

**Pleasurable Insights:  
Conceptualizing the Role of Sexual Pleasure within  
Intimate Relationships**

by

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## Abstract

Sexual pleasure is commonly thought of as the central construct motivating sexual behavior. However, there is very little empirically-based work on the conceptualization and measurement of sexual pleasure. The current study evaluated the dimensionality of sexual pleasure by conducting an exploratory and confirmatory factor analysis on items derived from the current theoretical accounts of the construct. These items yielded six pleasure and two pain/displeasure factors. All except one factor uniquely associated with sexual satisfaction and dissatisfaction. Additionally, two of the derived factors added significantly to models differentiating between sexually functional and dysfunctional individuals. These findings suggest that pleasure factors are distinct and uniquely associate with theoretically and clinically relevant variables.

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## List of Abbreviations

CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CSI	Couple Satisfaction Index
EFA	Exploratory Factor Analysis
FSFI	The Female Sexual Function Index
GSS	General Sexual Satisfaction Scale
HED/UT	Hedonic/Utilitarian Scale
HLR	Hierarchical Linear Regression
IIEF	International Index of Erectile Function
PRS	Partner Regret Scale
PSSL	Partner Specific Sexual Liking
PSSW	Partner Specific Sexual Wanting
SRMR	Standardized Root-Mean-square Residual
TEPS	Temporal Experience of Pleasure Scale



## Pleasurable Insights:

### Conceptualizing the role of Sexual Pleasure within Intimate Relationships

How *pleasurable* is your sex life? Is it somewhat pleasurable, very pleasurable, or potentially not pleasurable at all? Although the question appears simple, the potential facets that comprise a global evaluation of sexual pleasure are varied and complex. For instance, do you experience a single *type* of pleasure during your sexual experience or is it multifaceted? Furthermore, does your experience of sexual pleasure derive from becoming sexually aroused or from romantic intimacy; and are the conjoint effects additive, multiplicative, or something altogether different? Given such complexity, the general lack of consensus as to the form and structure of pleasure, as well as the lack of theoretical agreement on its measurement, is not altogether surprising. However, as far back as Plato and Aristotle to more contemporary evolution-based research on sexual pleasure, this construct has been assumed to be an essential, if not the primary, motivator for sexual activity (Dubé & Le Bel, 2003; Del la Garza-Mercer, 2004). Taken together, despite the theorized central and prominent role of sexual pleasure; to date, there has been little headway in understanding its exact nature and composition.

Even within the sexuality literature there appears to be divergence between what is deemed theoretically important and what is actually studied. For example, the assessment of sexual satisfaction—a key evaluation of the sexual relationship—is mainly focused on aspects of sexual function (e.g., “*how often do you achieve orgasms?*”), partnered relationship (e.g., “*My partner is a wonderful sex mate.*”), and global summary evaluations (e.g., “*I am very satisfied with my sex life.*”); but typically omit aspects of sexual pleasure. That is to say, the methods of assessing sexual satisfaction focus mainly on the cognitive processes underlying this evaluative judgment (e.g., confirmation of expectations, causal attributions, or inequity judgments) instead

of the pleasure derived from the actual experience. Potentially, it is implicitly believed that the pleasure experienced within a sexual interaction is subsumed in the responses to these items (e.g., orgasm equates to highest form of pleasure, one cannot be satisfied without the experience of pleasure, etc.). However, this assumption cannot be evaluated without a clearly delineated construct of pleasure to determine if its separate assessment adds to the understanding of the overall sexual experience. To that end, the current study aimed to investigate the varied conceptualizations of the construct of pleasure and create a measure of sexual pleasure utilizing a construct validation approach (Clark & Watson, 1995).

### **A Pleasurable Construct**

The Oxford dictionary defines pleasure as “*the condition or sensation induced by the experience or anticipation of what is felt to be good or desirable; a feeling of happy satisfaction or enjoyment; delight, gratification.*” This definition taps into some of the theorized dimensions of pleasure that have been posited in emotion and consumer behavior literatures. Specifically, temporal distinctions (experienced or anticipated pleasure) and positive valence (e.g., good, happy) are prevalent in empirical research on pleasure (e.g., Russell, 2003; Gard, Gard, Kring & John, 2006). However, several other theorized facets of pleasure (e.g., sensory, aesthetic, accomplishment) and the unique qualities attributed therein are lacking from this definition. Similarly, this definition does not follow naturally into the measurement of this construct. In any case, the vagueness and incomplete state of this definition, mirrors the considerable disagreement surrounding the construct within the literature, in which three main themes tend to emerge.

Of foremost debate is the dimensionality of pleasure (i.e., one-dimensional vs. multidimensional); with some suggesting that pleasure is intrinsically tied to its antecedents, whereas others suggest a dimensional structure that taps into the motivational qualities of

pleasure. There are also those arguing for a single, undifferentiated structure. Secondly, there is disagreement about the affective substrates that may underlie pleasure and how their measurement may aid in understanding pleasure. Lastly, there are opposing opinions regarding the differentiation between sexual pleasure and satisfaction, as well as the role pleasure plays within the conceptualization of satisfaction. This lack of agreement has given rise to many conceptualizations of pleasure with little in the way of empirical support (Dubé & Le Bel, 2003). As such, some argue that pleasure is one of the most neglected constructs in psychology, especially given its purported importance to many of psychology's core and defining theories (Russell, 2003). The following sections address the aforementioned disagreements emergent within the literature and ends with how these issues will be integrated into the development of the currently proposed measure of sexual pleasure.

### **Dimensionality of Pleasure**

**Unitary pleasure.** The primary disagreement between pleasure theorists is in the dimensional structure of pleasure. Specifically, is it a unitary construct or multidimensional? The prevailing view is that pleasure is a unitary construct, which suggests that—regardless of source or subjective experience—pleasure is simply a summary judgment of how “good” something feels (Dubé & Le Bel, 2003; Dubé & LeBel, 1999). For instance, pleasure is described as the basic underlying dimension of the emotional experience within the field of psychology (Russell, 1991). Elsewhere, in the decision-making literature, pleasure equates to experienced utility. Utility-maximization is also believed to be independent of the sources from which the pleasure arose (Kahneman, Wakker, & Sarin, 1997) – be it from buying a car or selecting the “right” healthcare provider, for example. Similar views are also posited in the physiological literature wherein they suggest that pleasure is the pleasant sensation derived when alleviating

physiological states such as hunger and thirst, thereby re-establishing homeostasis (Cabanac, 1971, 1992). Taken together, all of these differing fields describe a singular unitary experience that is independent of the situation from which the pleasure was derived. Proponents of the unitary view of pleasure do not argue that the antecedents to pleasure are singular; but, instead, argue that capturing these situational differences and experiential qualities are idiosyncratic and ultimately are distilled into good-bad summary judgments; which are the critical driver of ongoing behavior (Kahneman, 1999; Kahneman, Diener, & Schwarz, 1999).

Following from this unitary standpoint, the measurement of pleasure would involve a single evaluative continua ranging from displeasure to pleasure – reiterating the good verses bad dichotomy (Schimmack, 2001). However, research over the last 30 years has been equivocal concerning the fit between this measurement model and actual feeling states described by individuals. For example, Schimmack (2001) highlights the presence of mixed feeling states (e.g., ambivalence), as well as the rapid changes in feeling states that can occur during any one instance. Within his own investigation of the dimensionality of pleasure, he concludes that a two dimensional model of pleasure—in which pleasure and displeasure are measured separately – best describes the experience of pleasure. This measurement approach can specifically categorize the experience of pleasure and displeasure occurring simultaneously, as well as sequentially; overcoming a limitation of the bipolar representation. A similar argument has been made about other seemingly bipolar constructs (e.g., positive and negative feelings about one’s relationship in general; Mattson, Paldino, & Johnson, 2007; Mattson, Rogge, Johnson, Baker-Davidson, & Fincham, in press). However, there remains considerable resistance to this approach (Reich, Zautra, & Davis, 2003).

**Multidimensional pleasure.** Although emergent research on the dimensionality of pleasure has demonstrated a multidimensional structure with respect to pleasure and displeasure, the dimensionality debate does not end there. Increasingly, the construct of pleasure is evaluated with respect to its antecedents, as well as its motivational attributes. In this context, dimensionality focuses specifically on typology (i.e., from where the pleasure is derived), as well as with respect to the components that may dictate the level of subjective pleasure felt (i.e., liking, wanting, and learning).

*Typologies of pleasure.* Some theorists have divided pleasure into distinct typologies; suggesting that the pleasure derived from different activities share some commonalities, but are inseparable from their antecedents and experiential qualities. For example, Duncker (1941) describes three different types of pleasure: *Sensory pleasure* (i.e., physically localizable pleasure that is focused on the sensory experience); *aesthetic pleasure* (i.e., derived from sensations of an expressive nature, natural or manmade); and, lastly, *accomplishment pleasure* (i.e., derived by achieving something of personal value). Unlike the unitary stance, Duncker's model emphasizes antecedents to pleasure as the grouping factor. This differentiation suggests that the experience of these antecedents may elicit different sensations that go beyond good and bad summary judgments. For example, within this multidimensional framework, rating the beauty of a painting and the taste of fine wine as extremely pleasurable (i.e., aesthetic pleasure vs. sensory pleasure) may intrinsically differ even though they are given equivalent ratings.

The potential for inherent differences in equivalent pleasure ratings across typologies is important to the conceptualization of sexual pleasure, as it would justify efforts to specify a particular measurement framework for pleasure with regards to the sexual experience. Additionally, promising research by Oishi, Schimmack and Diener (2001) suggests that many sensory/physical

experiences—like pleasure derived from sex—could also elicit other pleasure types, such as accomplishment pleasure. Expressly, individuals may seek out sensory experiences with a particular goal in mind, and achieving them engenders pleasure in conjunction to the sensory pleasure received therein. If so the case, understanding the differences across pleasure types may enable better conceptualizations of how they interplay during the sexual experience.

Dubé and Le Bel (2003), in an attempt to build empirical support for differences in pleasure across pleasure typologies, conducted a series of studies to evaluate the layperson's conceptualization of pleasure. Within these experiments, individuals were asked to list types of pleasure, rate the extent specific events were pleasurable, sort activities into pleasure types, as well as endorse which emotions/feelings were experienced during specific types of pleasure experience. From these data, they concluded that the structure of pleasure is hierarchical in nature; with specific distinctions being dependent on the antecedent to the pleasure, but nevertheless feeding into a larger global experience. Dubé and Le Bel described the pleasure types as emotional pleasure, physical pleasure, social pleasure, and intellectual pleasure; which differ somewhat from other suggested typologies. However, unlike other models, Dubé and Le Bel were also able to establish differences in the emotional/feeling states that coincided with each distinction. Particularly, physical pleasures appeared to be the least emotionally complex, with individuals endorsing mostly positive affective (e.g., happy) and physiological feeling states (e.g., heart pounding). In addition, there was less negative emotionality associated with physical pleasure. Conversely, for emotional pleasure, individuals endorsed more negative affective words (e.g., guilt) and more complex positive emotional states (e.g., fulfillment). Similarly, intellectual pleasure demonstrated a more complex emotional composition with both positive and

negative affective states. These findings have created the foundation for understanding the structure of pleasure, as well as suggest potential unique emotional experiences therein.

