that women who almost always or always orgasm from PVI would be more likely to reach orgasm quickly, so that duration of intercourse would not matter. Finding this result would have been consistent with previous research that showed a strong positive correlation between the thickness of urethrovaginal tissue and orgasm frequency (Gravina et al., 2008). I thought that women who have thicker urethrovaginal tissue would also orgasm quickly, as some women have been

shown to do (Gebhard, 1966; Schnabl, 1980). Thus, if women have high PVI orgasm frequencies, they may also have thicker urethrovaginal tissue which would lead to them quickly reaching orgasm. If these women orgasm quickly during intercourse, then there would be no need for them to prolong intercourse to facilitate orgasm. Because I thought that women who never or rarely have PVI orgasms and women who almost always or always have PVI orgasm would not benefit from an increase in duration, I hypothesized that intercourse duration would affect women mostly in the sometimes PVI orgasm group.

Contrary to this hypothesis, results showed that duration of intercourse was associated with PVI orgasm frequency for the sample as a whole, but there was no association between PVI orgasm frequency and intercourse duration for only the sometimes PVI orgasm group. To further investigate this issue, average duration of PVI required to trigger an orgasm was evaluated. No prior studies have looked at this variable. Women who never or rarely had PVI orgasms reported an average intercourse duration of about 23 minutes. When women in this group did have PVI orgasms, they required only about 21 minutes to reach orgasm. Since most women in this group had a typical duration of intercourse longer than what would be required for them to reach orgasm and they were still unlikely to reach orgasm, an increase in duration may not matter for these women. These women were also less likely to believe that an increase in duration of intercourse would lead to an increase in orgasm as compared to women who orgasm more frequently. Women who never or rarely have PVI

orgasms may not be motivated to prolong intercourse because they may have had little experience with longer duration leading to experiencing more PVI orgasms.

Time required to typically trigger orgasm was negatively associated with PVI orgasm frequency. Women who required less than five minutes to reach PVI orgasm also had intercourse for a shorter duration than women who required more than five minutes to reach PVI orgasm. These results are consistent with previous research, which showed a strong correlation between the thickness of urethrovaginal tissue and PVI orgasm frequency (Gravina et al., 2008). The present study showed that many women with higher PVI orgasm frequencies were able to orgasm faster than women who have lower PVI orgasm frequencies, suggesting that these woman may have thicker urethrovaginal tissue. For these women, intercourse duration would not likely impact their PVI orgasm frequency because their typical duration of intercourse was quite a bit longer than what they required to reach orgasm. Those who typically reach orgasm quickly made up 25% of those who always or almost always reach PVI orgasm. Since these women were a subset of the high frequency group and since they often prolonged PVI beyond what might be required to reach orgasm, the almost always or always group showed a somewhat longer average duration than did the never or rarely group or the sometimes group. The reason why those who can orgasm quickly often prolong PVI may have to do with wanting

more sensual pleasure and intimacy rather than a more narrowly focused pursuit of orgasm. It may also involve a pursuit of multiple orgasms.

In sum, the prediction that correlations between PVI orgasm and intercourse duration would be greater for the sometimes PVI orgasm group than for the sample as a whole was not supported. Those who never or rarely had PVI orgasm had relatively low duration, but the present results do not indicate that their low frequency of orgasm was the results of low intercourse duration. Those in the high orgasm frequency group had relatively long durations, but in many cases the durations were longer than what would be required for orgasm and thus presumably motivated by desires for more sensual pleasure, intimacy, or possibly multiple orgasms.

Psychological and Health Factors

I hypothesized that women with poor psychological health would have lower PVI orgasm frequencies than women with better psychological health. I further predicted that those with good psychological health would not necessarily show high levels (> 80%) of PVI orgasm frequency. This prediction was based on previous research that found a link between orgasm functioning and poor psychological health, such as anxiety (Bradford & Meston, 2006) and maladaptive ways of coping with psychological distress (Brody & Costa, 2008). In addition, this was the first study to measure the relationship between body self-esteem and PVI orgasm. I proposed that women who feel good about

themselves may be more comfortable expressing their sexual needs to their partners and feel more relaxed during intercourse, possibly leading to PVI orgasm.

The results partially supported the prediction that psychological health would be associated with PVI orgasm functioning. Of the four psychological factors evaluated, only two (anxiety during intercourse and body esteem) were correlated with PVI orgasm frequency. Additionally, there was a weak relationship between PVI orgasm frequency and these two psychological factors after controlling for demographics.

The results supported the hypothesis that healthy psychological functioning would not guarantee high PVI orgasm (> 80%) frequency. As predicted, the results showed that even women without depression (M = 55.76% PVI orgasm frequency) or anxiety (M = 54.63% PVI orgasm frequency) were not guaranteed high PVI orgasm frequencies.

The two psychological factors that arguably would have the most direct effect on the way women think during intercourse (i.e., anxiety during intercourse and body esteem) were the only psychological factors shown to affect PVI orgasm. This may be because women who have healthy body esteems and lower anxiety during intercourse also have positive thoughts about themselves, which may lead to them being more comfortable, more relaxed, and better able to express their sexual needs to their partners. Women with negative views about their bodies or who have anxiety during intercourse might find it more

difficult to put aside their negative thoughts during intercourse. In contrast to generalized depression or anxiety, body esteem and anxiety during intercourse are directly relevant to the intercourse interaction.

I hypothesized that women with more health complaints would have lower PVI orgasm frequencies than those with fewer health complaints. Although no studies have evaluated the relationship between PVI orgasm and mild to moderate health complaints, this prediction was based on research that showed some major physical health problems, such as spinal cord injury (Alexander & Rosen, 2008) and heart disease (Træen, 2007), negatively affect orgasm.

The results partially supported the hypothesis that health complaints would be associated with PVI orgasm functioning. There was a weak negative association between PVI orgasm frequency and two of the six general health complaints (i.e., fatigue and pain). However, after controlling for demographics, only having pain was related to PVI orgasm. Women experiencing pain may not be able to become aroused to the point of reaching orgasm, and thoughts or anticipations of pain may function as distracters that reduce focus of attention on sexual sensations.

I predicted that participants who engaged in healthier behaviors (e.g., more exercise, healthier BMI, and less alcohol and cigarette use) would show higher PVI orgasm frequencies than those who report poor health behaviors. This was predicted because studies have found a positive relationship between physical health and orgasm functioning (Meston & Gorzalka, 1996; Abu Ali et al.,

2009) and previous research has shown that acute exercise had a positive relationship with orgasm frequency (Meston & Gorzalka, 1996). Additionally, previous studies have shown inconsistent findings with BMI and orgasm frequency (Burri, Cherkas, & Spector, 2009; Abu et al., 2009). However, I thought that women who are in better physical shape may also have characteristics that lead to an increase in PVI orgasm frequency (e.g., more capable of controlling hip movements and have more muscle tone). Lastly, no previous studies have looked at the effects of smoking and drinking on PVI orgasm frequency. I predicted that there would be a negative relationship between PVI orgasm frequency and smoking cigarettes and drinking alcohol because these are negative health behaviors and the long-term use of these substances has been shown to have a negative effect on sexual function (Johnson, Phelps, & Cottler, 2004; Peugh & Belenko, 2001).

The hypothesis that healthy behaviors would have a positive relationship with PVI orgasm had mixed support. Exercise was the only health behavior of the four health behaviors analyzed that had a small positive correlation with PVI orgasm frequency. Although adding health behaviors did not result in a significant change to the regression model, exercise made a notable unique contribution after controlling for demographics. The present study was the first study that evaluated the relationship between long-term exercise and PVI orgasm. It is possible the relationship between health behaviors and PVI orgasm was fairly weak because the sample was youthful and health issues are rarer in

89

younger individuals. In samples consisting of older women who have more major health problems, health behaviors may have a larger impact on orgasmic functioning.

