

The Relationship Between Attitudes Towards Menstruation and Sexual Attitudes, Desires, and Behavior in Women

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We studied 114 romantically involved women to examine empirically the psychological connections between menstruation and sexuality. As menstruation is a distinctive sign of both reproductive potential and sexual maturity, we hypothesized that the attitudes women have towards menstruation will correlate with their sexual attitudes, desires, and behavior. As predicted, a comfort with personal sexuality was associated with a comfort with menstruation as a normal, publicly acceptable event. This association remained after controlling for liberal attitudes and disgust sensitivity. In addition, women who had engaged in sexual relations with their current partner during menses were significantly more comfortable with menstruation, more aroused by romantic and unconventional sexual activities, and less sensitive to disgust.

KEY WORDS: sexuality; sexual desire; menstruation; disgust; values.

INTRODUCTION

Menstruation is an event that occurs simultaneously within a broader process of sexual development and maturation. Consequently, the reactions and attitudes a young woman has towards her development as a sexually maturing individual may be intricately interwoven with the reactions and attitudes she has towards menstruation (Lee, 1994). In this article, we present the results of a study designed to test empirically the possible connections between menstruation and sexual attitudes, desires, and behavior. We focus on two aspects of menstruation in our work: attitudes towards menstruation and the incidence of sexual activity during menstruation. We also focus on two aspects of sexuality: personal feelings of comfort with sexuality in general and arousal responses to a range of specific sexual situations and practices.

Sexuality and Menstrual Attitudes

Both sexuality and menstruation are related to the same bodily region—the genitals. Thus, they are likely to be psychologically linked merely by virtue of their association with the same physiological structures. However, the bond may run deeper. Menstruation is a distinctive sign of both reproductive potential and sexual maturity. Both sexuality and menstruation are connected with the presence (or absence) of fertility and childbirth. For example, in a study asking pre- and postmenarcheal girls to draw pictures of women, Koff, Rierdan, and Silverstone (1978) found that those girls who had experienced menarche drew more sexually differentiated bodies. It was concluded that menstruation is a pivotal event for reorganization of the adolescent girl's body image and sexual identity.

As a result of the association between menstruation and sexual identity, those women who develop negative attitudes and reactions to themselves as sexual beings or to their bodies as sexual instruments may also develop correspondingly negative reactions to menstruation. For example, women who have learned that sexuality is a source of embarrassment and shame may have similar reactions towards menstruation. Similarly, if women have been taught to associate menstruation with dirtiness or impurity, they

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may be more inclined to cast sexual activity in the same negative light.

There are, however, two additional variables that may provide alternate explanations for any observed correlation between attitudes towards menstruation and attitudes towards sexuality. First, *liberal values*, characterized generally by an openness to change, are associated with the acceptance of diversity and self-determination and a resistance to conformity and tradition (Schwartz, 1992). Conceivably, people endorsing liberal values might both support a more tolerant approach towards sexual expression and also express a greater personal comfort with menstruation, a topic that is often described in public discourse with indirect allusions and euphemisms. Consistent with this idea, Paige (1977) found that commitment to traditional beliefs about marriage and childbearing were strongly related to abstaining from sexual relations during menses. In our study, we tested for the possibility that liberal values could provide a plausible third-variable explanation for correlations between menstruation and sexuality.

Second, attitudes towards menstruation and attitudes towards sexuality may be related because both are associated with emotional reactions of *disgust*. Miller (1997) reviewed evidence indicating that reactions of disgust are associated with being exposed to sexual ideas, imagery, or humor that are deemed emotionally or morally unacceptable. Similarly, Miller highlighted how menstruation is often regarded with aversion and disgust. Thus, we also tested for the possibility that a generalized sensitivity to feelings of disgust may account for any observed associations between sexuality and menstruation.

Menstruation and Sexual Behavior

Although there has been little research directed towards the idea that attitudes toward menstruation may be associated with sexual attitudes and desires, there has been considerably more attention paid to the study of sexual behavior throughout the menstrual cycle (cf. Regan, 1996). Arguably, the links between attitudes towards menstruation and sexual attitudes or desires should be most clearly revealed in sexual behavior during menses. In a classic paper, Benedek and Rubenstein (1939) studied the psychoanalytic interpretations of sexual content in dreams throughout the menstrual cycle. Despite the imprecise nature of dream analysis, this early work identified varying levels of sexual desire in women throughout their menstrual cycle.