***Motivational Pleasure.*** Up until recently, the concept of pleasure was discussed mainly as a quantifiable sensation in response to a directly antecedent stimulus. However, some literatures link pleasure to the anticipation and evaluation of stimuli. Specifically, pleasure in this framework ties to conscious and unconscious processes that are closely linked with the reward systems in the brain (Kringelbach & Berridge, 2009). From this standpoint, there are three fundamental facets to pleasure: wanting, liking, and learning. *Wanting* involves the motivation to engage in an activity, whereas *liking* entails the enjoyment of the activity. The overlap between wanting and liking is readily apparent, and thus often the distinction between these facets is overlooked. Nevertheless, mounting research has demonstrated that divergences between these two facets within domains such as alcohol consumption (Hobbs, Remington, & Glautier, 2005), food consumption (Finlayson, King, & Blundell, 2007), and smoking (Brauer, Cramblett, Paxton, & Rose, 2001).

The addition of *learning* to the facets of pleasure addresses the linking of predictive associations and cognitions to the liking and wanting of activities/stimuli. Similarly, the learning component may also explain aspects of why wanting may persist when liking has diminished (Berridge, Robinson, & Aldridge, 2009; Litman, 2005). The affective neuroscience literature has demonstrated that each of these distinctions are uniquely associated with different areas of the brain (Berridge, Robinson, & Aldridge, 2009; Wise, 2004). However, the widespread use of neuroimaging and measurement techniques to assess levels of pleasure is far from fruition. As such, the refinements of subjective measures of pleasure are still needed.

The consideration of differences in wanting and liking within the sexual domain is in its infancy. Similar to other domains, wanting and liking were assumed one in the same and measured singularly as overall sexual desire. Although several measures of sexual desire exist, currently there is only one scale, known to the author, developed to assess the differences in sexual wanting and liking (Krishnamurti & Loewenstein, 2011). However, the partner-specific sexual wanting (PSSW) and partner-specific sexual liking (PSSL) measure drew heavily on items typically used to measure sexual satisfaction and was subsequently tested against an alternative measure known within the literature to be more an assessment of sexual function than satisfaction. Nonetheless, the PSSW/PSSL is a first step in the conceptualization of pleasure in the sexual domain, although a specific discussion of pleasure was surprisingly absent in its development.

Another conceptualization of the wanting/liking facets of pleasure is described in some literatures as *anticipatory pleasure*—the favorable sensation from anticipating pleasure—and *experiential pleasure*—pleasure felt in the moment. Although very similar, within this conceptualization, anticipatory pleasure is seen as the motivation for the wanting. For example, being almost able to taste a fresh apple pie due to memories of previous apple pies drives the wanting of apple pie. Anticipatory pleasure blends aspects of learning into the wanting process. The anticipation and experiential pleasure differentiation is most often associated with the investigations of mental health disorders in which anhedonia is present (e.g., depression).

**Affective pleasure.** Outside the dimensionality debate, the affective qualities of pleasure are also of heated discussion. Within the unitary stance, the bipolar pleasure/displeasure continuum is theorized to be a fundamental dimension of emotion. As such, some suggest that the measurement of an individual's emotionality or feelings aroused by a stimulus may be of



more importance than the pleasure derived. Additionally, there has been a considerable body of work dedicated to defining and quantifying emotion. Although consensus has failed to be reached on either; many of the practices from this literature have been and are being applied to the investigation of pleasure (Dubé and Le Bel, 2003). Most notable is the use and incorporation of the circumplex model. The circumplex (see Figure 1) is, fundamentally, a visual depiction of the interaction between pleasure and activation/arousal. The “affective space” created by these orthogonal dimensions represents the varied emotions that an individual can experience. Several adaptations and modifications have been made to the circumplex model. However, pleasure has remained a core dimension of the emotional experience. Evaluated from this standpoint, assessment of the presence of specific emotional states occurring in anticipation to, during and directly as the result of sexual behavior would glean information about the of level of pleasure and level of activation/arousal.

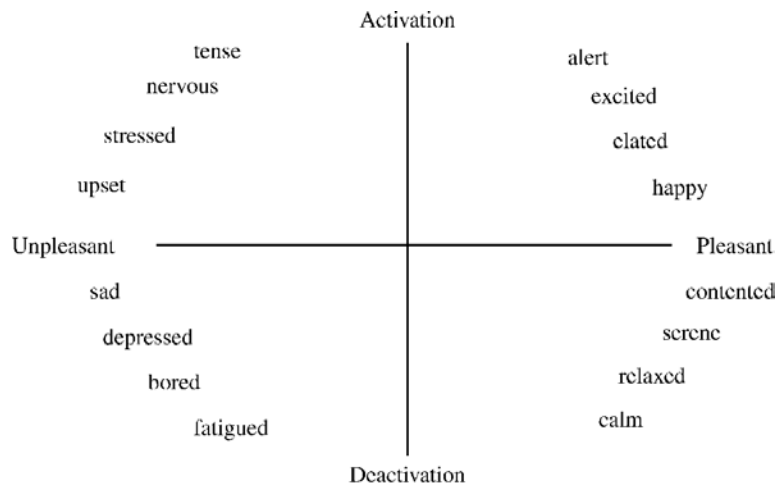


Figure 1. Circumplex model of emotion. Source: Feldman-Barrett and Russell (1998)

The assessment of emotions in association with sexual activity is a small, yet growing area of research. The appraisal of emotions in this literature is often tied to the assessment of automatic thoughts, which are thought to elicit these emotion states (Nobre & Pinto-Gouveia, 2006). Findings suggest differences between sexually functional and dysfunctional men and women in both emotional response and attributions (Nobre & Pinto-Gouveia, 2006). Additionally, negative cognitions are associated with more negative emotion states (Nobre & Pinto-Gouveia, 2008). Though this aspect of the sexual literature is growing, restricted ranges of emotion, over representation of negative feeling states, and confounding the assessment of satisfaction and pleasure with emotion, limit current investigations. Again, even though the sexuality literature has grown to encompass the evaluation of emotion and, indirectly, pleasure levels, the exploration of the information gained from these investigations with regard to pleasure is lacking.

### **Sexual Satisfaction versus Sexual Pleasure**

The last major theme and general area of disagreement within the literature is the differentiation of pleasure from satisfaction. Regardless of reference to the more general definition of these constructs—or the specialized definitions in the sexual domain—the conceptual problems remain the same. Satisfaction and pleasure appear closely interrelated and often, mistakenly, are used interchangeably. Sexual satisfaction is broadly defined as the degree to which an individual is happy with the sexual aspects of his or her intimate relationship (Sprecher & Cate, 2004). Similarly, pleasure—in this case, sexual pleasure—encompasses the experienced or anticipated sensation of something good and desirable. Both of these definitions incorporated positive valenced feeling states (e.g., happy, good); but the positive feeling state in satisfaction is derived from the *evaluation* of the sexual behaviors, whereas the positive feeling

state in sexual pleasure is derived from the sensations that occur in the moment or that arise in anticipation. Thus, sexual pleasure is a component of the sexual experience that is used to derive the evaluative judgment of sexual satisfaction.

This point is bolstered further if the definition of pleasure encompasses the wanting, liking, and learning processes suggested in some literatures; as these overlap with some conceptualizations of sexual desire, frequency, and quality that are all believed to be *considered* in the overall satisfaction judgment, but in themselves do not represent satisfaction. Although the careful delineation between these closely related constructs could be immensely beneficial to further clarifying the sexual experience, thus far little attention has been paid to this cause.

### **Incorporating Pleasure into Sexual Measurement**

As was briefly discussed throughout, the measurement of sexual pleasure—beyond a single Likert item—within the sexuality literature has been incidental at best. Even those that have made attempts at assessing sexual pleasure have not delved into the complexity specific to pleasure theory. For example, the interpersonal exchange model of sexual satisfaction posited by Lawrance and Byers (1995) is guided by theory (e.g., the balance of sexual rewards to costs) and, further, attempts to combine the *affective* and evaluative components that are believed to comprise sexual satisfaction. This includes the evaluation of five semantic differential pairs that elicit a more affective evaluation (e.g., good-bad) and contains *pleasant-unpleasant*. However, the semantic pairings involved in this assessment measure do not reflect the intensity of pleasurable feelings often associated with the sexual experience (e.g., emotion circumplex), nor do they address the potential for dimensionality within the pleasure construct.

Similarly, the Sexual Activity Frequency and Expectation scale (SAFE; Cunningham, 2010) explored the construct of sexual satisfaction indirectly through the comparison of actual

and desired frequency of sexual behaviors. The measure does attempt to assess the pleasure construct tied to sexuality in a similar frequency-based assessment (e.g., How often did the behavior meet your *sexual needs*?); however, feedback during scale development indicated that this item often confused participants and they did not equate “*sexual needs*” to sexual pleasure. Thus, although the SAFE scale demonstrated incremental validity over that of a typical Likert-based assessment of sexual satisfaction, it too failed to model accurately the way in which sexual pleasure functions within sexual satisfaction.

### **Current Study**

Taken together, there are several questions that remain unanswered regarding the construct of sexual pleasure. Additionally, current measurement of sexual pleasure is generally lacking in the sexuality field, even though researchers recognize the importance of this construct and note that differences in facets of sexual pleasure may illuminate reasons for observed differences in important groups (e.g., men/women, sexually functional/dysfunctional; Pinkerton et al., 2003). However, prior to being able to address these differences and attempt to answer these questions, dedicated effort to refining the measurement of the different aspects of pleasure is needed.

As a result of the complexity of the construct and active debate in the field, initial steps in measure development include the establishment of a set of items that are informed by the varied theoretical perspectives on pleasure in the literature. Specifically, exploring items that reflect affective experience, accomplishment, motivation, and desire is required to generate a more fully integrated picture of the pleasure construct in the sexual context. In an attempt to evaluate the dimensionality of pleasure, the generated items were subjected to exploratory factor analysis. Although, several research literatures endorse a one-dimensional structure for pleasure, emerging

research suggests this is not the case. As such, it was hypothesized that, at minimum, three salient factors will emerge, with at least one factor encompassing negative aspects of pleasure (e.g., displeasure). These factors may conform to the wanting, liking, learning model proposed by the motivational pleasure literatures (Berridge, Robinson, & Aldridge, 2009); or may divide along utilitarian, hedonic, and affective lines (Tamir, Chiu, & Gross, 2007) or even some mixture of the two. Nonetheless, it is believed that these factors will correlate, and that the observable indicators will evidence a more cooperative measurement structure.

Additionally, through the creation of a measure that integrates these theoretical pieces, the current study also aims to further delineate how the resulting pleasure dimensions relate to sexual satisfaction. It was hypothesized that pleasure and sexual satisfaction would be distinct (yet correlated structures), and that the emergent pleasure factors will uniquely contribute to the prediction of the satisfaction construct.

## **Method**

### **Participants**

Four hundred and ten participants initiated the study and, of those, 368 provided valid and sufficient information for inclusion in the primary analyses. The excluded participants either did not meet age requirements for participation ( $n = 6$ ) or did not complete more than the initial consent or demographics items ( $n = 34$ ). The majority of the completing sample resided in the United States (70.1%). The remaining participants resided in Europe (1.4%), Canada (.3%), Asia (27.7%), and Africa (.3%). The majority were male (62.5%), Caucasian (51.1%), had no children (58.7%), had some college education or had completed an undergraduate degree (26.6% and 29.9%, respectively), and made less than US\$50,000 (70.7%) annually. The mean age of participants was 32.40 years ( $SD = 9.92$ ) and they were either married (54.1%), engaged

(12.2%), or in a serious (31.3%) or casual dating relationship (2.4%). The average relationship duration in years for married, engaged, seriously dating and casually dating participants was 13.2 ( $SD = 9.20$ ), 6.33 ( $SD = 3.87$ ), 5.41 ( $SD = 3.96$ ), and 2.78 ( $SD = 1.72$ ), respectively. Fifty participants reported being married at least once before. Approximately 74.2% of the sample were cohabiting, and the average length of cohabitation for married, engaged, and seriously dating couples was 12.33 ( $SD = 8.92$ ), 5.17 ( $SD = 3.08$ ), and 5.04 ( $SD = 3.34$ ) months, respectively.