Lastly, I predicted that women with apple-shape body types (top heavy) would have lower PVI orgasm frequencies than would other women. No previous study has evaluated the link between orgasm and body type. However, previous studies have shown that women with apple-shape body types are at more risk for various health concerns than are other women (Wickelgren, 1998). The prediction that healthier body types (non-apple-shape body types) would be associated with PVI orgasm frequency was not supported. Although women with apple body types reported somewhat lower PVI orgasm frequencies than did other women, this effect was not statistically significant. It does not appear that body type affects PVI orgasm frequency in a primarily student sample, but it may be useful to pursue this line of research with older women, as the present data did show non-significant trends in the expected direction.

I evaluated the relationship between all health variables (psychological health, health complaints, and health behaviors) to determine potential relationships with PVI orgasm frequency. Although most health variables did not show a relationship with PVI orgasm frequency, small effects were found for anxiety during intercourse, body esteem, and having pain, with each predictor having effects in the expected direction.

Partner Characteristics

I predicted that both sensitive partner traits and alpha partner traits would be positively related to PVI orgasm frequency. I further hypothesized that even though women may want to have a long-term partner with sensitive traits, PVI orgasm would be higher with partners who are perceived as having a higher degree of alpha traits.

These hypotheses were based on two major psychological theories: evolutionary psychology and relationship-oriented social psychology. Relationship-oriented social psychology suggests that partner traits that increase emotional bonding and enhance relationship quality (Eagly, Wood, & Johannesen-Schmidt, 2004) may strengthen the emotional bond between partners. In support of this hypothesis, research has shown that outcomes associated with sensitive partner traits, such as relationship quality and marital happiness, have predicted PVI orgasm frequency (Costa & Brody, 2012; Weiss & Brody, 2011; Costa & Brody, 2007; Singh, Meyer, Zambarno, & Hurlbert 1998). Other researchers have theorized that female orgasm may function to favor some sexual partners over others in terms of sire choice (Baker & Bellis, 1993; Fox, Wolff, & Baker, 1970). Evolutionary psychology suggests that certain alpha male traits may be associated with PVI orgasm (Pollet & Nettle, 2008; Thornhill, Gangestad, & Comer, 1995). These alpha traits would have aided long-term female reproductive success in ancestral environments by enhancing the man's ability to protect and provide for his partner and her children. The prediction that

91

alpha partner traits would be more strongly associated with PVI orgasm than sensitive partner traits was also derived from findings that during ovulation, females are more likely to cheat with alpha males (Gangestad & Thornhill, 1998; Thornhill & Gangestad, 1999; Thornhill et al., 2003; Johnston, Hagel, Franklin, Fink, & Grammer, 2001; Gangestad, Simpson, Cousins, Garver-Apgar, & Christensen, 2004; Puts, 2005).

As predicted, although findings were relatively weak, results showed that both alpha partner traits and sensitive partner traits were related to PVI orgasm frequency. However, once demographics and perceived degree of importance of alpha and sensitive male qualities were controlled, only alpha partner traits made a unique contribution to predicting PVI orgasm, even though women rated sensitive male traits as more important and valuable than alpha male traits.

The present results provide partial support for relationship-oriented theories in social psychology and stronger support for theories within evolutionary psychology that emphasize that reproductive importance of the alpha male role in protecting and providing for the family. The findings also support the evolutionary role for PVI orgasm in enhancing reproductive success by affecting sire choice. One implication of these findings is to highlight a major dilemma for women. Most women value intimate, committed relationships, and they also value PVI orgasm. It appears that the men most likely to produce higher quality relationships are less likely to create the excitement that leads to PVI orgasm. At the same time, the men most likely to generate excitement and

orgasm may also be the ones less likely to produce high quality relationships. However, women whose partners have both alpha male and sensitive male traits reported the highest frequency of PVI orgasms.

Advances and Improvements

The present study improved upon previous research by providing a more systematic and detailed description of intercourse orgasm. This is of particular importance because the focus on PVI has direct implications for evolutionary interpretations of the role of orgasm from intercourse. This study also calculated PVI orgasm frequency using several different methods (e.g., using the mean and frequency distribution) while providing participants with both a quantitative scale (0% to 100%) and qualitative responses (i.e., never, rarely, sometimes, half of the time, usually, almost always, always) to allow participants to more easily choose the most accurate response that describes their sexual experience. Further, it also put PVI orgasm frequency into a relative context by comparing it to orgasm frequency from other forms of sexual stimulation

The present study was the first to evaluate importance of PVI orgasm in a systematic and quantitative way. Specifically, this study clarified how important PVI orgasm was to women and which reasons drive this perception. Moreover, intrinsic (e.g., feelings of intimacy or satisfaction) and extrinsic (e.g., pressure from society) were evaluated for the first time.

The current study also advanced understanding of the relationship between the relationship between intercourse duration and PVI orgasm by improving on the methodology used in previous studies. For example, this was the first study that looked at duration of intercourse across the full distribution of PVI orgasm frequencies. In addition, the study included several different measurements related to duration beyond just typical minutes of intercourse. This included ideal intercourse duration, time typically required to have a PVI orgasm, and whether participants believed that increasing duration of intercourse would lead to higher PVI orgasm frequencies. By using this methodology, clarifications were made as to how orgasm frequency appears to be linked to duration of PVI.

Although many studies have evaluated health factors on orgasm functioning, few have examined the relationship between health factors and PVI orgasm specifically. The present study identified several new linkages between health factors and PVI orgasm frequency and it evaluated health factors in ways that have never been done before, such as looking at body esteem, long-term exercise, and mild to moderate health complaints.

Finally, the current study was the first to draw the contrast between sensitive and alpha partner traits and examine their possible effects on PVI orgasm. These findings have led to a deeper understanding of the effects partners may have on PVI orgasm.

Limitations and Future Research

Although the present study made improvements in the understanding of PVI orgasm, limitations did exist. First, the present study's methodology included only self-report measures. Ideally this study would have also used objective measures, such as vaginal density. The thickness of the urethrovaginal tissue has been shown to be highly correlated with PVI orgasm (Gravina et al., 2008) and may be a stronger predictor than the variables included in the present study. No research has looked at the combination of the variables that were included in this study and urethrovaginal tissue. By combining these two methods, we may be able to understand the causes of PVI frequency more fully. In addition, self-report measures rely on participants to give accurate information. However, it is possible that participants are not providing accurate information for various reasons. For instance, women may not provide truthful information about sensitive variables, such as weight. Other variables in the present study were also based on perceptions, such as comparing their partners to other men. Measuring these variables using more objective methods in addition to self-report measures would improve upon the accuracy of the findings.

Another limitation is that this study included only cross-sectional data. Longitudinal studies would be beneficial to determine if and why PVI orgasm frequencies change over time. Research that follows women over time may be able to determine if certain orgasm frequencies change when other factors change. For example, as women's bodies change over time, so might PVI

orgasm frequency. With age, some women may experience hormone changes, vaginal dryness, or decreased arousal. Menopause factors may also affect orgasm functioning. On the other hand, with time women are likely to have more sexual experiences, which may also alter PVI orgasm frequency. Although I attempted to evaluate a wide range of ages, from 18 years old to pre-menopause, most participants were relatively young. Due to the sensitivity of this study, recruiting methods for the community were limited. This made it difficult to obtain women from the community, which in turn led to a younger sample than desired. Following women over time and including a more representative sample of the general population would produce more generalizable results.

Additionally, future researchers should consider adding a social desirability scale. This study showed that some socially desirable variables (e.g., exercise and alpha partner traits) were more likely to be positively associated with PVI orgasm frequency. Some less desirable traits (e.g., anxiety during intercourse and poor body esteem) were more likely to be negatively associated with PVI orgasm frequency. Having more orgasms during intercourse is also a socially desirable outcome. It may be that women who choose responses based on social desirability may also report higher PVI orgasm frequencies or longer intercourse duration.

Finally, PVI orgasm frequency was higher with women who thought about a current sexual partner for the orgasm questions as compared to women who

thought about a recent sexual partner for these questions. There may be a halo effect occurring where women think more positively about their experiences with present than past partners. This suggests that estimating frequency of PVI orgasm is somewhat subjective and other factors may go into a woman reporting high or low PVI orgasm frequencies. It may also be that there were issues in former relationships that negatively impacted sexual functioning. These issues may have also contributed to the couple having problems in their relationship.