In a more recent comprehensive review of female sexual activity across the menstrual cycle, Hedricks (1994)

reported that sexual activity occurred least often during menstruation. Hedricks suggested that this may be partly due to biological factors such as low levels of female hormones associated with sexual motivation or health-related issues such as premenstrual or menstrual discomfort (e.g., Barnhart, Fuman, & Devoto, 1995; Dennerstein et al., 1994). However, Hedricks went on to claim that cultural beliefs and personal attitudes also contribute to a decline in sexual activity during menses.

In our study, we sought to specifically test the idea that personal attitudes linked to sexuality and sexual desire are predictive of ever having engaged in sexual activity during menses. A number of studies point to this possibility. Tanfer and Arol (1996), for example, found that women who had a larger number of lifetime sexual partners or who had sex more frequently were less likely to avoid menstrual sex. Similarly, in a sample of Chilean respondents, Barnhart et al. (1995) found that respondents who engaged in sexual relations 3 or more times per week were significantly more likely to have sexual relations during menstruation than those respondents who indicated having sexual relations fewer than 3 times per week. Thus, women who are more sexually active in general are also more sexually active when they are menstruating.

It has already been noted that sexual activity generally declines during menstruation. However, there are those sexually active women who have *never* engaged in sexual relations during menses. We believe that the absence of any sexual behavior during this period, rather than a decline in such behavior, is a more definitive indicator of the ways in which an individual regards sex during menstruation. Therefore, in this study, we focused on the incidence, rather than the frequency, of menstrual sexual activity.

We hypothesized that the incidence of sexual activity during menstruation will be more common among women who have more tolerant, intense, or unconventional sexual desires. However, we also tested the possibility that values and disgust could account for sexual behavior during menstruation. Women with a more liberal value system may regard sexual activity during menses as more acceptable and appropriate, whereas feelings of disgust that are associated with both menstruation and sexuality would make sexual activity during menses doubly unappealing.

Hypotheses

Hypothesis 1: Positive, comfortable, and accepting attitudes toward menstruation will be related to women's positive acceptance of their own sexuality.

Hypothesis 2: Women with positive menstrual attitudes will generally be more aroused by a variety of forms of sexual and erotic expression.

Hypothesis 3: Measures of liberal values and disgust will each be associated with attitudes towards menstruation and sexual attitudes and desires, but neither construct will account for their association.

Hypothesis 4: Women who have more positive attitudes towards menstruation will be more likely to have engaged in sexual activity during menses.

Hypothesis 5: Women who are more open and comfortable in their sexual attitudes will be more likely to have engaged in sexual activity during menses.

Hypothesis 6: Women who have been sexually active during menses will express higher levels of arousal in response to a variety of sexual experiences.

Hypothesis 7: Women who have been sexually active during menses will have a more liberal value system.

Hypothesis 8: Women who have been sexually active during menses will generally be less sensitive to feelings of disgust.

METHOD

Participants

Female students from various large-enrollment psychology courses at the University of Waterloo completed measures of menstrual attitudes, sexual attitudes, sexual arousability ($n = 167$), values, and disgust ($n = 95$). Participants ranged in age from 18 to 49 years, but over 90% of participants were between 18 and 23 years of age. Most participants (over 80%) were Caucasian and the vast majority identified their sexual orientation as heterosexual (97%).

In order to study a sample in which all participants were responding to the sexual desire questions with an actual, rather than a hypothetical, partner in mind, we limited our analyses to the 114 female participants who had completed the menstrual and sexuality measures and who had indicated that they were involved in an ongoing relationship (79% were dating steadily and the remaining 21% were either cohabiting, engaged, or married). Of these women, 111 were heterosexual, 2 were homosexual, and 1 was bisexual. The measures of Liberal Values and Disgust Sensitivity were added to the study after data collection had commenced and were completed by 62 of the 114 romantically involved participants.⁴

Participants were not required to be sexually active in order for their menstrual and sexual attitudes to be relevant for our analyses. However, for analyses involving the incidence of sexual behavior during menstruation, we limited our analyses to the 99 women who had indicated that they were sexually active.