## **Procedure**

The current study was conducted entirely on-line and participants were recruited on Mechanical Turk, an Amazon site that matches “workers” with small jobs. Participants were restricted to those that have been in a sexually intimate relationship for the last six months and are at least 19 years of age. Participants were presented with an informed consent and brief demographic questionnaire at the beginning of the study. Study materials and the debriefing screen, which includes referrals for mental health services if any relational or personal distress arises, followed thereafter. Participants were compensated with a \$2 credit to their Mechanical Turk account. The study took on average approximately 30 minutes to complete. Study related materials can be found in Appendix A.

## **Measures**

**Affective pleasure.** Building off the theoretical model of the measurement of meaning by Osgood (1952), participants were presented with 23 emotion-focused adjectives derived from the emotion circumplex (e.g., excited, elated, distressed) and asked to rate the degree to which they experience these emotions during their sexual experiences on a 7-point scale.

**Accomplishment pleasure.** The hedonic/utilitarian (HED/UT) scale (Voss, Spangenberg, & Grohmann, 2003)—a measure of hedonic and utilitarian dimensions of consumers attitudes towards products— was modified to pertain to the sexual relationship and the achievement of specific goals of engaging in sexual activity. The 10-item scale demonstrated good reliability and validity in the validation study and for subsequent adaptations of the measure (Voss, Spangenberg, & Grohmann, 2003; Okada, 2005; Hagtvedt & Patrick, 2012).

**Pleasurable desire.** To obtain items that address the pleasure derived from anticipating pleasure, items will be adapted from the Temporal Experience of Pleasure Scale (TEPS; Gard, Gard, Kring & John, 2006). This measure was developed to assess individual trait disposition in both anticipatory and consummatory pleasure, as well as derived from a theory-based approach. Adapted items tapped into the mental re-experiencing of past sexual events (e.g., “*When I think about past sexual experience with my partner, I relive many of the feelings I had during that time.*”), as well as anticipatory pleasure (e.g., “*Wanting to have sex with my partner is pleasurable in itself.*”). As a direct comparison of convergent validity, the TEPS (Gard, Gard, Kring & John, 2006) will also be given in its original form. Similarly, the items included in the PSSL and PSSW (Krishnamurti & Loewenstein, 2011) will be used to assess a slightly different conceptualization of pleasurable desire.

**Sexual satisfaction.** The General Sexual Satisfaction scale (GSS; Cunningham, 2010) is a combination of 22 global satisfaction questions from 7 frequently used multi-item measures of sexual satisfaction, which demonstrate good internal consistency and reliability across a diversity of samples including college students, married couples, and sexually dysfunctional individuals (Pinney, Gerrard, & Denney, 1987; Rosen et al., 2000; Lawrance & Byers, 1995). Items soliciting either positive or negative evaluative judgments of the sexual relationship are included

in the scale (e.g. “*I think my sex life is wonderful*” versus “*My sexual relationship with my partner is lacking something,*” respectively). Item stems are rated on a scale ranging from *strongly disagree* (1) to *strongly agree* (7).

**Relationship satisfaction.** The Couple Satisfaction Index (CSI; Funk & Rogge, 2007) was derived from an IRT analysis of several of the most widely-used and well-validated measures of relationship satisfaction (as well as additional items created by the authors). We used the four-item version of the CSI, which contains the most highly informative and precise items available for assessing relationship satisfaction. Higher scores indicate greater satisfaction with one’s relationship. Total scores ranged from 4 to 28 ( $M = 24.08$ ,  $SD = 3.94$ ;  $\alpha = .87$ ).

**Partner regret.** The Partner Regret Scale (PRS; Mattson, Franco-Watkins, & Cunningham, 2012) is an adaption of regret items from Schwartz et al.’s (2002) measure re-specified to assess regret tendency specific to partner selection. This five-item measure assesses the individual’s engagement in counterfactual thinking about previous partners compared to one’s current partner (e.g., “*I try to get information about how my life would be if I stayed with a previous partner, as opposed to the one I’m with.*”). In addition to unknown alternatives (e.g., “*I think I might have found a better relationship partner if I had kept looking instead of choosing to be with my current partner.*”). This measure has been shown to be distinctly different from relationship satisfaction using the CSI, as well as to account for unique variance not attributable to general tendency to regret (Mattson, Franco-Watkins, & Cunningham, 2012). Total scores ranged from 5 to 35 ( $M = 13.80$ ,  $SD = 7.75$ ) with higher scores indicating greater regret ( $\alpha = .91$ ).

**Sexual motives.** Items from the Comprehensive inventory of sexual motives (Browning, 2004), Sexual Meaning Survey- Reasons for Sex (Maddock, 1988), and the Approach/Avoidant Motives for sexual behavior adapted by Impett, Peplau and Gable (2005) were used in the



current study. Participants were asked to report how important different motives (e.g., security, sexual pleasure) are to them when engaging in sexual activity with their partner. Additionally, the overall ranking of the different reason domains will be obtained. Lastly, the approach/avoidance orientation of the motives were assessed by summing the five approach items (e.g., *To please my partner*;  $M = 29.64$ ,  $SD = 3.50$ ;  $\alpha = .73$ ) and the four avoidance items (e.g., *To avoid conflict in my relationship*;  $M = 16.90$ ,  $SD = 7.27$ ;  $\alpha = .94$ ), respectively.

**Sexual dysfunction.** To evaluate the presence of sexual dysfunction in males, we utilized the International Index of Erectile Function (IIEF; Rosen, Riley, Wagner, Osterloh, Kirkpatrick, & Mishra, 1997). The IIEF is a 15-item measure that assesses the functionality of a male's sexual experience (e.g., orgasm, erection). We used the erectile function subdomain as a screener for overall sexual dysfunction (Rosen, Cappelleri, & Gendrano, 2002), with scores below 25 indicating clinical concern of sexual dysfunction. Scores ranged from 1 to 30 ( $M = 25.44$ ,  $SD = 6.03$ ;  $\alpha = .94$ ). The Female Sexual Function Index (FSFI; Rosen, Brown, Heiman, Leiblum, Meston, Shabsigh, et al., 2000) is a 19-item measure of female sexual function. A total score of less than 26 was used as an indication of sexual dysfunction (Wiegel, Meston, & Rosen, 2005). Scores ranged from 2 to 36 ( $M = 28.49$ ,  $SD = 6.17$ ;  $\alpha = .95$ )

### **Data Analytic Plan**

Variables were screened for normality and outliers were constrained to +/- 2 interquartile ranges around the median of each variable. Although most items demonstrated negative skew, as is the norm with relationship evaluation items, none required transformation as they fell within previously suggested ranges of acceptability (+/-3; Curran et al., 1996). Similarly, all variables fell within the acceptable range for kurtosis (i.e., < 5).

Exploratory and confirmatory factor analysis (EFA, CFA) were conducted to evaluate the form and structure of the pleasure construct. SPSS 20 (IBM) and *Mplus* version 7 (Muthén & Muthén, 2012) with Maximum likelihood (ML) estimation were used for the EFA. In addition, *Mplus* version 7 (Muthén & Muthén, 2012) with Maximum likelihood (ML) estimation was used for the CFA. The resulting EFA was screened, with the number of retained factors determined through the Kaiser-Guttman rule (i.e., eigenvalues above one; Guttman, 1954; Kaiser, 1960), scree plot test, parallel analysis, and comparison of model fit statistics.

Subsequently, the obtained EFA factor structure was confirmed; with indicators retained if a subscale's factor loading was greater than .32 (Costello & Osborne, 2005). Indicators demonstrating equal or near equal loading on the resulting factors were allowed to cross load, resulting in a cooperative structure. The resulting CFA was evaluated for model fit based on guidelines proposed by Hu and Bentler (1999) for the comparative fit index ( $CFI > .95$ ), standardized root-mean-square residual ( $SRMR < .08$ ) and the root-mean-square error of approximation ( $RMSEA$  good fit hypothesis  $< .05$ ; bad fit hypothesis  $> .10$ ). In addition,  $\chi^2$  was also evaluated with significance (i.e.,  $p > .05$ ) indicating poor fit. Modifications of the originally specified CFA model were based in part by the modification index provided within the output of *MPlus* to the extent that modifications coincided with established theory.

Once confirmed, factor score coefficients were created utilizing a regression method that estimates the placement of each participant on each obtained factor (for review of this technique; see DiStefano, Zhu, & Mindrila, 2009). These scores were then used to run a series of Hierarchical Linear Regressions (HLR) to establish convergent, discriminant, and incremental validity of the pleasure constructs. Lastly, logistic regression was used to assess for concurrent validity.

## Results

### EFA of the Sexual Experience

All of the pleasure items (i.e., Affective, Utilitarian, Hedonic, Consummatory, Anticipatory, Liking, and Wanting), as well as the sexual satisfaction items were subjected to the initial EFA with Promax rotation. The Kaiser-Guttman rule indicated the possibility of up to a fourteen factor solution. Parallel analysis reduced the number of extractable factors to ten, whereas the examination of the scree plot indicated 8 or 9 factors. Fit statistics were not generally strong for any of the potential factor solutions; however, fit was better for the 10 factor solution compared to the other indicated solutions  $\chi^2(3311, N= 368) = 8796.17, p <.0001$ , RMSEA = .06, SRMR = .03. The ten factor solution was retained for subsequent analysis. Table 1 outlines the obtained standardized loadings of indicators from the EFA pattern matrix.

Examination of the items that make up each factor reveal somewhat clean delineation of previously theorized pleasure factors, as well as sexual satisfaction *and* dissatisfaction factors emerging. The first three factors represented Sexual Satisfaction, Negative Affect and Sexual Dissatisfaction. The largest of the factors, Sexual Satisfaction, is (mostly) composed of the positively valenced items from the GSS (e.g., *I am very satisfied with the way my sexual needs are currently being met*). However, this factor also contained some items associated with partner specific liking (e.g., *My partner is very sensitive to my sexual needs and desires*), anticipation of the sexual act (e.g., *When I think of having sex, I have to have it*), and the perceived utility of the sexual experience (e.g., *Effective*). Negative Affective—the second factor—emerged as being composed of negatively valenced emotion items (e.g., *Angry*). The third factor, Sexual Dissatisfaction, is composed of the negatively valenced GSS items (e.g., *I am disappointed about the quality of my sex life.*), as well as negative Partner Specific Liking (e.g., *Our sexual*

*relationship lacks quality*) and anticipatory pleasure (e.g., *I don't look forward to having sex.*) items.

The next three factors were Cognitive Sensation, Utility, and Negative Hedonic. The fourth factor comprised both the consummatory (e.g., *I appreciate the beauty of the sexual experience.*) and anticipatory pleasure (e.g., *I look forward to the sexual aspects of my life.*) items, which together appear to tap into what may be best described as a factor of Cognitive Sensation. Specifically, these items tap into both the cognitive appraisal of physical sensation, as well as the ability to elicit physical sensation from remembering/thinking of sexual acts. The fifth factor, Utility, contains both positive (e.g., Practical) and negative (e.g., Impractical) utility pleasure items. It is possible that negative and positive utility did not separate, as the other items have, because these items are truly bipolar ends of a singular continuum (e.g., Impractical—Practical). The negatively valenced hedonic items (e.g., Not Thrilling) represented the sixth factor, Negative Hedonic. These items describe the lack of positive high valenced enjoyment.