Summary and Conclusions

Despite the abovementioned limitations, the results make a number of contributions in advancing the understanding of PVI orgasms. The present study found a mean PVI orgasm frequency of about 50%, meaning that women have PVI orgasm approximately half of the time during PVI. Further, in this study's sample, 40% of women never or rarely had PVI orgasms, 37% sometimes had PVI orgasms, and 24% almost always or always had PVI orgasms when they engaged in PVI.

Several of the major theories that attempt to explain PVI orgasm frequency were evaluated. The current study showed that most women believe that PVI orgasm is important or very important, but those who experience PVI orgasm more frequently believe it is more important than those who do not. Women thought PVI orgasm was important for both intrinsic and extrinsic reasons. Although most women reported thinking PVI orgasm was important for

97

positive intrinsic reasons, such as physical pleasure or intimacy, some women thought PVI orgasm was important for negative intrinsic reasons, such as feeling inferior or ashamed if they could not orgasm, or extrinsic reasons, such as pressure from peers, partners, or society. Although changing these negative reasons for wanting to have PVI orgasms may not lead to higher rates of PVI orgasm, educating women on more realistic expectations of PVI orgasm may lead to a decrease in negative emotions associated with not being able to reliably reach PVI orgasm.

Duration of intercourse showed a complex relationship with PVI orgasm frequency. Overall, as duration of intercourse increased, so did PVI orgasm frequency. However, it was discovered that women who can typically reach PVI orgasm quickly often have higher PVI orgasm frequencies, but these women would be unlikely to require longer intercourse to have a PVI orgasm. Also, women who never have orgasms may be unlikely to benefit from an increase in intercourse duration.

Two psychological factors, body esteem and anxiety during intercourse, were also found to affect PVI orgasm frequency. Although it is unclear if decreasing these factors would increase PVI orgasm frequency, it seems likely that negative thoughts about oneself, how one might be perceived, or what is happening during intercourse might function as distracters, reducing arousal and serving as obstacles to orgasm. In addition, it is possible that decreasing anxiety during intercourse and reducing negative body image thoughts would be

beneficial for a woman's well-being because she will be more likely to experience the positive emotions associated with PVI.

This was the first study to compare two major psychological theories, evolutionary psychology and relationship-centered social psychology, on the effect of partner traits on PVI orgasm frequency. Sensitive traits, although more valued than alpha traits by females, showed notably weaker relationships with PVI orgasm than did alpha traits, as has been proposed by evolutionary theories. This supports the view that female orgasm may function to favor some males over others in terms of sire choice.

The present study indicates that although most women (at least 60% in this sample) have experienced an orgasm that they believe was caused solely by the movements and sensations of PVI orgasm, many women were unable to experience PVI orgasms with high reliability (76.5% in this sample did not reach orgasm at least 90% of the time). Of the 835 women in the study, many women reported that they would consider seeking pharmacological (45.6% of the sample) or psychological (60.4% of the sample) treatment to increase their chances of having PVI orgasms. This shows that many women not only believe that achieving orgasms through intercourse is important, but they are also willing to take measures to increase the chances of having more orgasms through this method.

Although researchers should continue to evaluate different predictors of PVI orgasm, clinicians and researchers should work together to find more

effective interventions to increase PVI orgasm frequency. Recent studies on differences among women suggest promising ways for increasing PVI orgasm frequency. With progress in this area, successful treatments to increase PVI orgasm frequency are possible. However, even under the best conditions, there will likely be variability in women's ability to reach PVI orgasms reliably. In particular, if evolutionary theories are correct that PVI orgasm affects sire choice, it makes sense that many women would have some difficulty reaching orgasm from intercourse. If women could do this with ease with any male, orgasm from intercourse would lose its ability to affect sire choice. One potential solution is to explain to discouraged women that their situation is normal and to suggest more realistic alternatives, such as adding some form of direct manual stimulation of the clitoris. Although steps should be made in the research on PVI orgasm predictors and potential interventions, there is no one definition for healthy, normal orgasmic functioning. By continuing to investigate the characteristics of women who reliably have PVI orgasms and by considering female orgasm's evolutionary implications, there is every reason to believe that society will gain a more complete and a more balanced understanding of female orgasm.

Table 1
Participant Demographic Characteristics

Descriptive Information	*N*
Age (*M* = 21.15, *SD* = 3.79, range 18-44, *N* = 835)	
18 - 20	456 (54.6%)
21 - 24	286 (34.3%)
25 - 29	57 (6.8%)
30 - 35	22 (2.6%)
36 - 40	9 (1.0%)
41 - 45	5 (0.6%)
Race/Ethnicity (*N* = 833)	
White/Caucasian	497 (59.5%)
Black/African American	135 (16.2%)
Latina/Hispanic	127 (15.2%)
Asian	42 (5.0%)
Other/Biracial	32 (3.9%)
Years in College Completed (*N* = 835)	
Less than One	149 (17.8%)
One	170 (20.4%)
Two	139 (16.6%)
Three	201 (24.1%)
Four	116 (13.9%)
Five or more	60 (7.2%)

(*table continues*)

Table 1 (*continued*).

Descriptive Information	*N*
Marital Status (*N* = 824)	
Single, Not Dating	156 (18.7%)
Single, Dating	199 (23.8%)
Single, In a Committed Relationship	386 (46.2%)
Engaged	27 (3.2%)
Married	52 (6.2%)
Other	5 (0.5%)
Religion Identified With (*N* = 758)	
Non-Religious	180 (23.7%)
Christian	494 (65.2%)
Non-Christian	50 (6.6%)
Other	34 (4.5%)

Note. Non-Christian includes Buddhist, Hindu, Jewish, and Muslim religions Participants did not have to provide race/ethnicity or marital status, or religious identification to complete the study.

Table 2
Descriptive Statistics for Major Variables

Variable Name	M	Median	SD	Range
Frequency of PVI orgasm	50.66	50.00	36.11	0-100
Age	21.15	20.00	3.79	18-43
Body Mass Index	23.94	22.80	5.36	14.17-66.56
Alcohol	3.34	3.00	1.36	1-7
Smoking	1.90	1.00	1.37	1-6
Exercise	8.06	7.00	6.13	0-28
Negative Health Symptoms	13.10	13.00	5.69	0-36
Average Minutes of PVI	27.34	20.00	2.740	0-200
Ideal Average Minutes of PVI	33.38	30.00	29.18	0-300
Average minutes of PVI to trigger orgasm	18.60	15.00	16.82	0-160
Belief that duration of PVI increases chance of orgasm	2.88	2.50	1.12	1-7

(*table continues*)

Table 2 (*continued*).

Variable Name	M	Median	SD	Range
Belief that alcohol increases chance of PVI orgasm	3.67	4.00	1.84	1-7
Anxiety during Intercourse	2.55	2.00	1.379	1-7
Sensitive Partner Characteristics	67.79	69.00	20.25	15-90
Alpha Partner Characteristics	105	71	69.96	15-90
Sex Guilt (low scores = more guilt)	5.08	5.10	0.78	2.50-4.20
Total BES	120.87	118.00	22.89	63-112
Total QIDS	7.86	7.00	4.01	1-23
Total SAS	36.32	35.00	8.716	20-50

Note. PVI = Penile-vaginal Intercourse, BES = Body Esteem Scale, QIDS = Quick Inventory of Depression – Self-Report; SAS = Self-rated Anxiety Scale.