In order to minimize the potential that the completion of one set of measures would influence or bias responses to the other measures, the measure of menstrual attitudes, the sexuality scales, and the disgust and values measures were all administered at separate times (typically on separate days). Because of the sensitivity of the sexual arousal measure, participants were instructed to complete this measure at home and return it at the next class (questionnaires were matched using code numbers).

Materials

Menstrual Attitudes Questionnaire

Menstrual attitudes were measured with a shortened, 19-item version of the original 43-item Menstrual Attitudes Questionnaire developed by Brooks-Gunn and Ruble (1980). We reduced the length of this scale for two reasons. First, there was a need to reduce the time needed to complete the questionnaire package. Second, because our goal was to assess menstrual attitudes specifically, items emphasizing the physiology of menstruation were omitted. Participants indicated their agreement with statements on 7-point scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

In order to examine the latent structure of the reduced set of items on the Menstrual Attitudes Questionnaire within our sample, a principal components analysis with varimax rotation was performed using the data from the 167 participants who had completed this measure. A scree plot indicated the presence of three factors. The first factor, *Comfort with Menstruation*, measured a woman's comfort with menstruation in a social context (e.g., "I do not feel comfortable when men know that I am menstruating"). High scores on these items indicated a high degree of comfort with menstruation in a public setting. This five-item factor accounted for 18.3% of the variance and had good internal consistency (Cronbach's alpha = .77).

The second factor, *Perceived Menstrual Convenience*, measured the extent to which menstruation

pleted these measures showed that the two groups were not significantly different on measures of menstrual attitudes, sexual attitudes, or sexual arousal. Therefore, where possible, analyses were conducted using the combined sample.

⁴Comparisons between the sample of respondents who had not completed the disgust and values measures and the sample that had com-

is regarded as a nuisance or disruption. Subjects with high scores on this factor demonstrated a belief that menstruation is a benign, comparatively agreeable experience (e.g., “Most women make too much of the minor physiological effects of menstruating”). This seven-item factor accounted for 14.8% of the variance and had good internal consistency ($\alpha = .75$).

The third factor, *Symbolic Menstrual Affirmation*, gauged respondent’s philosophical or symbolic representation of menstruation as an affirmation of womanhood (e.g., “Menstruation is an obvious example of the rhythms and cycles that pervade all life”). This five-item factor accounted for 11.9% of the variance and had acceptable internal consistency ($\alpha = .70$).

Comfort With Personal Sexuality

This measure, developed specifically for this study, consisted of 10 items designed to assess the degree to which participants feel comfortable, open, and accepting of sexuality. Participants responded to statements such as “I feel comfortable talking about sexuality with strangers” on a 7-point scale (See Appendix for the complete scale). High scores signal agreement with beliefs that sexual desire and expression are a natural, and comfortable, aspect of life. A principal components analysis indicated that this scale produced a single factor with a good level of internal consistency ($\alpha = .81$).

Sexual Arousal Assessment

The Sexual Arousal Assessment (Rempel & Serafini, 1995; revised by Rempel & Blundell, 1996) contains 36 items that gauge various aspects of sexual arousal to specific sexual situations and activities. The sexual activities were adopted or adapted from various sources, including Hoon, Hoon, and Wincze (1976) and Friday (1973). Participants were presented with the situation or activity and were asked to rate their reactions of sexual arousal on a 6-point scale, beginning with 1 (*negatively sexually arousing*) and then ranging from 2 (*not at all sexually arousing*) through to 6 (*wildly sexually arousing*).