The final four factors (Partner Desire, Positive Affect, Contentment, and Positive Hedonism) were smaller, but still distinct in composition. The seventh factor contained the four partner-specific wanting items (e.g., *When you THINK about your primary sexual partner, how often does this result in physical sexual arousal?*). Highly activated positive affect items (e.g., excited, aroused) comprised the eighth factor. Low activated and more neutral affect items comprised the ninth factor (e.g., *Calm*). These items appear to reflect a level of contentment. Lastly, the tenth factor appears to tap into positively valenced hedonic items as well as shared items with the utility factor (e.g., functional, helpful, and necessary).

Taken together, the factors that emerged from the EFA appear to support the multidimensional conceptualization of pleasure. Specifically, the initial pleasure items appeared

to differentiate into six positive factors (Cognitive Sensation Pleasure, Utility Pleasure, Contentment Pleasure, Partner Pleasure, Positive Affect Pleasure and Positive Hedonism) and two negative factors, which may be better conceptualized as pain/displeasure (Negative Affective Pain and Negative Hedonism/ Displeasure). It is not surprising that pain/displeasure emerged within our analysis, as this construct is often discussed in conjunction with pleasure as the opposite bipolar end of a singular “pleasure” continuum. However, the emergence of these “negative” factors further suggests that this singular continuum conceptualization does not fully capture the pleasure experience.

[Insert Table 1]

### **CFA of the Sexual Experience**

Following the EFA, a CFA was conducted within the same sample to attempt to confirm the ten factor solution. Indicators were specified for each latent factor based on the .32 criterion of significant contribution. Given some deviation from normality and moderately low variability within some of the items, Robust Maximum Likelihood Estimation was used. The initial CFA model did not surpass the criteria for a good fit,  $\chi^2 (3762, N= 368) = 1322.39, p <.0001$ , RMSEA = .08, SRMR = .08 CFI = .90. Examination of the normalized residuals indicated several incidences of over and under estimation. Similarly, several modifications were suggested to improve model fit and only those modification that were theoretically reasonable and would significantly influence  $\chi^2$  (i.e.  $> 100$ ) were considered for alteration. As some items could be used to tap other constructs not directly relevant to the current model (e.g., content), error terms for specific items were allowed to correlate. Additionally, some indicator items were not significantly related to their overarching factor. This was specifically the case for those items that demonstrated loadings of between .30-.40 on the EFA, but also loaded more saliently on

other factors. As such, a few indicators were redistributed and two items were excluded from the CFA. The re-specified CFA demonstrated adequate fit  $\chi^2 (3585, N= 368) = 7958.5, p <.0001$ , RMSEA = .06, SRMR = .07 CFI = .96. It is noted that chi-square is significant. However, as our  $N$  is relatively large, it is probable that this has contributed to a significant  $\chi^2$  (Barrett, 2007). The resulting factors and the item loadings are available in Table 2.

[Table 2]

### **Criterion-Related Validity**

**Convergent.** Factor scores derived from the CFA were obtained. Correlations between the factors, as well as key criteria (e.g., Relationship Satisfaction, Sexual Motive Approach/Avoidance), are included in Table 3. Notably, all of the derived factors except for Negative Hedonistic Displeasure were significantly correlated with relationship satisfaction. This indicates that these factors are potentially impactful and related to the evaluation of the relationship on the whole. Given the close association between relationship and sexual satisfaction, it was expected that this would be the case. Similarly, factors were significantly associated with Approach Motives in the anticipated directions. Specifically, there were positive associates with factors that tap pleasure and negative associations with factors that tap pain or dissatisfaction. Conversely, Sexual Avoidance Motives largely did not correlate with the derived factors, but did marginally positively associate with Negative Affective Pain and Sexual Dissatisfaction.

The original anticipatory and consummatory pleasure scale was also included. Both subscales were significantly associated with both sexual satisfaction and dissatisfaction—in the appropriate directions—as well as with four of the six pleasure factors and neither of the pain/displeasure factors. Anticipatory pleasure was most associated with Positive Affective Pleasure and Cognitive Sensation Pleasure. These correlations are notable because they coincide

with the initial conceptualization of pleasure derived from anticipation of a pleasurable event, in that the thought of the event can elicit a positive affective response. Lastly, Partner Regret (i.e., presence of counterfactual thoughts about partner selection) was also significantly associated with four of the six pleasure factors and, perhaps more notably, negatively associated with Partner Desire Pleasure. This association would be expected to be slight in that the presence of regret is not explicitly tied to the function or absolute evaluation of partner, but instead is tied to the relative evaluation/function compared to alternatives. In sum, the derived factors were generally associated with key criterion in the appropriate direction.

[Table 3]

**Incremental validity.** The initial and most relevant question regarding the explicit measurement of the facets that make up pleasure is the potential for these facets to account for additional variance in sexual satisfaction and, potentially, dissatisfaction. As such, HLR was used to evaluate incremental validity over typically related constructs. In the first block of the regression; country of origin, gender, age, and length of sexual relationship were entered as initial controls and accounted for approximately 3% of the variance in Sexual Satisfaction. Within the second block, Relationship Satisfaction and Partner Regret were entered because of their previously documented association with sexual satisfaction. In addition, the original consummatory and anticipatory pleasure subscales were entered to control for general pleasure experience. These variables accounted for an additional 49% of the variance in sexual satisfaction. Lastly, the pleasure and pain factors, as well as the dissatisfaction factor were added. These factors accounted for an additional 38% of the variance in sexual satisfaction, with all three blocks accounting for 87% of the variance in Sexual Satisfaction. All of the derived pleasure and pain items with the exception of Negative Hedonistic Displeasure added

significantly to the model. Most notably, Utility Pleasure and Positive Hedonistic Pleasure exerted the largest relative effects ( $\beta = -1.57$  &  $1.60$ , respectively).

The same block configuration was used with Sexual Dissatisfaction as the dependent variable with similar, yet distinct, findings. Specifically, the first and second blocks accounted for 44% of the variance. The addition of the third block added 33% additional variance to the prediction of sexual dissatisfaction with a total account of 78%. Of the pleasure factors, the Contentment, Partner Desire, Cognitive Sensation and Negative Affective pain significantly contributed to variance accounted. Interestingly, Partner Desire and Contentment were positively associated with sexual dissatisfaction, which suggests that higher levels of these constructs may add to both positive and negative evaluation of an individual's sexual relationship.

In sum, all of the pleasure factors and the Negative Affective Pain factor added significantly to the prediction of sexual satisfaction, dissatisfaction or both. Additionally, the specific association of Contentment Pleasure and Partner Desire Pleasure highlights the possibility that typically perceived positive events (e.g., feeling relaxed, desiring sex with partner) could be paradoxical. In addition, significant demographic variables in the final block also indicate that there are geographical and/or gender differences in the importance of some of these factors. These results are summarized in table 4.

[Table 4]

**Concurrent validity.** Sexual satisfaction is known for being relatively poor at discriminating between sexually functional and dysfunctional individuals (e.g., Laumann et al., 1994). However clinically, this functional distinction is very important. As such, the derived pleasure and pain factors were evaluated for their ability to aid in the discrimination in group membership. Of the total sample, 277 participants did not meet criteria of sexual dysfunction;



whereas 89 met clinical criteria. Utilizing logistic regression, all of the derived pleasure factors, avoidance/approach motives, general pleasure, and partner regret; as well as sexual relationship length, and place of origin were entered as predictors of diagnostic status. Significant effects were found for Sexual Dissatisfaction, Cognitive Sensation Pleasure, Utility Pleasure, Sexual relationship length, geographic origin, Avoidance Motives, and General Anticipatory Pleasure. The total model improved prediction of diagnostic status from 75.7 % to 85%, and the model was a good overall fit to the data as measured by Hosmer and Lemeshow test  $\chi^2(8, N= 366) = 3.217, p = .92$ . Table 5 summaries the model.

[Table 5]

## **Discussion**

The current study had three main aims. The first aim was to explore the dimensionality of sexual pleasure with items derived from the theoretical accounts of pleasure described in the literature. Our results suggest that sexual pleasure differentiates into distinct, yet generally correlated dimensions. In particular, the derived factors included six positively valenced “pleasure” factors, as well as two negatively valenced pain/displeasure factors. This lends support for a multidimensional conceptualization of the construct. Moreover, the obtained factors generally mapped onto some of the pleasure distinctions described previously in the literature. For example, previous factor analysis of affective items demonstrated two distinct positive and negative factors (Tellegen, Watson, & Clark, 1988). Similarly, hedonistic and utility items have been found to differentiate (Babin, Darden, & Griffin, 1994). However, not all previously noted distinctions held within our analysis. For example, previous work with anticipatory and consummatory pleasure has indicated that these are discrete phenomena; yet, they coalesced into

a singular Cognitive Sensation factor when examined in the presence of items capturing other aspects of pleasure. As such, pleasure appears multifactorial and coincides largely with previous formulations, but not all. This suggests the importance of examining the entirety of the complex pleasure picture as the presence and/or absence of pleasure components potentially alters the factorial structure.

We included the sexual satisfaction items within the initial EFA to explore the possibility that the variance associated with sexual pleasure was already accounted for by sexual satisfaction. By doing so, we were able to determine the boundaries between the dimensions of pleasure and satisfaction. Though the majority of items were unique to pleasure per se, some items were subsumed into the larger satisfaction factor. Most notable of these overlaps was that of partner ‘liking’ items with the satisfaction and dissatisfaction factors, while partner ‘wanting’ remained separated in a singular factor. This may denote that aspects of partner liking comprise evaluations of satisfaction. Conversely, this could signify that the items that make up the PSSSL reflect more the evaluation of the sexual experience rather than specific partner characteristics (e.g., *Our sexual relationship lacks quality*). Although previous studies have argued that many measures of sexual satisfaction contain items more representative of partner evaluation than evaluation of the sexual experience (e.g., Cunningham, 2010), the GSS was created specifically with that limitation in mind. Nevertheless, this finding may suggest that a separate measure of partner liking might not be needed in the presence of satisfaction and dissatisfaction measures, or that the domains of these latter constructs also include items capturing partner liking. In any case, by examining the various theorized types of items measuring sexual pleasure together with sexual satisfaction, we are able to discern commonalty as well as distinction. The distinctions are noteworthy and indicate that the typical evaluation of satisfaction does not inherently subsume

all aspects of pleasure. However, the areas of overlap and convergence between satisfaction and pleasure (or amongst the pleasure factors) are important and help to clarify further conceptualization of these constructs.

The second aim of this study was to discern if the evaluation of these derived factors were significantly associated with, as well as added uniquely to the prediction of, sexual satisfaction. Our findings indicate that, indeed, the majority of the derived factors were associated with sexual satisfaction and dissatisfaction in the expected directions. In addition, these factors demonstrated incremental validity over other known associated variables, accounting for an additional 38% and 33% of the variance in satisfaction and dissatisfaction, respectively. The sizable amount of variance accounted for by the additional assessment of these factors appears to highlight an area of missed opportunity in the assessment of the evaluation of the sexual relationship. Relatedly, extending the assessment of pleasure beyond a singular item demonstrates the many ways in which derived “pleasure” may alter the evaluative judgment. For example, Utility pleasure—an analog for the pleasure derived from the use of the sexual activity to accomplish a motive—appears to detract from satisfaction scores. This could be due to a shift in the focus of the sexual experience to the accomplishment of a motive (e.g., closeness, relaxation, orgasm, etc.) instead of allowing the sexual act to be more experiential without direction (Waterman & Chiauzzi 1982). Goal orientation, as it pertains to the expectation of specific sexual outcomes (e.g., mutual orgasm), has been shown to be detrimental to sexual satisfaction, especially if the sexual experience is lacking in its ability to achieve the designated motive (Mitchell, Wellings, Nazareth, King, Mercer, & Johnson, 2011). Even if this is not the case, the intersection of motive and derived usefulness/pleasure from utilizing sex in this manner has yet to be fully explored. Overall, the current exploration of the association and incremental

validity of the resulting factors has laid the foundation for future exploration of how these factors may work together to influence the evaluation of the sexual relationship.