Table 3
Pearson's Correlations for Major Variables

	Org Freq	BMI	ALC	SMK	EXR	MinOrg	ANXi	IMPT	BES	QIDS	SAS	Sensitive
Org Freq												
BMI	-.01											
ALC	-.03	-.04										
SMK	-.05	.02	.32***									
EXR	.09**	.03	-.01	-.08*								
MinOrg	-.19***	.06	.03	.07	.08*							
ANXi	-.14***	.03	-.02	.07	.02	-.04						
IMPT	.31***	-.01	-.02	-.04	.02	.10**	-.08*					
BES	.16***	-.18***	-.02	-.11**	.23***	.10**	-.13***	.10**				
QIDS	-.07	.02	.02	.17***	.05	-.01	.26***	.04	-.32***			
SAS	-.07**	.04	.00	.15***	-.05	-.01	.28***	-.05	-.24***	.66***		
Sensitive	.11**	-.04	-.08*	-.11***	.02	.06	-.09*	.02	.17***	-.02	.01	
Alpha	.21**	-.10***	-.04	-.12***	.14***	.19***	-.09*	.19***	.33***	-.05	-.05	.44***

Note. Variable Abbreviation Key: Org Freq = Penile-vaginal orgasm without additional stimulation, BMI = Body Mass Index, ALC = Number of alcoholic drinks in a typical week over the past six months, SMK = Number of cigarettes smoked in a typical week over the past six months, EXR = amount of exercise in a week, MinOrg = Typical number of minutes it takes participant to have orgasm triggered by intercourse without additional stimulation, ANXi = Amount of anxiety experienced during intercourse, IMPT = Rated importance of orgasm from PVI without additional stimulation PVI without additional stimulation, BES = The total score of the Body Esteem Measure, QIDS = The total score of the Quick Inventory Depression Scale, SAS = The total score of the Self-reported Anxiety Scale, Sensitive = Sensitive Partner Traits, Alpha = Alpha Partner traits; * p < .05, ** p < .01, *** p < .001

Table 4

Measure of Orgasm Frequency

On average, what percentage of the times that you participate in this sexual activity do you experience an orgasm that was triggered by this activity?	Frequency											*M, SD, N*
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	
Masturbation (i.e., self-stimulation) by manual stimulation	17.5%	8.0%	5.3%	4.3%	2.2%	5.9%	2.6%	3.7%	5.9%	9.1%	35.5%	*M = 59.58%* *SD = 40.59* *N = 647*
Masturbation by vibrator	25.3%	4.1%	3.4%	4.6%	2.4%	3.6%	2.9%	2.9%	2.2%	8.0%	40.4%	*M = 58.44%* *SD = 43.08* *N = 411*
Hand stimulation of clitoral area by partner	21.1%	9.9%	7.3%	9.3%	5.1%	11.1%	4.6%	9.4%	5.6%	7.0%	9.6%	*M = 42.57%* *SD = 34.45* *N = 809*
Finger penetration of vagina by partner	28.2%	11.8%	7.5%	7.9%	7.9%	7.9%	5.5%	7.6%	5.1%	4.6%	6.0%	*M = 35.03%* *SD = 32.93* *N = 800*
Oral Sex (partner's mouth on you genitals)	16.4%	8.8%	6.4%	6.8%	5.1%	9.6%	5.8%	6.4%	9.9%	10.9%	14.0%	*M = 50.71%* *SD =35.85* *N = 764*

(*table continues*)

Table 4 (*continued*).

On average, what percentage of the times that you participate in this sexual activity do you experience an orgasm that was triggered by this activity?	Frequency											*M, SD, N*
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	
Intercourse that also includes simultaneous manual stimulation of the clitoral area	14.0%	5.4%	3.9%	4.7%	5.1%	6.6%	5.7%	8.9%	11.5%	15.0%	19.2%	*M* =59.64% *SD* = 35.625 *N* = 772
Intercourse that also includes simultaneous stimulation of the clitoral area with a vibrator	35.0%	0%	6.2%	7.0%	2.4%	6.5%	5.1%	4.9%	6.8%	7.6%	18.4%	*M* = 44.15% *SD* = 40.53 *N* = 369
Intercourse alone without additional direct manual or other clitoral stimulation	20.1%	6.5%	4.9%	4.9%	4.6%	9.7%	6.7%	9.2%	9.9%	10.2%	13.3%	*M* = 50.66% *SD* = 36.11 *N* = 835
Anal Sex	58.5%	10.5%	4.3%	3.9%	2.3%	3.1%	2.3%	2.3%	4.3%	3.1%	5.4%	*M* =20.19% *SD* = 32.21 *N* = 258

Note. Sample size varies because not all participants reported participating in all sexual activities. With sample sizes less than 835, missing participants responded with "non-applicable."

Table 5

Measure of Reasons for Orgasm Importance

"To extent that having orgasms from intercourse alone (that is, intercourse that does not include any additional simultaneous direct clitoral stimulation) is important to you, how much would you agree with each of the following reasons for why it is important?"				Frequency				*M, SD, N,* Correlation with PVI Orgasm
	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree	
Physical pleasure	1.4%	0.5%	0.8%	6.0%	15.2%	43.7%	32.3%	*M* =5.94 *SD* = 1.11 *N* = 835 *r* = .17***
Feeling of satisfaction	1.2%	1.0%	0.8%	6.2%	13.3%	47.4%	30.0%	*M* = 5.92 *SD* = 1.10 *N* = 833 *r* =.17***
Feeling of intimacy	1.1%	1.4%	1.0%	6.5%	11.7%	35.2%	43.1%	*M* = 6.04 *SD* = 1.18 *N* = 829 *r* = .09*
This orgasm has Less "work"	11.2%	14.1%	9.5%	32.9%	13.2%	13.4%	5.7%	*M* = 3.86 *SD* = 1.68 *N* = 828 *r* =.10**

(*table continues*)

Table 5 (*continued*).

To extent that having orgasms from intercourse alone (that is, intercourse that does not include any additional simultaneous direct clitoral stimulation) is important to you, how much would you agree with each of the following reasons for why it is important?				Frequency				*M, SD, N,* Correlation with PVI Orgasm
	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree	
This type of orgasm has a natural beauty	4.0%	4.9%	3.7%	33.3%	12.9%	26.2%	14.9%	*M = 4.85* *SD* = 1.55 *N* = 831 *r* = .14***
Would like to have orgasms from several different methods	2.3%	3.8%	2.4%	19.1%	22.1%	28.6%	21.6%	*M* = 5.27 *SD* = 1.4 *N* = 832 *r* = -.00
I might feel inferior of inadequate if I could not	13.0%	13.1%	7.8%	24.2%	19.8%	14.3%	7.7%	*M* = 3.98 *SD* = 1.80 *N* = 830 *r* = -.08*
I might feel ashamed if I could not	17.4%	15.5%	10.6%	21.3%	17.2%	11.4%	6.5%	*M* = 3.66 *SD* = 1.84 *N* = 831 *r* = -.11**

(*table continues*)

Table 5 *(continued)*

To extent that having orgasms from intercourse alone (that is, intercourse that does not include any additional simultaneous direct clitoral stimulation) is important to you, how much would you agree with each of the following reasons for why it is important?				Frequency				*M, SD, N,* Correlation with PVI Orgasm
	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree	
Pressure from peers	35.3%	21.5%	8.3%	22.8%	6.0%	4.4%	1.8%	*M* = 2.63 *SD* = 1.63 *N* = 834 *r* = -.13***
Pressure from partner	25.8%	17.5%	8.9%	17.7%	18.0%	9.0%	3.0%	*M* = 3.24 *SD* = 1.83 *N* = 832 *r* = -.12***
Pressure from media/ society	34.8%	17.8%	7.8%	21.1%	9.5%	5.7%	3.3%	*M* = 2.83 *SD* = 1.78 *N* = 824 *r* = -.17***

Table 6

Regression Analysis Predicting PVI Orgasm Frequency from Degree of PVI Orgasm Importance

Variable	Standardized Coefficients β	t	Significance
Age	-.06	-1.78	.08
Black	.00	-0.01	.99
Asian	.03	0.71	.48
Hispanic	.04	1.07	.29
Current/Recent Partner	.16	4.64	< .001
Importance of PVI Orgasm	.31	9.10	< .001

Note. R^2 = .13, *Adjusted R^2* = .12, F(6, 762) = 18.24, *p* < .001. The comparison group for ethnicity was Caucasian participants. Caucasian participants were coded "0" and other ethnicities were coded "1." Current partner was coded "1" and recent partner was coded "0."