Three factors emerged from a principal components analysis with varimax rotation performed on the data from the 167 respondents who completed this measure. The first factor, *Desire for Unconventional Sexual Activities*, consisted of 13 items that measured arousal towards non-traditional, partner-independent activities (e.g., group sex, spanking or punishment). This scale accounted for 28.7% of the variance and had an alpha of .88. The second fac-

tor, *Desire for Romantic Sexual Activities*, consisted of nine items that tapped into more conventional, couple-oriented sexual acts (e.g., full body kissing and caressing, oral–genital sex). This scale accounted for 8.9% of the variance and had an alpha of .82. The third factor, *Desire for Fantasy-Oriented Sexual Activities*, consisted of nine items that measured arousal in response to fantasy scenarios (e.g., sex with a famous celebrity or authority figure, sexual role-playing). This scale accounted for 4.7% of the variance with an alpha of .79.

The tendency to find one type of sexual activity arousing was associated with the tendency to find other sexual activities more arousing as well. Desire for Romantic Sexual Activities was correlated with Desire for Fantasy-Oriented Sexual Activities, $r = .57$, $p < .0001$, and with Desire for Unconventional Sexual Activities, $r = .40$, $p < .0001$. Desire for Fantasy-Oriented Sexual Activities and Desire for Unconventional Sexual Activities were correlated, $r = .61$, $p < .0001$. However, the means for each scale indicated that there were differences in the extent to which these three types of activities were judged to be sexually arousing. On average, items on the Desire for Romantic Sexual Activities scale ($M = 3.9$, $SD = .62$) were rated as significantly more arousing ($t = 20.1$, $p < .001$) than items on the Desire for Fantasy-Oriented Sexual Activities scale ($M = 2.9$, $SD = .76$), which were, in turn, rated as more arousing ($t = 15.6$, $p < .001$) than items on the Desire for Unconventional Sexual Activities scale ($M = 1.8$, $SD = .90$). In fact, the mean for items on the Desire for Unconventional Sexual Activities scale indicated that most respondents rated these sexual activities as either *not at all* or *negatively* sexually arousing.

Disgust Scale

A subset of 63 participants completed Haidt, McCauley, and Rozin’s (1994) Disgust Scale and Schwartz’s (1992) Values Survey.⁵ The Disgust Scale consists of 32 items that assess an individual’s responses to negative stimuli. Sixteen true–false items and 16 items on a 3-point Likert scale comprise the two sections of the measure. The items on this scale represent seven domains of disgust elicitors (e.g. animals, body products) as well as a domain called “magical thinking” that cuts across the seven areas. An example item states, “Even if I was hungry, I would not drink a bowl of soup if it had been stirred by a used but thoroughly washed flyswatter.” Four sexuality-related items on the disgust scale (e.g., “You hear about a 30 year old man who seeks sexual relationships with 80 year old women”) were excluded when calculating

⁵See footnote 4.

participants' disgust scores because these items have the potential to produce spurious correlations with our other sexuality measures.

Schwartz Values Survey

Participants rated the personal importance of 56 values on a scale ranging from -1 (*opposed to my principles*) through 0 (*not important*) to 7 (*of supreme importance*). On the basis of cross-cultural research with large samples, Schwartz (1992) grouped the individual value items into 10 subscales: Traditionalism, Conformity, Security, Power, Achievement, Hedonism, Stimulation, Self-Directedness, Universalism, and Benevolence.

These higher-order subscales are organized on a circumplex that has two underlying dimensions. The first dimension is anchored at one end by values involving *conservation* (conformity, tradition, and security) and at the other end by values supporting *openness to change* (self-direction, stimulation, and hedonism). A second, orthogonal dimension ranges from values of *self-enhancement* at one end (achievement and power) through to values involving *self-transcendence* at the other (universalism and benevolence).

Scores for each of the 10 values subscales were computed on the basis of Schwartz's recommended groupings, and correlations were computed using the total values score as a covariate to correct for individual differences in response format use, as recommended by Schwartz (1992). We had hypothesized that an open acceptance of the self as a sexual being and a comfortable and accepting approach towards menstruation may both emerge out of a value system that prizes tolerance and free thought. Therefore, our primary concern was with the conserva-

tion/openness to change dimension. We combined scores on the values of self-direction, stimulation, and hedonism with the reversed scores on the values of conformity, tradition, and security to create a single index of *Liberal Values*.