The third and final aim of this study was to establish criterion-related validity of the resulting pleasure factors and the subsequent findings have both clinical as well as theoretical implications. For example, the Cognitive Sensation and Utility factors were found to differentiate between the sexually functional and dysfunctional. Although not sufficient in suggesting the predictive or diagnostic utility of the factors, these findings indicate the need for their further exploration and potential for differential association in clinical, subclinical, and normal functioning samples. Similarly, but from a theoretical standpoint sexual dissatisfaction was found to be a significant predictor of sexual dysfunction, whereas sexual satisfaction was not. This adds to the literature suggesting that satisfaction poorly discriminates between the two groups, but also highlights the need to conceptualize satisfaction and dissatisfaction separately. This pattern of differentiating positive and negative was also echoed with the emergent pleasure factors—though not all pleasure factors differentiated this way (e.g., Utility). These constellations of findings underlie the growing evidence within and outside the relationship and sexuality literatures, which suggest separately evaluating events/experiences on their positive and negative features has incremental validity and utility (Mattson, Paldino, & Johnson, 2007; Mattson, Rogge, Johnson, Baker-Davidson, & Fincham, in press).

Equally remarkable from a theoretical and clinical standpoint was the observed paradoxical effects of the Partner Desire and Contentment pleasure factors. Both of these constructs were positively associated with sexual satisfaction and dissatisfaction and may indicate conflicted expectations of the sexual experience (e.g., need for both excitement and comfort from sex). Similarly, this could also reveal the presence of an optimal level of either

construct, which aids in satisfaction, but at excess leads to an increase in dissatisfaction. The potential for over-satiation to create dissatisfaction –while still contributing to satisfaction – has been discussed elsewhere (Cunningham, 2010) with respect to the frequency of specific sexual behaviors. However, the principle may generalize to excess levels of Contentment and Partner Desire pleasure. These effects warrant further exploration, as the ability to quantify individual differences in “optimal” levels of these types of pleasure could denote a new area for therapeutic intervention.

### **Strengths of Current Study**

The current study had several prominent strengths. First, we derived the pleasure items from a thorough review of the literature of sexual pleasure. This was initially important because there is little empirical evidence to suggest a preferred manner of assessing the pleasure construct—especially as it pertains to the sexual experience. Thus, our study drew broadly across literatures to help lay the foundation for a multi-item assessment of pleasure, as well as allowed us to evaluate the utility of several conceptualizations in a single study.

Second, we were able to demonstrate that factors of sexual pleasure were uniquely associated with sexual satisfaction, even while accounting for general pleasure propensity. This is theoretically significant to the conceptualization of pleasure, as it suggests that the antecedent of the pleasure (e.g., sexual activity) differentiates it from more general pleasure experiences. The ability to demonstrate this not only strengthens our study design, but also has implications for the future conceptualization of the antecedents of pleasure and the utility of their assessment. For example, within the relationship literature, future work may focus on comparing pleasure derived from the relationship (more generally) and that derived from the sexual experience. The

difference in antecedent conditions may clarify the association between constructs such as relationship and sexual satisfaction by identifying areas of overlap and difference.

Third, in line with Clark and Watson (1995), several steps were taken to demonstrate construct validity, such as exploring the concurrent validity of the derived domains to clinically relevant group distinctions. In doing so, we were able to establish that higher ratings of Cognitive Sensation and Utility pleasure were associated with a significantly lower probability of sexual dysfunction, whereas this was not the case for more generally assessed constructs such as sexual satisfaction, which was not significantly associated. In addition, incremental validity of the derived constructs over several relational and sexually related constructs was also established. These specific findings clearly highlight the viability of the pleasure domains within the clinical and basic relationship/sexuality literature.

Lastly, the current results were obtained in a sample that was diverse in terms of race, gender, and age. Despite the heterogeneity of the sample in this regard, the findings were strikingly robust and, thus, aid in our ability to generalize them to a wider demographic. Remarkably, we did observe both gender and country of origin differences within our hierarchical analyses. While, gender differences are often discussed within the sexuality literature, country of origin differences is a developing area of focus. Differing societal and cultural pressures on intimate relationships and sexual interactions may alter the types of pleasure more highly valued (e.g., Cognitive Sensation vs. Utility). Similarly, these forces could also modify the association of the pleasure factors with satisfaction versus dissatisfaction. Such effects warrant additional investigating in the future, but doing so was beyond the scope of the current study.

## **Study Limitations**

The current study was also limited in at least three ways. First, the sample was obtained from a unique online worker community, which may limit generalizability of the results. However, previous studies on samples obtained in this manner have not demonstrated drastic differences from typically obtained samples (Mason & Suri 2012). Similarly, in our exploration of the form and structure of pleasure, we only utilized a single dataset and were not able to cross-validate our findings in a secondary sample. This limits our ability to determine if modifications to the specified CFA were sample specific or more broadly applicable. Replication of the current study in a variety of samples with alternative sampling methods is therefore warranted.

Secondly, some of the derived factors may overlap with older and better-delineated constructs within the sexuality literature that were not evaluated in the current study (e.g., sexual desire). This limits our ability to put forth formally a new measure of pleasure until supplementary investigation of these factors help to distinguish what aspects of the currently obtained factors are “new” in relation to existing sexual constructs. However, it should be noted that the items used to derive these factors come from distinct conceptualizations of pleasure and most have not been thoroughly investigated within the sexuality literature. Thus, our unique application of these items may likely represent a new dimensional assessment of the sexually derived pleasure experience, but firmly concluding as such is premature.

Lastly, our sample was cross-sectional and collected at a single time point. This restricted our ability to evaluate the predictive validity of the derived factors. Though support for concurrent validity was established, evaluation of the shifts in the pleasure domains over time may actually be the most valuable use of these newly derived factors. Specifically, shifts in these domains may predict alteration in sexual behavior frequency, declines in sexual satisfaction

and/or increases in sexual dissatisfaction, all of which are occurrences of specific importance in the sexuality literature. As such, future studies should evaluate these domains longitudinally in hopes to establish if these associations do in fact exist.

### **Conclusion**

The current study demonstrated that sexual pleasure is likely multidimensional, with each type of pleasure differentially associating in either strength or direction with sexual satisfaction and dissatisfaction. This finding also highlights that—although sexual pleasure is a central factor in satisfaction judgments—the assessment of sexual satisfaction neglects the different types of pleasure derived from the sexual experience. Similarly, our hierarchical models suggest our pleasure factors account for additional variance in satisfaction and dissatisfaction over and above that of other relational judgments. However, there is still variance left unaccounted for in these attitudinal judgments, indicating the importance of other factors to these sexual appraisals. However, the introduction and continued evaluation of these pleasure dimensions may help to clarify previously murky associations between dysfunction and satisfaction as well as help to differentiate between highly sexually satisfied couples.



## References

- Babin, B. J., Darden, W. R., & Griffin, M. (1994). Work and/or fun: measuring hedonic and utilitarian shopping value. *Journal of consumer research*, 644-656.
- Barrett, P. (2007). Structural equation modelling: Adjudging model fit. *Personality and Individual Differences*, 42(5), 815-824.
- Basson, R. (2000). The Female Sexual Response: A Different Model. *Journal of Sex & Marital Therapy*, 26(1), 51-65. doi: 10.1080/009262300278641
- Basson, R., Leiblum, S., Brotto, L., Derogatis, L., Fourcroy, J., Fugl-Meyer, K., . . . Schultz, W. W. (2004). Revised Definitions of Women's Sexual Dysfunction. *Journal of Sexual Medicine*, 1(1), 40-48. doi: 10.1111/j.1743-6109.2004.10107.x
- Baucom, D. H., Epstein, N., Daiuto, A. D., Carels, R. A., Rankin, L. A., & Burnett, C. K. (1996). Cognitions in Marriage: The Relationship Between Standards and Attributions. *Journal of Family Psychology*, 10(2), 209-209.
- Bentham, J. (1780). 1988 The principles of morals and legislation. *Amherst, NY: Prometheus Books*.
- Berridge, K. C., Robinson, T. E., & Aldridge, J. W. (2009). Dissecting components of reward: 'liking', 'wanting', and learning. *Current Opinion in Pharmacology*, 9(1), 65-73. doi: 10.1016/j.coph.2008.12.014
- Brauer, L. H., Cramblett, M. J., Paxton, D. A., & Rose, J. E. (2001). Haloperidol reduces smoking of both nicotine-containing and denicotinized cigarettes. *Psychopharmacology*, 159(1), 31
- Cabanac, M. (1971). Physiological role of pleasure. *Science*, 173, 1103-1107.

- Cabanac, M. (1992). Pleasure: The common currency. *Journal of Theoretical Biology*, 155, 173-200.
- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, 7(3), 309-319.
- Connolly, T., & Zeelenberg, M. (2002). Regret in Decision Making. *Current Directions in Psychological Science*, 11(6), 212-216.
- Costello, A. B. & Osborne, J. (2005). Best practices in exploratory factor analysis: four recommendations for getting the most from your analysis. *Practical Assessment Research & Evaluation*, 10(7). Available online: <http://pareonline.net/getvn.asp?v=10&n=7>
- Davey, A., Fincham, F. D., Beach, S. R. H., & Brody, G. H. (2001). Attributions in marriage: Examining the entailment model in dyadic context. *Journal of Family Psychology*, 15(4), 721-734. doi: 10.1037/0893-3200.15.4.721
- DiStefano, C., Zhu, M., & Mindrila, D. (2009). Understanding and using factor scores: Considerations for the applied researcher. *Practical Assessment, Research & Evaluation*, 14, 1-11.
- Dubé, L., & Le Bel, J. L. (2003). The content and structure of laypeople's concept of pleasure. *Cognition and Emotion*, 17(2), 263-295. doi: 10.1080/02699930302295
- Dubé, L., & LeBel, J. L. (1999). Accounting for Pleasure: On the Unitary and Multi-dimensional Nature of Hedonic Experiences. *Advances in Consumer Research*, 26(1), 160-161.
- Duncker, K. (1941). On Pleasure, Emotion, and Striving. *Philosophy and Phenomenological Research*, 1(4), 391-430.
- Eshbaugh, E. M., & Gute, G. (2008). Hookups and sexual regret among college women. *The Journal of Social Psychology*, 148(1), 77-89. doi: 10.3200/socp.148.1.77-90

- Farnsworth, E. A. (1998). *Changing your mind: The law of regretted decisions*.
- Fincham, F. D., Beach, S. R., & Baucom, D. H. (1987). Attribution processes in distressed and nondistressed couples: IV. Self-partner attribution differences. *Journal of Personality and Social Psychology*, 52(4), 739-748. doi: 10.1037/0022-3514.52.4.739
- Fincham, F. D., & Bradbury, T. N. (1992). Assessing attributions in marriage: The Relationship Attribution Measure. *Journal of Personality and Social Psychology*, 62(3), 457-468. doi: 10.1037/0022-3514.62.3.457
- Fisher, M. L., Worth, K., Garcia, J. R., & Meredith, T. (2012). Feelings of regret following uncommitted sexual encounters in Canadian university students. *Culture, Health & Sexuality*, 14(1), 45-57. doi: 10.1080/13691058.2011.619579
- Funk, J. L., & Rogge, R. D. (2007). Testing the ruler with item response theory: Increasing precision of measurement for relationship satisfaction with the Couples Satisfaction Index. *Journal of Family Psychology*, 21(4), 572-583.
- Gard, D. E., Gard, M. G., Kring, A. M., & John, O. P. (2006). Anticipatory and consummatory components of the experience of pleasure: A scale development study. *Journal of Research in Personality*, 40(6), 1086-1102. doi: 10.1016/j.jrp.2005.11.001
- Gilovich, T., & Medvec, V. H. (1995). The experience of regret: What, when, and why. *Psychological Review*, 102, 379-395.
- Guttman, L. (1954). A new approach to factor analysis: the radex. In Lazarsfeld, P. F. (ed.), *Mathematical Thinking in the Social Sciences* (pp. 258-349), Free Press, Glencoe, Ill.
- Hagtvedt, H., & Patrick, V. (2008). Art Infusion: The Influence of Visual Art on the Perception and Evaluation of Consumer Products. *Journal Of Marketing Research (JMR)*, 45(3), 379-389. doi:10.1509/jmkr.45.3.379