Table 7

Regression Analysis Predicting PVI Orgasm Frequency from Reasons for Orgasm Importance

Variable	Standardized Coefficients β	*t*	Significance
Age	-.09	-2.52	.01
Black	-.01	-0.26	.78
Asian	.02	0.44	.66
Hispanic	.02	0.53	.60
Current/Recent Partner	.14	3.92	< .001
Physical Pleasure	.10	1.56	.12
Feeling of Satisfaction	.10	1.55	.12
Feeling of Intimacy	-.07	-1.45	.14
Less Work	.08	2.01	< .05
Natural Beauty	.13	3.21	< .01
Several Different Methods	- .07	-1.91	.06
Inadequate/Inferior	.02	0.39	.70
Ashamed	- .01	-1.67	.10
Pressure from Peers	.02	0.25	.81
Pressure from Partner	.01	0.21	.83
Pressure from Media/Society	-.14	-2.45	.01

Note. R^2 = .11, *Adjusted* R^2 = .09, $F(16, 773)$ = 6.01, $p < .001$. The comparison group for ethnicity was Caucasian participants. Caucasian participants were coded "0" and other ethnicities were coded "1." Current partner was coded "1" and recent partner was coded "0."

Table 8

Duration of Intercourse Responses

Duration Response	Percent Responded
0-5 minutes	9.4%
6-10 minutes	15.7%
11-15 minutes	14.3%
16-20 minutes	16.2%
21-30 minutes	4.5%
31-35 minutes	17.1%
36-40 minutes	2.2%
41-45 minutes	4.1%
46-50 minutes	4.7%
51-55 minutes	0.4%
56-60 minutes	6.6%
Over one hour	4.8%

Note. N = 785; Question to calculate duration was "on average, how many minutes do you engage in penile-vaginal intercourse?"

Table 9

Duration of Intercourse Typically Required to Have an Orgasm

Duration Response	Percent Responded
0-5 minutes	15.6%
6-10 minutes	23.7%
11-15 minutes	17.0%
16-20 minutes	17.2%
21-30 minutes	4.4%
31-35 minutes	11.2%
36-40 minutes	0.9%
41-45 minutes	1.7%
46-50 minutes	2.7%
51-55 minutes	0.6%
56-60 minutes	3.3%
Over one hour	1.6%

Note. N = 634

Table 10

Belief that Longer Duration of Intercourse Increases Chance of Orgasm

Duration Response	Percent Responded
Greatly Increases Chance of Orgasm	21.7%
Somewhat Increases Chance of Orgasm	28.3%
Slightly Increases Chance of Orgasm	16.8%
Neither Increases nor Decreases Chance of Orgasm	19.6%
Slightly Decreases Chance of Orgasm	5.2%
Somewhat Decreases Chance of Orgasm	4.0%
Greatly Decreases Chance of Orgasm	4.4%

Note. N = 678

Table 11

Correlation Matrix for Duration Variables

	PVI orgasm frequency	PVI duration	Typical minutes for PVI orgasm	Belief duration increases PVI Orgasm
PVI orgasm frequency				
PVI duration	.19***			
Typical minutes for PVI orgasm	-.23***	.36***		
Belief duration increases chances of PVI orgasm	.16***	.01	-.02	
Difference b/w PVI duration & PVI time required for orgasm	.29***	.76***	-.31**	.03

Note. * = *p* < .05, ** = *p* < .01, *** = *p* < .001

Table 12

Regression Analysis Predicting PVI Orgasm Frequency from Typical Duration of PVI

Variable	Standardized Coefficients β	t	Significance
Age	-.05	-1.50	.14
Black	-.03	-0.72	.47
Asian	.01	0.22	.83
Hispanic	.02	0.62	.54
Current/Recent Partner	.16	4.41	< .001
PVI Duration	.20	5.35	< .001

Note. R^2 = .07, *Adjusted* R^2 = .06, $F(6, 744)$ = 8.84, p < .001. The comparison group for ethnicity was Caucasian participants. Caucasian participants were coded "0" and other ethnicities were coded "1." Current partner was coded "1" and recent partner was coded "0."

Table 13

Regression Analysis Predicting PVI Orgasm Frequency from Psychological Factors

Variable	Standardized Coefficients β	t	Significance
Age	-.08	-2.22	.03
Black	-.04	-0.94	.35
Asian	.00	-0.05	.96
Hispanic	.01	0.32	.75
Current/Recent Partner	.14	3.78	< .001
General Anxiety	-.01	-0.31	.76
Depression	.01	0.21	.84
Body Esteem	.15	3.77	< .001
Intercourse Anxiety	-.10	-2.63	< .01

Note. R^2 = .06, *Adjusted R^2* = .05, $F(9, 745)$ = 5.81, $p < .001$. The comparison group for ethnicity was Caucasian participants. Caucasian participants were coded "0" and other ethnicities were coded "1." Current partner was coded "1" and recent partner was coded "0."

Table 14

Regression Analysis Predicting PVI Orgasm Frequency from Health Complaints

Variable	Standardized Coefficients β	t	Significance
Age	-.08	-2.14	.03
Black	-.01	-0.18	.86
Asian	-.01	-0.27	.79
Hispanic	.01	0.21	.84
Current/Recent Partner	.17	4.64	< .001
Develop a Cold	.01	0.27	.79
Headaches/Migraines	.08	1.89	.06
Lack Energy	-.01	-0.21	.84
Pain	-.09	-2.24	.03
Dizzy	-.04	-0.90	.37
Fatigue	-.05	-0.86	.39

Note. R^2 = .05, *Adjusted* R^2 = .03, $F(11, 789)$ = 3.50, $p < .001$. The comparison group for ethnicity was Caucasian participants. Caucasian participants were coded "0" and other ethnicities were coded "1." Current partner was coded "1" and recent partner was coded "0."

Table 15

Regression Analysis Predicting PVI Orgasm Frequency from All Health Behaviors

Variable	Standardized Coefficients β	t	Significance
Age	-.08	-2.17	.03
Black	.01	0.19	.85
Asian	.00	-0.01	.94
Hispanic	.02	0.40	.69
Current/Recent Partner	.16	4.40	< .001
BMI	.01	0.19	.85
Alcohol	.00	0.06	.95
Smoking	-.02	-0.39	.70
Exercise	.08	2.33	.02

Note. R^2 = .04, *Adjusted* R^2 = .03, *F*(9, 777) = 3.40, *p* < .001. The comparison group for ethnicity was Caucasian participants. Caucasian participants were coded "0" and other ethnicities were coded "1." Current partner was coded "1" and recent partner was coded "0."

Table 16

Factor Analysis for Inventory of Partner Characteristics

	Sensitive Partner: Factor 1	*Alpha Partner:* Factor 2	Factor 3	Commonality after extraction
Sensitive to the needs of others	**.84**	.14	.04	.72
Kind	**.78**	.25	.06	.68
Compassionate	**.82**	.19	.04	.71
Eager to soothe hurt feelings	**.79**	.12	.13	.65
Sympathetic	**.91**	.16	-.09	.86
Tender	**.92**	.12	-.13	.88
Good listener	**.74**	.18	.39	.73
Good communicator	***.68***	*.21*	*.38*	*.66*
Thoughtful	**.84**	.22	.10	.76
Emotionally expressive	**.71**	.03	.10	.53
Easy to talk to	***.69***	*.19*	*.40*	*.68*
Gentle	**.86**	.12	.04	.75
Warm	**.79**	.30	.03	.72
Understands me	**.70**	.24	.34	.66
Does not use harsh language	***.31***	*.09*	*.01*	*.11*

(*table continues*)

Table 16 (*continued*).