RESULTS

Menstrual Attitudes and Sexuality

Hypothesis 1

In our first hypothesis, we predicted that accepting attitudes towards menstruation would be associated with comfort and acceptance of personal sexuality. Consistent with our hypothesis, Comfort with Menstruation was positively correlated with Comfort with Personal Sexuality, $r = .35$, $p < .01$. Neither the Symbolic Menstrual Affirmation nor the Perceived Menstrual Convenience scales were significantly related to scores on the Comfort with Personal Sexuality measure. In fact, Symbolic Menstrual Affirmation and Perceived Menstrual Convenience were not significantly related to any of the measures used in this study (see Table I).

Hypothesis 2

In our second hypothesis, we predicted that positive menstrual attitudes would also be associated with greater levels of sexual arousal in response to a variety of sexual activities. However, none of the sexual arousal subscales—Unconventional, Romantic, or Fantasy-Oriented—were significantly correlated with any of the

Table I. Correlations, Means, and Standard Deviations for Study Variables

Study variables	1	2	3	4	5	6	7	8	9
1. Comfort with Menstruation	—								
2. Perceived Menstrual Convenience	.16	—							
3. Symbolic Menstrual Affirmation	.04	-.05	—						
4. Comfort with Personal Sexuality	.35**	.02	.12	—					
5. Desire for Unconventional Sex	.16	-.10	.12	.52**	—				
6. Desire for Romantic Sex	.15	-.12	.06	.44**	.38**	—			
7. Desire for Fantasy-Oriented Sex	.08	.02	.05	.57**	.60**	.58**	—		
8. Liberal Values	.28*	.14	-.01	.50**	.41**	.05	.33**	—	
9. Disgust Sensitivity	-.18	-.10	-.23	-.17	-.10	-.07	-.09	-.08	—
Mean	4.53	4.50	3.83	4.74	1.71	3.98	2.80	-0.03	22.19
Standard deviation	1.22	1.01	0.95	0.93	0.91	0.62	0.73	0.53	6.97

Note. $n = 114$ for Variables 1–7, $n = 63$ for Variable 8, and $n = 62$ for Variable 9.

Variables 1–4 can range from 1 to 7, Variables 5–7 can range from 1 to 6, and Variable 9 can range from 16 to 64.

* $p < .05$. ** $p < .01$.

Table II. Hierarchical Regressions Predicting Comfort With Menstruation

Controlling for Liberal Values ($n = 63$)			Controlling for Disgust Sensitivity ($n = 62$)		
Variable	β	$R^2 \Delta$	Variable	β	$R^2 \Delta$
Step 1		.08*	Step 1		.03
Liberal Values	.28*		Disgust Sensitivity	-.18	
Step 2		.10	Step 2		.10
Liberal Values	.14		Disgust Sensitivity	-.13	
Comfort with Personal Sexuality	.40*		Comfort with Personal Sexuality	.44**	
Desire for Romantic Sexual Activities	-.10		Desire for Romantic Sexual Activities	-.14	
Desire for Fantasy-Oriented Sexual Activities	-.17		Desire for Fantasy-Oriented Sexual Activities		-.14
Desire for Unconventional Sexual Activities	-.01		Desire for Unconventional Sexual Activities	.03	

* $p < .05$. ** $p < .01$.

menstrual attitudes scales. Thus, our second hypothesis was not confirmed.

Hypothesis 3

In our theoretical analysis, we suggested that any association found between comfort with menstruation and sexual attitudes or desires might emerge because of a shared association with two additional variables—liberal values and disgust. Using hierarchical regression analysis, we examined the extent to which the sexuality measures uniquely predicted Comfort with Menstruation over and above the variance explained by either Liberal Values or Disgust (see Table II).

We entered the Liberal Values measure in the first step, followed in the second step by the simultaneous entry of the Comfort with Personal Sexuality scale and the sexual arousal subscales (Desire for Romantic Sexual Activities, Desire for Fantasy-Oriented Sexual Activities, Desire for Unconventional Sexual Activities). As hypothesized, Liberal Values predicted a significant proportion of the variance in Comfort with Menstruation. However, when the sexuality measures were entered in the second step, Comfort with Personal Sexuality continued to significantly predict Comfort with Menstruation and the measure of Liberal Values did not remain significantly predictive. Therefore, an open and comfortable approach towards personal sexuality continued to predict public comfort with menstruation, after controlling for liberal values.