- Heyman, J., Mellers, B., Tishchenko, S., & Schwartz, A. (2004). I was pleased a moment ago: How pleasure varies with background and foreground reference points. *Motivation and Emotion, 28*(1), 65-83. doi: 10.1023/b:moem.0000027278.22201.68
- Hill, C. A. (1997). The Distinctiveness of Sexual Motives in Relation to Sexual Desire and Desirable Partner Attributes. *Journal of Sex Research, 34*(2), 139-153.
- Hill, C. A., & Preston, L. K. (1996). Individual Differences in the Experience of Sexual Motivation: Theory and Measurement of Dispositional Sexual Motives. *Journal of Sex Research, 33*(1), 27-45.
- Hirschman, E. C., & Holbrook, M. B. (1982). Hedonic consumption: Emerging concepts, methods and propositions. *Journal of Marketing, 46*(3), 92-101. doi: 10.2307/1251707
- Hobbs, M., Remington, B., & Glautier, S. (2005). Dissociation of wanting and liking for alcohol in humans: a test of the incentive-sensitisation theory. *Psychopharmacology, 178*(4), 493-499. doi:10.1007/s00213-004-2026-0
- Impett, E. A., Peplau, L. A., & Gable, S. L. (2005). Approach and avoidance sexual motives: Implications for personal and interpersonal well-being. *Personal Relationships, 12*(4), 465-482. doi:10.1111/j.1475-6811.2005.00126.x
- Inman, J. J., & Zeelenberg, M. (2002). Regret in repeat versus switch decisions: The attenuating role of decision justifiability. *Journal of Consumer Research, 29*, 116-128.
- Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement, 20*, 141-151.
- Kahneman, D. (1999). Objective happiness *Well-being: The foundations of hedonic psychology* (pp. 3-25). In Kahneman, D., Diener, E., & Schwarz, N. (1999). *Well-being: The foundations of hedonic psychology*.

- Kahneman, D., Wakker, P., & Sarin, R. (1997). Back to Bentham? Explorations of experienced utility. *The Quarterly Journal of Economics*, 112, 375-406.
- Kline, R. B. (2010). Principles and practice of structural equation modeling (3<sup>rd</sup> ed.). New York: Guilford.
- Kringelbach, M. L., & Berridge, K. C. (2009). Towards a functional neuroanatomy of pleasure and happiness. *Trends Cognitive Science*, 13(11), 479-487. doi: 10.1016/j.tics.2009.08.006
- Krishnamurti, T., & Loewenstein, G. (2012). The Partner-Specific Sexual Liking and Sexual Wanting Scale: Psychometric Properties. *Archives of Sexual Behavior*, 41(2), 467-476. doi: 10.1007/s10508-011-9785-6
- Kubovy, M., 1999. On the pleasures of the mind. In: Kahneman, D., Diener, E., Schwarz, N. (Eds.), *Well-Being: The Foundations of Hedonic Psychology*. (pp. 134–154) Russell Sage Foundation, New York,
- Lawrance, K. A., & Byers, E. S. (1995). Sexual satisfaction in long-term heterosexual relationships: The interpersonal exchange model of sexual satisfaction. *Personal Relationships*, 2(4), 267-285.
- Litman, J. (2005). Curiosity and the pleasures of learning: Wanting and liking new information. *Cognition & Emotion*, 19(6), 793-814. doi: 10.1080/02699930541000101
- Mattson, R. E., Paldino, D., & Johnson, M. D. (2007). The increased construct validity and clinical utility of assessing relationship quality using separate positive and negative dimensions. *Psychological assessment*, 19(1), 146-151.

- Mattson, R. E., Rogge, R. D., Johnson, M. D., Davidson, E. B., Fincham, F. S. The positive and negative semantic dimensions of relationship satisfaction. *Personal Relationships*. doi: 10.1111/j.1475-6811.2012.01412.x
- McNulty, J. K., & Fisher, T. D. (2008). Gender Differences in Response to Sexual Expectancies and Changes in Sexual Frequency: A Short-Term Longitudinal Study of Sexual Satisfaction in Newly Married Couples. *Archives of Sexual Behavior*, 37(2), 229-240. doi: 10.1007/s10508-007-9176-1
- Mitchell, K. R., Wellings, K., Nazareth, I., King, M., Mercer, C. H., & Johnson, A. M. (2011). Scripting sexual function: a qualitative investigation. *Sociology of health & illness*, 33(4), 540-553.
- Niedenthal, P. M., & Halberstadt, J. B. (1995). The acquisition and structure of emotional response categories *The psychology of learning and motivation* (Vol. 33, pp. 23-64).
- Niedenthal, P. M., Halberstadt, J. B., & Innes-Ker, A. H. (1999). Emotional response categorization. *Psychological Review*, 106, 337-361.
- Nobre, P. J., & Pinto-Gouveia, J. (2008). Cognitions, emotions, and sexual response: Analysis of the relationship among automatic thoughts, emotional responses, and sexual arousal. *Archives of Sexual Behavior*, 37 (4), 652-661.
- Nobre, P. J., & Pinto-Gouveia, J. (2006). Emotions during sexual activity: Differences between sexually functional and dysfunctional men and women. *Archives of Sexual Behavior*, 35 (4), 491-499.
- Nobre, P. J., & Pinto-Gouveia, J. (2003). Sexual Modes Questionnaire: Measure to Assess the Interaction Among Cognitions, Emotions, and Sexual Response. *Journal Of Sex Research*, 40(4), 368-381

- Oishi, S., Schimmack, U., & Diener, E. Pleasures and subjective wellbeing. *European Journal of Personality*, 15(2), 153-167. doi: 10.1002/per.406
- Okada, E. (2005). Justification Effects on Consumer Choice of Hedonic and Utilitarian Goods. *Journal Of Marketing Research (JMR)*, 42(1), 43-53.
- Osgood, C. E. (1952). The nature and measurement of meaning. *Psychological Bulletin*, 49(3), 197. doi: 10.1037/h0055737
- Oswalt, S. B., Cameron, K. A., & Koob, J. J. (2005). Sexual Regret in College Students. *Archives of Sexual Behavior*, 34(6), 663-669. doi: 10.1007/s10508-005-7920-y
- Pieters, R., & Zeelenberg, M. (2007). A theory of regret regulation 1.1. *Journal of Consumer Psychology*, 17(1), 29-35. doi: 10.1207/s15327663jcp1701\_6
- Pinney, E. M., Gerrard, M., & Denney, N. W. (1987). The Pinney sexual satisfaction inventory. *Journal of Sex Research*, 23, 233-251. Reich, J. W., Zautra, A. J., & Davis, M. (2003). Dimensions of affect relationships: Models and their integrative implications. *Review of General Psychology*, 7(1), 66-83. doi: 10.1037/1089-2680.7.1.66
- Richard, R., van der Pligt, J., & de Vries, N. (1996). Anticipated regret and time perspective: Changing sexual risk taking behavior. *Journal of Behavioral Decision Making*, 9, 185-199.
- Rosen, R., Brown, C., Heiman, J., Leiblum, S., Meston, C., Shabsigh, R., et al. (2000). The female sexual function index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. *Journal of Sex & Marital Therapy*, 26, 191-208.
- Rosen, R. C., Cappelleri, J. C., & Gendrano, N. (2002). The International Index of Erectile Function (IIEF): a state-of-the-science review. *International Journal of Impotence Research*, 14(4), 226-244.

- Rosen, R. C., Riley, A., Wagner, G., Osterloh, I. H., Kirkpatrick, J., & Mishra, A. (1997). The international index of erectile function (IIEF): a multidimensional scale for assessment of erectile dysfunction. *Urology*, *49*(6), 822.
- Russell, J. A. (1991). Culture and the categorization of emotions. *Psychological Bulletin*, *110*, 426-450.
- Russell, J. A. (2003). Core affect and the psychological construction of emotion. *Psychological Review*, *110*, 145-172.
- Schimmack, U. (2001). Pleasure, displeasure, and mixed feelings: Are semantic opposites mutually exclusive? *Cognition & Emotion*, *15*(1), 81-97. doi: 10.1080/02699930126097
- Sprecher, S., & Cate, R.M. (2004). Sexual satisfaction and sexual expression as predictors of relationship satisfaction and stability. In J.H. Harvey, A. Wenzel, & S. Sprecher (Eds.), *The handbook of sexuality in close relationships* (pp. 235-256). Mahwah, N.J.: Lawrence Erlbaum Associates, Inc.
- Tamir, M., Chiu, C., & Gross, J. J. (2007). Business or pleasure? Utilitarian versus hedonic considerations in emotion regulation. *Emotion*, *7*(3), 546-554. doi:10.1037/1528-3542.7.3.546
- Tellegen, A., Watson, D., & Clark, L. A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of personality and social psychology*, *54*(6), 1063-1070.
- Tiger, L. (1992). *The pursuit of pleasure*. Boston, MA: Little, Brown
- Voss, K. E., Spangenberg, E. R., & Grohmann, B. (2003). Measuring the Hedonic and Utilitarian Dimensions of Consumer Attitude. *Journal Of Marketing Research (JMR)*, *40*(3), 310-320.