	Sensitive Partner: Factor 1	Alpha Partner: Factor 2	Factor 3	Commonality after extraction
Leader, not a follower	.24	**.69**	.19	.60
Willing to take risks	.22	**.51**	-.01	.37
Competitive	-.03	**.61**	-.06	.43
Athletic	.03	**.67**	-.06	.45
Self-reliant	.04	**.52**	.22	.50
Masculine	.20	**.79**	.11	.75
Strong Personality	.25	**.62**	.08	.51
Dominant	-.12	**.64**	.03	.53
Physically Strong	.20	**.81**	-.02	.71
Likely to be a good provider	*.47*	**.49**	*.29*	*.57*
Makes me feel safe	*.53*	**.54**	*.30*	*.70*
Other men respect him	.35	**.72**	.20	.73
Physically attractive	.32	**.61**	.03	.47
Assertive	.07	**.60**	.06	.55
Hardly ever gets sick	*.26*	**.32**	*.10*	*.18*
Eigenvalues	17.95	5.29	1.12	
Percent of Total Variance	44.66%	14.30%	3.75%	
Total Variance: 62.71%				

Note. Factor loadings in bold show which factor the characteristics loaded highest on. Items italicized were items removed to form the sensitive partner and alpha partner scales.

Table 17

Descriptive Statistics for Sensitive Partner Characteristics

	Mean	Standard Deviation	Correlation with PVI Orgasm
Sensitive to the needs of others	4.39	1.70	.08*
Kind	4.82	1.50	.06
Compassionate	4.66	1.59	.14***
Eager to soothe hurt feelings	4.38	1.72	.10**
Sympathetic	4.43	1.65	.09**
Tender	4.44	1.71	.07*
Good listener	4.66	1.72	.09*
Thoughtful	4.68	1.68	.08*
Emotionally expressive	4.12	1.87	.06
Gentle	4.71	1.61	.08*
Warm	4.65	1.62	.11**
Understands me	5.00	1.78	.14***

Note. * = $p < .05$, ** $p < .01$, *** $p < .001$

Table 18

Descriptive Statistics for Alpha Partner Characteristics

	Mean	Standard Deviation	Correlation with PVI Orgasm
Leader, not a follower	4.54	1.63	.14***
Willing to take risks	4.50	1.66	.16***
Competitive	4.44	1.56	.12***
Athletic	4.29	1.64	.16***
Self-reliant	4.82	1.68	.10**
Masculine	4.90	1.60	.17***
Strong Personality	4.90	1.56	.17***
Dominant	4.00	1.57	.11**
Physically Strong	4.82	1.47	.19***
Other men respect him	4.78	1.61	.15***
Physically attractive	5.03	1.44	.20***
Assertive	4.27	1.52	.10**

Note. * = $p < .05$, ** $p < .01$, *** $p < .001$

Table 19

Regression Analysis Predicting PVI Orgasm Frequency from Alpha and Sensitive Partner Traits

Variable	Standardized Coefficients β	*t*	Significance
Age	-.06	-1.72	.09
Black	-.02	-0.63	.53
Asian	.00	-0.10	.92
Hispanic	.02	0.44	.66
Current/Recent partner	.12	3.19	< .01
Sensitive male importance	-.06	-1.57	.12
Alpha male importance	.03	0.63	.05
Sensitive partner traits	.01	0.29	.78
Alpha partner traits	.18	4.00	< .001

Note. R^2 = .06, *Adjusted* R^2 = .05, $F(9, 791) = 5.88$, $p < .001$. The comparison group for ethnicity was Caucasian participants. Caucasian participants were coded "0" and other ethnicities were coded "1." Current partner was coded "1" and recent partner was coded "0."

Table 20

Regression Analysis Predicting PVI Orgasm Frequency from All Variables

Variable	Standardized Coefficients β	t	Significance
Age	-.02	-0.48	.63
Black	-.01	-1.76	.08
Asian	.03	0.92	.36
Hispanic	.02	0.67	.50
Current/Recent partner	.14	3.63	< .001
BMI	.03	0.87	.38
Alcohol use	-.02	-0.43	.67
Cigarette use	.01	0.15	.88
Exercise	.04	1.11	.27
Fatigue	-.03	-0.52	.60
Headaches	.06	1.43	.15
Develop a cold	.04	1.04	.30
Dizzy	-.01	-0.18	.86
Lack Energy	.03	0.54	.59
Pain	-.09	-2.14	.03
Duration of PVI	.15	4.25	< .001
Anxiety during intercourse	-.06	-1.75	.08
Body Esteem	.08	1.99	< .05
Depression	-.05	-0.95	.35
Generalized Anxiety	.03	0.53	.60
Importance of PVI orgasm	.30	7.97	< .001
Sensitive partner traits	.00	-0.03	.97
Alpha partner traits	.07	1.63	.10