Disgust did not significantly predict Public Comfort with Menstruation when entered in the initial step. Therefore, not surprisingly, Comfort with Personal Sexuality continued to significantly predict Comfort with Menstru-

ation in the second step. Clearly, feelings of disgust were unable to account for the relationship between a comfort with sexuality and a comfort with menstruation in a public context.

Sexual Behavior and Menstruation

Hypotheses 4–8

In our sample, 65 women indicated that they had engaged in sexual relations with their partner during menses and 34 women indicated that they had never done so. We predicted that women who had engaged in sexual activity during menstruation would have more positive attitudes towards menstruation (Hypothesis 4), more openness and comfort with their personal sexuality (Hypothesis 5), higher levels of arousal in response to a variety of sexual experiences (Hypothesis 6), a more liberal value system (Hypothesis 7), and lower disgust sensitivity (Hypothesis 8). In order to compare those women who have engaged in sexual activity during menstruation with those women who have not done so, we used logistic regression analysis.

As can be seen in Table III, when each variable was individually regressed onto Menstrual Sexual Behavior, the results indicated that women who have had sexual relations with their partner during menstruation were significantly more comfortable with a public awareness of menstruation (Hypothesis 4) than women who had not had sex during menses. These women were also significantly more aroused by romantic sexual activities and by unconventional sexual activities (Hypothesis 6). Finally, tests on the subsample of participants who had completed

Table III. Individual Logistic Regression Analyses Predicting Menstrual Sexual Behavior

Variable	Beta
1. Comfort with Menstruation	0.41*
2. Symbolic Menstrual Affirmation	0.16
3. Perceived Menstrual Convenience	0.30
4. Comfort with Personal Sexuality	0.33
5. Desire for Romantic Sexual Activities	0.74*
6. Desire for Fantasy-Oriented Sexual Activities	0.23
7. Desire for Unconventional Sexual Activities	0.65*
8. Liberal Values	0.64
9. Disgust Sensitivity	-0.13*

Note. For Variables 1–7, $n = 99$ and for Variables 8 and 9, $n = 50$.

* $p < .05$.

the values and disgust measures indicated that women who have had sexual relations during menses tended to have significantly lower levels of disgust sensitivity (Hypothesis 8). There were no significant differences between these two groups in comfort with personal sexuality (Hypothesis 5) or liberal values (Hypothesis 7).

In order to identify the unique effects of each of these variables on sexual behavior during menses, we simultaneously entered Comfort with Menstruation, Symbolic Menstrual Affirmation, Perceived Menstrual Convenience, Comfort with Personal Sexuality, Desire for Romantic Sexual Activities, Desire for Fantasy-Oriented Sexual Activities, and Desire for Unconventional Sexual Activities into a logistic regression equation. In this analysis, Desire for Unconventional Sexual Activities ($\beta = 0.89$, $p = .02$) uniquely predicted sexual relations during menses over and above the others. Thus, women who were more aroused by atypical sexual activities were particularly more likely to have engaged in sexual behavior during menses.

We also repeated this analysis after adding Liberal Values and Disgust Sensitivity to the list of variables. In the subsample of 50 participants who completed all of these measures, only Disgust Sensitivity significantly predicted menstrual sexual behavior ($\beta = -.14$, $p = .01$). Thus, women who were more sensitive to disgust were particularly less likely to have engaged in sexual activity during their period.

DISCUSSION

Menstrual Attitudes and Sexuality

The results of this study establish and help to clarify the association between menstrual attitudes and sexuality. Our prediction that menstrual attitudes would be related to aspects of personal sexuality received support in that

Comfort with Menstruation was significantly correlated with Comfort with Personal Sexuality. Thus, women who expressed more comfortable and accepting attitudes toward menstruation were, likewise, more inclined to feel comfortable with their own sexuality.