- Waterman, C. K., & Chiauuzzi, E. J. (1982). The role of orgasm in male and female sexual enjoyment. *Journal of Sex Research, 18*(2), 146-159.
- Wiegel, M., Meston, C., & Rosen, R. (2005). The Female Sexual Function Index (FSFI): Cross-validation and development of clinical cutoff scores. *Journal of sex & marital therapy, 31*(1), 1-20.
- Waite, L. J., & Joyner, K. (2001). Emotional satisfaction and physical pleasure in sexual unions: Time horizon, sexual behavior, and sexual exclusivity. *Journal of Marriage & the Family, 63*(1), 247-264. doi: 10.1111/j.1741-3737.2001.00247.x
- Wise, R. A. (2004). Dopamine, learning and motivation. *Nature Reviews Neuroscience, 5*(6), 483-494. doi: doi:10.1038/nrn1406
- Zeelenberg, M., & Pieters, R. (1999). Comparing service delivery to what might have been. Behavioral responses to regret and disappointment. *Journal of Service Research, 2*(1), 86-97.
- Zeelenberg, M., & Pieters, R. (2007). A theory of regret regulation 1.0. *Journal of Consumer Psychology, 17*(1), 3-18. doi: 10.1207/s15327663jcp1701\_3

Table 1.  
*Exploratory Factor Structure of Pleasure and Satisfaction Items*

Items	Factors									
	1	2	3	4	5	6	7	8	9	10
GSSF_3 My sexual relationship exceeds my original expectations.	.94									
GSSF_2 I am very satisfied with the way my sexual needs are currently being met.	.92									
GSSF_1 I think my sex life is wonderful.	.91									
GSSF_8 So far I have gotten the important things I want from my sex life.	.91									
GSSF_7 I am generally pleased with the quality of my sex life.	.88									
GSSF_6 In most ways my sex life is close to my ideal.	.88									
GSSF_5 My sexual relationship is very good compared to most.	.88									
GSSF_10 I believe that my sexual relationship with my partner is not lacking anything.	.83									
GSSF_4 I am very satisfied with the way my emotional needs are currently being met.	.80									
GSSF_9 I really think that our sexual relationship is sensational.	.70									
PSL_5 My partner is very sensitive to my sexual needs and desires	.70									
PSL_6 Our sex life is very exciting	.63									
PSL_2 Sex is fun for my partner and me	.44									
Affect_15 Gloomy		.92								
Affect_14 Sad		.91								
Affect_8 Angry		.90								
Affect_16 Depressed		.90								
Affect_13 Miserable		.89								
Affect_11 Distressed		.87								
Affect_12 Frustrated		.78								
Affect_18 Droopy		.78								
Affect_9 Afraid		.75								
Affect_10 Annoyed		.74								
Affect_6 Tense		.60								
Affect_7 Alarmed		.59								

Affect_17 Bored		.58	
GSSN_5 I am very unsatisfied with the sexual aspects of my life.		.86	
GSSN_11 There is nothing I like about my sexual relationship.		.86	
GSSN_6 I am disappointed about the quality of my sex life.		.83	
GSSN_10 Thinking about my sexual relationship with my partner is frustrating.		.83	
GSSN_2 I am worried about the sexual aspects of my relationship.		.82	
GSSN_3 I feel unhappy about my sexual relationship.		.80	
GSSN_8 I think my sex life is awful.		.79	
GSSN_9 I consider my sexual relationship with my partner unfulfilling.		.76	
GSSN_1 My sexual relationship falls short of my original expectations.		.73	
GSSN_4 My sexual relationship with my partner is lacking something.	.32	.67	
PSL_3 Our sexual relationship lacks quality		.65	
TEPSX_A_3 I don't look forward to having sex.		.63	-.41
PSL_7 I feel that our sex life is boring		.58	
TEPSX_C_5 I appreciate the beauty of the sexual experience.		.79	
TEPSX_C_6 I really enjoy the feeling of release during sex.		.75	
TEPSX_A_2 When I think about my favorite sexual position, I can almost feel how good it is.		.62	
TEPSX_A_6 I look forward to the sexual aspects of my life.		.61	
TEPSX_C_4 The tastes I experience during sex is very satisfying to me.		.61	
TEPSX_A_1 When there is a promise of sex, I really look		.59	

forward to it			
TEPSX_C_2 I love the feel of a naked body against mine.		.58	
TEPSX_A_5 Wanting to have sex is pleasurable in itself.		.43	
TEPSX_A_4 When I think of having sex, I have to have it.	.38	.39	
TEPSX_C_1 The sounds made during sex are very arousing.		.36	
Util_10 Impractical		-.73	
Util_6 Not functional		-.71	
Util_8 Unnecessary		-.69	
Util_2 Ineffective		-.60	
Util_4 Unhelpful		-.59	
Util_9 Practical		.52	.43
Util_5 Functional		.52	.30
Util_1 Effective	.32	.46	
Util_7 Necessary		.44	.40
Util_3 Helpful	.32	.43	
Hedon_5 Not delightful		.83	
Hedon_7 Not Thrilling		.80	
Hedon_10 Not Enjoyable		.79	
Hedon_1 Not Fun		.75	
Hedon_3 Dull		.72	
PSW_3 When you THINK about your primary sexual partner, how often does this result in physical sexual arousal?			.89
PSW_2 When you LOOK at your primary sexual partner, how often does this result in physical sexual arousal (e.g., an erection, increased heart rate, lubrication, etc.)?			.87
PSW_4 When you have physical contact with your primary sexual partner (e.g., hugging, holding hands or touching), how often does this result in physical sexual arousal?			.74
PSW_1 how often have you had sexual thoughts about your primary sexual partner when you were not engaging in sexual activity?			.71
Intensity When you have sexual thoughts about your primary sexual partner, how would you rate the intensity of			.32

Affect_3 Excited												.83
Affect_2 Delighted												.82
Affect_1 Happy												.72
Affect_5 Aroused												.61
Affect_4 Astonished												.50
Affect_21 Calm												.91
Affect_22 Relaxed												.83
Affect_23 Content												.55
Hedon_4 Exciting												.69
Hedon_8 Thrilling												.58
Hedon_6 Delightful												.57
Hedon_9 Enjoyable												.53
Hedon_2 Fun	.33											.48
PSL_4 Sex with my partner is wonderful	.46											
PSL_1 My partner is sexually very exciting.	.47											
PSL_8 I enjoy the techniques my partner likes or use	.37											
PSL_10 My sexual fantasies feature my partner												
Affect_20 Sleepy		.34										
Affect_19 Tired		.36										
Eigenvalues	26.11	15.12	9.33	4.88	4.31	2.188	1.87	1.75	1.53	1.44		

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Note: Maximum Likelihood Estimation with Promax Rotation with Kaiser Normalization. 1= Satisfaction; 2 = Negative Affective Pain; 3 = Dissatisfaction; 4 = Cognitive Sensation Pleasure; 5 = Utility Pleasure; 6 = Negative Hedonic Displeasure; 7 = Partner Pleasure; 8 = Positive Affective pleasure; 9 = Content pleasure; 10 = Positive Hedonism

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Table 2.  
*Confirmatory Factor Structure of Pleasure and Satisfaction Items*

Factors / Items	Estimate	S.E.
<b><u>Satisfaction</u></b>		
My sexual relationship exceeds my original expectations.	.84	.023
I am very satisfied with the way my sexual needs are currently being met.	.92	.012
I think my sex life is wonderful.	.93	.011
So far I have gotten the important things I want from my sex life.	.85	.027
I am generally pleased with the quality of my sex life.	.90	.016
In most ways my sex life is close to my ideal.	.88	.021
My sexual relationship is very good compared to most.	.90	.016
I believe that my sexual relationship with my partner is not lacking anything.	.86	.019
I am very satisfied with the way my emotional needs are currently being met.	.73	.040
I really think that our sexual relationship is sensational.	.88	.019
My partner is very sensitive to my sexual needs and desires	.71	.042
Our sex life is very exciting	.81	.030
Sex is fun for my partner and me	.68	.043
My sexual relationship with my partner is lacking something.	-.17	.029
When I think of having sex, I have to have it.	.20	.058
Effective	.09	.043
Helpful	.09	.041
Sex with my partner is wonderful	.70	.044
My partner is sexually very exciting.	.73	.043
I enjoy the techniques my partner likes or use	.58	.058
I don't look forward to having sex.	.64	.075
There is nothing I like about my sexual relationship.	.55	.067
Ineffective	-.14	.068
<b><u>Negative Affect</u></b>		
Gloomy	.90	.022
Sad	.91	.016
Angry	.88	.027
Depressed	.91	.015
Miserable	.88	.026
Distressed	.85	.029
Frustrated	.79	.028
Droopy	.84	.034
Afraid	.79	.042
Annoyed	.83	.026
Tense	.67	.042
Alarmed	.54	.061
Bored	.72	.043
Sleepy	.58	.047
Tired	.64	.044

**Dissatisfaction**

I am very unsatisfied with the sexual aspects of my life.	.89	.023
There is nothing I like about my sexual relationship.	1.17	.050
I am disappointed about the quality of my sex life.	.94	.012
Thinking about my sexual relationship with my partner is frustrating.	.90	.017
I am worried about the sexual aspects of my relationship.	.86	.022
I feel unhappy about my sexual relationship.	.94	.012
I think my sex life is awful.	.19	.156
I consider my sexual relationship with my partner unfulfilling.	.93	.011
My sexual relationship falls short of my original expectations.	.87	.018
My sexual relationship with my partner is lacking something.	.75	.027
Our sexual relationship lacks quality	.67	.042
I don't look forward to having sex.	.75	.067
I feel that our sex life is boring	.71	.039

**Cognitive Sensation**

I appreciate the beauty of the sexual experience.	.74	.042
I really enjoy the feeling of release during sex.	.70	.041
When I think about my favorite sexual position, I can almost feel how good it is.	.67	.050
I look forward to the sexual aspects of my life.	.75	.051
The tastes I experience during sex is very satisfying to me.	.59	.052
When there is a promise of sex, I really look forward to it	.62	.062
I love the feel of a naked body against mine.	.66	.056
Wanting to have sex is pleasurable in itself.	.51	.060
When I think of having sex, I have to have it.	.33	.081
The sounds made during sex are very arousing.	.50	.057
The smell of arousal is enjoyable to me.	.61	.050
I don't look forward to having sex.	-.46	.059

**Utility**

Impractical	.96	.040
Not functional	.68	.258
Unnecessary	.96	.037
Ineffective	.98	.038
Unhelpful	.68	.258
Practical	.98	.016
Functional	.99	.014
Effective	.97	.017
Necessary	.98	.020
Helpful	.97	.018
Not Fun	1.89	.185

**Negative Hedonistic displeasure**

Not delightful	1.00	.001
Not Thrilling	1.00	.003
Not Enjoyable	1.00	.004
Dull	1.00	.003

**Partner Desire Pleasure**

When you THINK about your primary sexual partner, how often does this result in physical sexual arousal?	.88	.021
When you LOOK at your primary sexual partner, how often does this result in physical sexual arousal (e.g., an erection, increased heart rate, lubrication, etc.)?	.92	.013
When you have physical contact with your primary sexual partner (e.g., hugging, holding hands or touching), how often does this result in physical sexual arousal?	.80	.023
how often have you had sexual thoughts about your primary sexual partner when you were not engaging in sexual activity?	.80	.029

**Positive Affective Pleasure**

Excited	.88	.019
Delighted	.94	.011
Happy	.92	.014
Aroused	.55	.060
Astonished	.45	.042

**Contentment Pleasure**

Calm	.56	0.043
Relaxed	.68	0.047
Content	.97	0.035

**Positive Hedonistic Pleasure**

Exciting	.99	0.007
Thrilling	.99	0.012
Delightful	.99	0.007
Enjoyable	.99	0.008
Fun	.99	0.008
Not Fun	-.96	0.174

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*Note:* Maximum Likelihood Estimation with Robust Standard Error Estimation. Standardized loadings. Standard errors are shown to 3 places for precision. All  $p$ 's < .05

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Table 3.  
Factor Correlations with Key Criteria

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Avoidance	-														
2. Approach	.178**	-													
3. Anticipatory Pleasure	.247**	.365**	-												
4. Consummatory Pleasure	-.002	.268**	.397**	-											
5. Partner Regret	.281**	-.284**	.046	-.116*	-										
6. Relationship Satisfaction	-.035	.391**	.280**	.233**	-.403**	-									
7. Factor 1 Sexual Satisfaction	.045	.326**	.392**	.290**	-.278**	.629**	-								
8. Factor 2 Negative Affective Pain	.127*	-.168**	-.021	-.061	.312**	-.356**	-.280**	-							
9. Factor 3 Sexual Dissatisfaction	.159**	-.326**	-.158**	-.228**	.551**	-.543**	-.766**	.434**	-						
10. Factor 4 Cognitive Sensation Pleasure	-.099	.513**	.378**	.315**	-.209**	.272**	.424**	-.187**	-.436**	-					
11. Factor 5 Utility Pleasure	.073	-.025	.085	.024	.048	.280**	.197**	-.053	-.140**	.001	-				
12. Factor 6 Negative Hedonistic Displeasure	.035	-.062	-.025	-.057	.029	.058	-.034	.014	.018	-.085	.685**	-			
13. Factor 7 Partner Desire Pleasure	-.015	.294**	.298**	.258**	-.110*	.229**	.469**	-.027	-.289**	.585**	.053	-.052	-		
14. Factor 8 Positive Affective Pleasure	.086	.285**	.403**	.263**	-.172**	.530**	.783**	-.365**	-.565**	.373**	.238**	.005	.412**	-	
15. Factor 9 Contentment Pleasure	.033	.190**	.287**	.220**	-.148**	.428**	.632**	-.338**	-.429**	.244**	.195**	.029	.329**	.755**	-
16. Factor 10 Positive Hedonistic Pleasure	.072	.020	.127*	.058	-.001	.365**	.330**	-.112*	-.249**	.058	.985**	.642**	.118*	.355**	.285**