Note. R^2 = .19, *Adjusted* R^2 = .16, $F(23, 726)$ = 7.25, p < .001. The comparison group for ethnicity was Caucasian participants. Caucasian participants were coded "0" and other ethnicities were coded "1." Current partner was coded "1" and recent partner was coded "0."
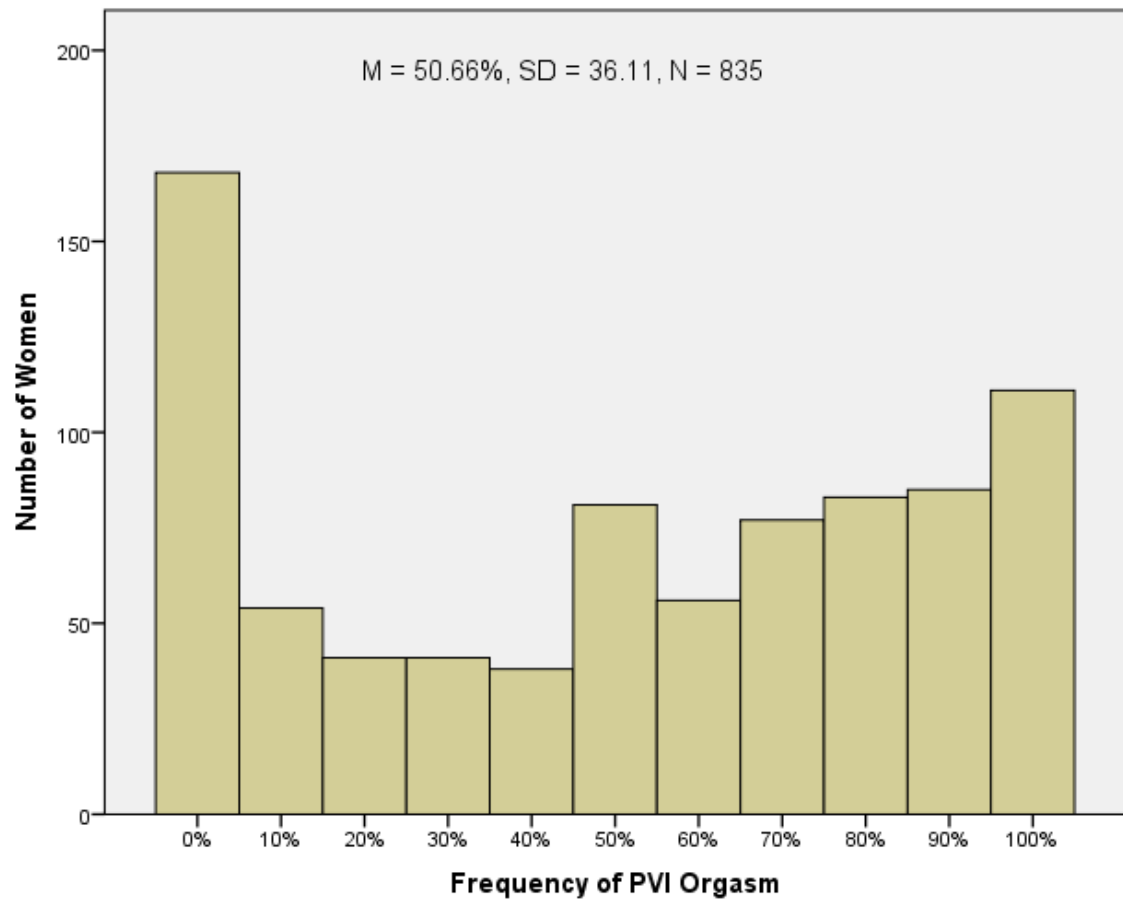
Figure 1. Distribution for frequency of penile-vaginal orgasm.
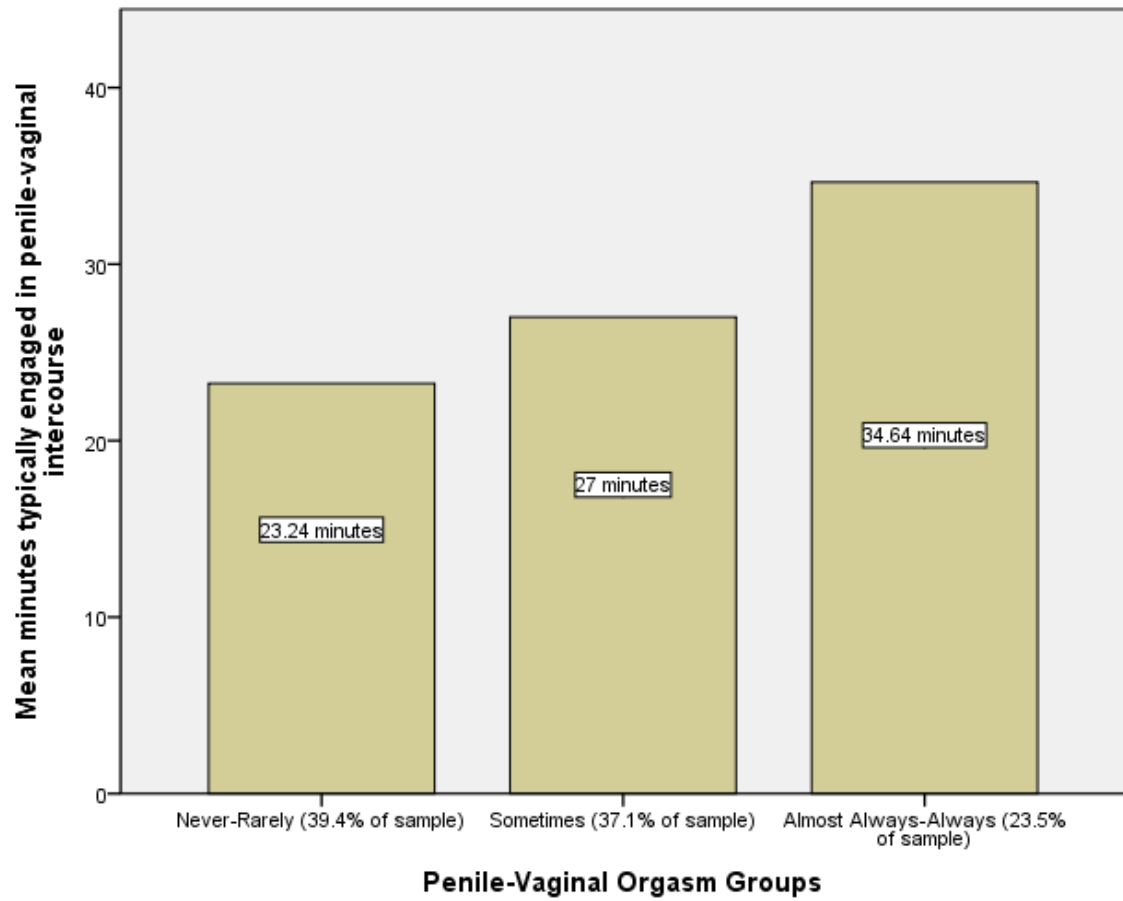
Figure 2. PVI orgasm frequency groups and duration of intercourse.

APPENDIX A

INFORMED CONSENT FORM/CONTACT INFORMATION FOR STUDENTS

1. Informed Consent

This survey investigates female sexuality. Sexual arousal and activity are experienced differently by different women. This study is looking at similarities and differences in women's responses to sexual stimulation. Some of the questions may apply to you whereas other questions may not.

University of North Texas Institutional Review Board
Informed Consent Form

_____

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose and benefits of the study and how it will be conducted.

Title of Study: Female Sexual Response
Principal Investigator: Joseph Critelli, Ph.D., University of North Texas (UNT), Department of Psychology.
Key Personnel: Catherine Powers, B.A.

Purpose of the Study:
To examine the effects of individual health factors on female sexual response. Questions include desired partner qualities, health functioning, sexual beliefs, perceived importance of orgasm, personality, and sexual response. Some questions will also ask about drug use or history of victimization.

Study Procedures:
After providing consent, participants will complete an online survey. Questions include multiple choice and free response on a variety of topics listed above. The average time to complete the online survey is 1.5 hours.

Foreseeable Risks:
There may be potential for psychological discomfort in answering personal questions. If this happens, you may exit the survey at any time. If you do experience psychological discomfort, please contact MHMR at (940) 381-5000 or you may contact the researchers who will provide you with counseling resources.

Benefits to the Participants or Others:
Possible benefits to the participant include gaining an awareness of certain behaviors or health factors and their effects on sexual health. Possible benefits to others include determining if any of these factors might influence sexual health, thus identifying potential areas for future intervention.

Compensation for Participants:
You will receive 3 credits through the SONA system upon full completion of the study. Compensation is conditioned upon completing all tasks requested.

Procedures for Maintaining Confidentiality of Research Records:
All information collected online will be stored on password protected computers. Confidentiality of your individual information will be maintained in any publications or presentations regarding this study.

Questions about the Study:
If you have any questions about the study, you may contact the Principal Investogator, Joseph Critelli, Ph.D., at telephone number (940) 565-2671 or email critelli@unt.edu, or you may contact Catherine Powers at catherinepowers@my.unt.edu.

Review for the Protection of Participants:
This research study was reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-3940 with any questions regarding the rights of research subjects.

*1. Research Participants' Rights:

Your agreement to participate indicates that you are at least 18 years old and have read or have had read to you all of the above. Your agreement also indicates that you are female and have been regularly sexually active with a male partner (penetration of the vagina by the penis) during some time period in the last two years. By consenting below, you confirm all of the following:

• You have read or you have had read to you the possible benefits and the potential risks and/or discomforts of the study.

• You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time.

• You understand why the study is being conducted and how it will be performed.

• You understand your rights as a research participant and you voluntarily consent to participate in this study.

• You may print a copy of this information notice for your records.

  ○ Yes, I agree to participate

APPENDIX B

INFORMED CONSENT FORM FOR COMMUNITY

1. Informed Consent

This survey investigates female sexuality. Sexual arousal and activity are experienced differently by different women. This study is looking at similarities and differences in women's responses to sexual stimulation. Some of the questions may apply to you whereas other questions may not.

University of North Texas Institutional Review Board
Informed Consent Form

_____

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose and benefits of the study and how it will be conducted.

Title of Study: Female Sexual Response
Principal Investigator: Joseph Critelli, Ph.D., University of North Texas (UNT), Department of Psychology.
Key Personnel: Catherine Powers, B.A.

Purpose of the Study:
To examine the effects of individual health factors on female sexual response. Questions include desired partner qualities, health functioning, sexual beliefs, perceived importance of orgasm, personality, and sexual response. Some questions will also ask about drug use or history of victimization.

Study Procedures:
After providing consent, participants will complete an online survey. Questions include multiple choice and free response on a variety of topics listed above. The average time to complete the online survey is 1.5 hours.

Foreseeable Risks:
There may be potential for psychological discomfort in answering personal questions. If this happens, you may exit the survey at any time. If you do experience psychological discomfort, please contact MHMR at (940) 381-5000 or you may contact the researchers who will provide you with counseling resources.

Benefits to the Participants or Others:
Possible benefits to the participant include gaining an awareness of certain behaviors or health factors and their effects on sexual health. Possible benefits to others include determining if any of these factors might influence sexual health, thus identifying potential areas for future intervention.

Procedures for Maintaining Confidentiality of Research Records:
All information collected online will be stored on password protected computers. Confidentiality of your individual information will be maintained in any publications or presentations regarding this study.

Questions about the Study:
If you have any questions about the study, you may contact the Principal Investogator, Joseph Critelli, Ph.D., at telephone number (940) 565-2671 or email critelli@unt.edu, or you may contact Catherine Powers at catherinepowers@my.unt.edu.

Review for the Protection of Participants:
This research study was reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-3940 with any questions regarding the rights of research subjects.

*1. Research Participants' Rights:

Your agreement to participate indicates that you are at least 18 years old and have read or have had read to you all of the above. Your agreement also indicates that you are female and have been regularly sexually active with a male partner (penetration of the vagina by the penis) during some time period in the last two years. By consenting below, you confirm all of the following:

• You have read or you have had read to you the possible benefits and the potential risks and/or discomforts of the study.

• You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time.

• You understand why the study is being conducted and how it will be performed.

• You understand your rights as a research participant and you voluntarily consent to participate in this study.

• You may print a copy of this information notice for your records.

○ Yes, I agree to participate

APPENDIX C

DEMOGRAPHIC INVENTORY

2. Demographic Information

Please complete the following questions. When in doubt, please select the answer that BEST fits you.

*1. How old are you?

| |

2. The ethnicity I identify with most is:

☐ White (Not of Hispanic Orgin)   ☐ Hispanic/Latina

☐ Black/African American   ☐ Native American

☐ Asian/Pacific Islander

Other (please specify)

*3. Country

Born in:

Raised in:

4. Religion

	I was raised:	I identify with:
Agnostic/Atheist/ Nonreligious/Secular	☐	☐
Buddhism	☐	☐
Catholic	☐	☐
Christian	☐	☐
Hinduism	☐	☐
Muslim	☐	☐
Judaism	☐	☐
Other	☐	☐

If other please specify

5. How often do you attend religious services?

○ More than once a week   ○ A few times a year

○ Once a week   ○ Never/Rarely

○ Once or twice a month

6. Current Relationship Status (select all that apply)

☐ Single, not dating

☐ Single, dating

☐ Single, in a committed relationship

☐ Engaged

☐ Married

☐ Separated

☐ Divorced

☐ Widowed

7. For this study, you will be asked to respond to some questions in reference to a current or a recent sexual partner. Will you be thinking about a:

○ current sexual partner

○ recent sexual partner

8. If you selected "current sexual partner" for the previous item, how long have you been with him?

Years [   ]

Months [   ]

9. If you selected "recent sexual partner" for the previous item, how long did that relationship last?

Years [   ]

Months [   ]

*10. If you selected "recent sexual partner" for question 7, please briefly explain why you are no longer with this person.

[   ]

11. How many years of college have you completed?

[   ]

*12. Best estimate of your parents' combined income last year:

○ < $20,000   ○ $100,001 - $150,000

○ $20,000 - $50,000   ○ $150,001 - $200,000

○ $50,001 - $75,000   ○ $200,000 +

○ $75,001 - $100,000   ○ Unknown/NA

13. Marital Status of Parents

○ Never Married   ○ One parent has passed away

○ Married   ○ Both parents have passed away

○ Divorced   ○ Unknown

APPENDIX D

IMPORTANCE OF PREGNANCY MEASURE

10. Pregnancy

*1. How many:

biological children do you have?

times have you been pregnant?

vaginal births have you had?

2. How important is it for you to become pregnant now?

- ○ Very important
- ○ Important
- ○ No opinion
- ○ Unimportant
- ○ Very unimportant

3. How important is NOT becoming pregnant to you now?

- ○ Very important
- ○ Important
- ○ No opinion
- ○ Unimportant
- ○ Very unimportant

APPENDIX E

DEBRIEFING INFORMATION FOR STUDENTS

16. THANK YOU!!!

This is the end of the survey.

Thank you for participating in this investigation. We are looking at how various factors, such as demographics, personality, health, and partner characteristics play a role in sexual preferences, arousal, orgasm, and other aspects of sexual response. We believe that examining these variables may lead to a more detailed, a more accurate, and a more complete understanding of women's sexuality.

Please do not talk about this experiment with anyone else. They might participate too and you might change their performance by talking about it.

Thank you for helping us. If you have any questions or concerns, you can e-mail Catherine Powers at catherinepowers@my.unt.edu or Dr. Critelli at critelli@unt.edu

Your research credits should be posted on SONA by the end of this week (if applicable). If you have any questions, please contact Catherine Powers at catherinepowers@my.unt.edu

APPENDIX F

DEBRIEFING INFORMATION FOR COMMUNITY

15. THANK YOU!!!

This is the end of the survey.

Thank you for participating in this investigation. We are looking at how various factors, such as demographics, personality, health, and partner characteristics play a role in sexual preferences, arousal, orgasm, and other aspects of sexual response. We believe that examining these variables may lead to a more detailed, a more accurate, and a more complete understanding of women's sexuality.

Please do not talk about this experiment with anyone else. They might participate too and you might change their performance by talking about it.

Thank you for helping us. If you have any questions or concerns, you can e-mail Catherine Powers at catherinepowers@my.unt.edu or Dr. Critelli at critelli@unt.edu

APPENDIX G

FLYER FOR COMMUNITY MEMBERS

UNT UNIVERSITY ⊙ OF NORTH TEXAS™
Discover the power of ideas.

VOLUNTEERS NEEDED!!!
Online Female Sexual Response Study

Who Qualifies: Females who have been regularly sexually active with a male partner during some time period in the last two years.
Purpose of the Study: To determine individual health factors in female sexual response. Factors include demographics, physical health, psychological health, personality, sexual responses, and partner characteristics.
How to Participate: Log-on to www.surveymonkey.com/s/femalehealth and follow the instructions.

Female Sexual Health Study	www.surveymonkey.com/s/femalehealth	Female Sexual Health Study	www.surveymonkey.com/s/femalehealth	Female Sexual Health Study	www.surveymonkey.com/s/femalehealth	Female Sexual Health Study	www.surveymonkey.com/s/femalehealth	Female Sexual Health Study	www.surveymonkey.com/s/femalehealth	Female Sexual Health Study	www.surveymonkey.com/s/femalehealth	Female Sexual Health Study	www.surveymonkey.com/s/femalehealth	Female Sexual Health Study	www.surveymonkey.com/s/femalehealth	Female Sexual Health Study	www.surveymonkey.com/s/femalehealth	Female Sexual Health Study

APPENDIX H

E-MAIL TO WOMEN'S GROUP MEMBERS

Hello,

I am writing to ask for your help in participating in a research study about female sexual response. Through your participation, I hope to examine the effects of individual health factors on female sexual response. Participation criteria: In order to participate you must be a female who is at least 18 years old. You must have been regularly sexually active with a male partner during some time period in the last two years.

Detailed information about the purpose of the study and your rights as a research subject is presented at the beginning of the survey. Your completion and submission of the questionnaire indicate your consent to participate.

Possible benefits to the participant include gaining an awareness of how certain behaviors or health factors might impact sexual health. In addition, individuals may find the experience of answering the questions in this survey to be thought provoking and enjoyable. Possible benefits to others include expanding the understanding of sexual health and identifying factors that may be useful in planning future intervention programs.

 If you have any questions or concerns about the research, please feel free to contact me or my research advisor at:

Catherine Powers   Joseph Critelli, Ph.D.
Graduate Student   Professor of Psychology
University of North Texas   University of North Texas
Email: catherinepowers@my.unt.edu   Email: critelli@unt.edu

The link to the survey is: http://www.surveymonkey.com/s/femalehealth Simply click on this address to go directly to the survey. If this does not work, copy and paste this address into the address bar of your Internet Browser. **Your participation in this research is strictly voluntary and anonymous and you can choose to opt out of the project at any time.**

Thank you very much for considering participating in this research project.

Sincerely,

Catherine Powers
Doctoral Candidate
Clinical Health Psychology and Behavioral Medicine Program
University of North Texas
catherinepowers@my.unt.edu

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