Note: \*  $p < .05$ , \*\*  $p < .0001$

Table 4. Hierarchical Regression Analysis for Factors Predicting Sexual Satisfaction and Dissatisfaction

Variable	Model 1			Model 2			Model 3		
	B	S. E.	$\beta$	B	S. E.	$\beta$	B	S. E.	$\beta$
Length of Sexual relationship	-.010	.012	-.060	-.015	.009	-.091	.002	.005	.012
Age	-.004	.010	-.026	-.002	.008	-.014	-.001	.004	-.005
Country of Origin	.413	.157	.139*	.297	.124	.100*	.168	.066	.057*
Gender	.022	.150	.008	.369	.113	.131**	.120	.062	.042*
Relationship Satisfaction				.175	.015	.507**	.053	.009	.153**
Partner Regret				-.026	.008	-.146**	.016	.005	.090**
Anticipatory Pleasure				.037	.008	.199**	.017	.005	.091**
Consummatory Pleasure				0.19	.009	.091*	.002	.005	.008
<i>Sexual Dissatisfaction</i>							-.398	.029	-.461**
Negative Affective Pain							.128	.024	.122**
Cognitive Sensation Pleasure							-.103	.050	-.057*
Utility Pleasure							-.414	.050	-1.568**
Negative Hedonistic Displeasure							.001	.005	.007
Partner Desire Pleasure							.122	.027	.116**
Positive Affective Pleasure							.175	.043	.161**
Contentment Pleasure							.128	.045	.087*
Positive Hedonistic Pleasure							.388	.047	1.603**
R <sup>2</sup>		.03			.49			.87	
F for change in R <sup>2</sup>		2.71*			81.56**			111.37**	
Variable	Model 1			Model 2			Model 3		
	B	S. E.	$\beta$	B	S. E.	$\beta$	B	S. E.	$\beta$
Length of Sexual relationship	.018	.015	.091	.024	.011	.121*	.009	.007	.046
Age	-.013	.012	-.083	-.011	.009	-.072	-.007	.006	-.044
Country of Origin	.275	.184	.080	.012	.150	.004	.158	.101	.046
Gender	.241	.175	.074	-.236	.136	-.072	.211	.093	.065*
Relationship Satisfaction				-.138	.018	-.345**	.036	.015	.090*
Partner Regret				.088	.010	.432**	.056	.007	.277**
Anticipatory Pleasure				-.012	.010	-.059	.025	.007	.117**
Consummatory Pleasure				-.019	.011	-.079	-.003	.007	-.012
<i>Sexual Satisfaction</i>							-.902	.065	-.778**
Negative Affective Pain							.187	.036	.154**
Cognitive Sensation Pleasure							-.399	.073	-.191**
Utility Pleasure							.021	.083	.069
Negative Hedonistic Displeasure							.002	.008	.010
Partner Desire Pleasure							.171	.042	.140**
Positive Affective Pleasure							.028	.066	.022
Contentment Pleasure							.151	.067	.089*
Positive Hedonistic Pleasure							-.040	.078	-.143
R <sup>2</sup>		.02			.45			.78	
F for change in R <sup>2</sup>		1.51			70.70**			57.47**	

Note: \*  $p < .05$ , \*\*  $p < .0001$

Table 5. *Logistic Regression Analysis of Presence of Sexual Dysfunction*

Predictors	$\beta$	SE $\beta$	Wald's $\chi^2$	$p$	$e^{\beta}$
Sexual Satisfaction	-.11	.26	.18	.672	.90
Negative Affective Pain	.08	.15	.31	.579	1.08
Sexual Dissatisfaction	.46	.18	6.39	.011	1.59
Cognitive Sensation Pleasure	-1.04	.30	11.78	.001	.35
Utility Pleasure	-.89	.35	7.04	.008	.41
Negative Hedonistic Displeasure	.01	.03	.17	.678	1.01
Partner Desire Pleasure	.01	.17	.01	.932	1.01
Positive Affective Pleasure	-.16	.28	.35	.555	.85
Contentment Pleasure	.35	.28	1.55	.213	1.43
Sexual Relationship Length	.04	.02	3.92	.048	1.04
Geographic location	-1.25	.39	10.51	.001	.29
Partner Regret	-.02	.03	.51	.477	.98
Avoidance Motives	.10	.03	8.74	.003	1.10
Approach Motives	-.07	.06	1.57	.211	.93
Anticipatory Pleasure	.09	.03	8.26	.004	1.09
Consummatory Pleasure	-.04	.03	1.25	.264	.97
Constant	-3.44	2.13	2.62	.105	.03

*Note:* Positive Hedonistic Pleasure was excluded because of problems with convergence of the model.

**Appendix A**  
Study Measures

**Affective Pleasure**

Considering your sexual interactions during the past two weeks, please indicate the extent to which you felt the following emotions. (1 to 7 scale)

1. Happy	2. Afraid
3. Delighted	4. Annoyed
5. Excited	6. Distressed
7. Astonished	8. Frustrated
9. Aroused	10. Miserable
11. Tense	12. Sad
13. Angry	14. Gloomy
15. Depressed	16. Relaxed
17. Bored	18. Content
19. Droopy	20. Tired
21. Sleepy	22. Calm
23. Alarmed	

**Accomplishment pleasure (HED/UT scale)**

Considering your previously indicated motivations/goals for engaging in sexual activity with your partner, please evaluate your sexual experiences on the following.

Utilitarian

1. Effective –ineffective
2. Helpful-unhelpful
3. Functional-not functional
4. Necessary-unnecessary
5. Practical-impractical

Hedonic

1. Not fun-fun
2. Dull-exciting
3. Not delightful-delightful
4. Not thrilling-thrilling
5. Enjoyable-not enjoyable

## **Pleasurable desire (TEPS, PSSL, & PSSW)**

### Anticipatory factor

1. When something exciting is coming up in my life, I really look forward to it
2. When I think about eating my favorite food, I can almost taste how good it is
3. I don't look forward to things like eating out at restaurants (R)
4. When I'm on my way to an amusement park, I can hardly wait to ride the roller coasters
5. I get so excited the night before a major holiday I can hardly sleep
6. When I think of something tasty, like a chocolate chip cookie, I have to have one
7. Looking forward to a pleasurable experience is in itself pleasurable
8. I look forward to a lot of things in my life
9. When ordering something on the menu, I imagine how good it will taste
10. When I hear about a new movie starring my favorite actor, I can't wait to see it

### Sexually Modified

1. When there is a promise of sex, I really look forward to it
2. When I think about my favorite sexual position, I can almost feel how good it is.
3. I don't look forward to having sex.
4. When I think of having sex, I have to have it.
5. Wanting to have sex is pleasurable in itself.
6. I look forward to the sexual aspects of my life.
7. When I think about past sexual experiences, I relive many of the feelings I had during that time.

### Consummatory factor

1. The sound of crackling wood in the fireplace is very relaxing
2. I love the sound of rain on the windows when I'm lying in my warm bed
3. The smell of freshly cut grass is enjoyable to me
4. I enjoy taking a deep breath of fresh air when I walk outside
5. A hot cup of coffee or tea on a cold morning is very satisfying to me
6. I love it when people play with my hair
7. I really enjoy the feeling of a good yawn
8. I appreciate the beauty of a fresh snowfall

### Sexually Modified

1. The sounds made during sex are very arousing.
2. I love the feel of a naked body against mine.
3. The smell of arousal is enjoyable to me.
4. The tastes I experience during sex are very satisfying to me.

5. I appreciate the beauty of the sexual experience.
6. I really enjoy the feeling of release during sex.

#### Partner-specific sexual liking

1. My partner is sexually very exciting.
2. Sex is fun for my partner and me
3. Our sexual relationship lacks quality
4. Sex with my partner is wonderful
5. My partner is very sensitive to my sexual needs and desires
6. Our sex life is very exciting
7. I feel that our sex life is boring
8. I enjoy the techniques my partner likes or use
9. I lose track of time when I have sex with my partner.
10. My sexual fantasies feature my partner.

#### Partner-specific sexual wanting

1. Thinking about the last month, how often have you had sexual thoughts about your primary sexual partner when you were not engaging in sexual activity?
2. When you have sexual thoughts about your primary sexual partner, how would you rate the intensity of those feelings?
3. When you look at your primary sexual partner, how often does this result in physical sexual arousal (e.g., an erection, increased heart rate, lubrication, etc.)?
4. When you think about your primary sexual partner, how often does this result in physical sexual arousal?
5. When you have physical contact with your primary sexual partner (e.g., hugging, holding hands or touching), how often does this result in physical sexual arousal?

## **Sexual Satisfaction**

Considering the last three months, please answer the following questions about your intimate relationship on the following response scale:

1. Strongly Disagree
2. Disagree
3. Somewhat Disagree
4. Neither Agree nor Disagree
5. Somewhat Agree
6. Agree
7. Strongly Agree

1. I think my sex life is wonderful.
2. I am very satisfied with the way my sexual needs are currently being met.
3. My sexual relationship falls short of my original expectations.
4. I am worried about the sexual aspects of my relationship.
5. My sexual relationship exceeds my original expectations.
6. I feel unhappy about my sexual relationship.
7. I am very satisfied with the way my emotional needs are currently being met.
8. My sexual relationship is very good compared to most.
9. My sexual relationship with my partner is lacking something.
10. I am very unsatisfied with the sexual aspects of my life.
11. In most ways my sex life is close to my ideal.
12. I am generally pleased with the quality of my sex life.
13. I am disappointed about the quality of my sex life.
14. So far I have gotten the important things I want from my sex life.
15. I really think that our sexual relationship is sensational.

16. My sex life with my partner could not get much worse.
17. I would change aspects of my sexual relationship.
18. I think my sex life is awful.
19. I believe that my sexual relationship with my partner is not lacking anything.
20. I consider my sexual relationship with my partner unfulfilling.
21. Thinking about my sexual relationship with my partner is frustrating.
22. There is nothing I like about my sexual relationship.

### **Sexual Motives**

Please rank the following reasons for why you engage in sexual activity with your partner.

1. Accomplishment
2. Affection
3. Bargaining-exchange
4. Communication
5. Concern for partner
6. Duty-obligation
7. Procreation
8. Recreation-play
9. Spiritual bond
10. Tension release



How important are the following reasons to engage in sexual activity with your partner?  
(1= not important at all – 7 =Most important aspect)

#### Approach

1. To pursue my own sexual pleasure
2. To feel good about myself
3. To please my partner
4. To promote intimacy in my relationship
5. To express love for my partner.

#### Avoidance

1. To avoid conflict in my relationship
2. To prevent my partner from becoming upset
3. To prevent my partner from getting angry at me
4. To prevent my partner from losing interest in me

#### **Relationship Satisfaction**

1. Please indicate the degree of happiness, all things considered, of your relationship.
2. I have a warm and comfortable relationship with my partner
3. How rewarding is your relationship with your partner?
4. In general, how satisfied are you with your relationship?