In terms of sexuality, it is important to note that positive menstrual attitudes were *not* associated with greater levels of sexual arousal, regardless of how conventional or unconventional those sexual activities might be. Thus, a public comfort with menstruation was not associated with the experience of sexual arousal per se, but rather with the positive evaluation of personal sexuality.

In terms of attitudes towards menstruation, it is also important to highlight that there were no significant correlations involving measures of Symbolic Menstrual Affirmation or Perceived Menstrual Convenience. Thus, sexual attitudes were not associated with an abstract, philosophical acceptance of menstruation as a sign of womanhood nor were they related to judgments of the physical discomfort or inconvenience of menstruation. Rather, comfort with personal sexuality was associated with the acceptance of menstruation as a normal, publicly acceptable event.

Comfort with Menstruation and Comfort with Personal Sexuality both involve attitudinal or evaluative responses. Consequently, there was the possibility that they were correlated because they are both manifestations of a more liberal attitude of openness and comfort with issues that are often considered taboo. However, even though the acceptance of liberal values was positively associated with greater comfort with menstruation, our analyses indicate that a more liberal value system did not account for the relationship between attitudes towards sexuality and attitudes towards menstruation. In the same way, we also found that disgust sensitivity could not account for the association between Comfort with Menstruation and Comfort with Personal Sexuality.

Sexual Behavior and Menstruation

We hypothesized that the links between sexuality and menstruation should be manifested in the incidence of sexual activity during menses. The results of our logistic regression analyses showed that women who had engaged in sexual relations during menses were significantly more comfortable with a public awareness of menstruation, significantly more aroused by romantic and unconventional sexual activities, and less sensitive to disgust. When these various predictors were compared directly, two factors stood out as unique. First, women who had engaged in sexual activity during menses were significantly more aroused by unconventional sexual activity and, second, among the subset of women completing

the total set of measures, they were significantly less disgust prone.

The finding that menstruation is associated with reactions of disgust is well established (see Miller, 1997). Thus, women who are disgust prone in general appear to be less inclined to engage in sexual actions that would, by their very nature, accentuate awareness of a disgust-related physiological event. Moreover, the messy and unsanitary image of menstruation would be further amplified by actions that involve contact and exposure to bodily emissions (Rozin, Nemeroff, Horowitz, Gordon, & Voet, 1995).

The finding that sexual activity during menses is uniquely related to a greater desire for unconventional sexual activities is informative not only about the nature of sexual desire, but also about the way in which menstruation is regarded. Women who have had sexual relations during their period appear to enjoy a wider range of sexually stimulating acts, particularly acts that many might regard as shocking or immoral (e.g., viewing or performing in live sex shows, group sex, and spanking or punishment). Thus, it seems that women who have engaged in menstrual sex not only experience greater sexual desire, but they are also uniquely aroused by sexual acts that push the boundaries of social convention. By implication, sexual activity during menses may carry with it an element of being unconventional or avant-garde. Thus, in general, these results suggest that women who express themselves sexually during their menstrual period may be more willing to challenge and transcend traditional notions of acceptable female sexual behavior.

Limitations and Future Directions

In conducting this research we have identified associations between menstruation and sexual attitudes, desires, and behavior. Moreover, we have shown that neither liberal values nor disgust sensitivity can account for these associations. Nonetheless, there are a number of important factors that both limit the generalizability of our conclusions and point to directions for future research.

First, our sample was composed of a comparatively small group of female undergraduate students. In some respects, restricting the sample was beneficial in that participants were essentially equated on factors such as age and education level. However, in order to be able to generalize these findings to a wider population, future studies will need to use larger, more diverse samples that better represent the general population. Second, there is a great deal of cultural diversity in the attitudes and practices associated with menstruation. For example, in the Orthodox Jewish tradition there are Old Testament prohibitions against sexual activity during a woman's period (Leviticus 15:19-24). Therefore, a full understanding of the relationship between menstruation and sexuality will require cross-cultural analysis. Finally, our research was entirely correlational, making it impossible to determine if beliefs and experiences regarding sexuality have any causal impact on corresponding menstrual attitudes and behavior, or whether menstrual beliefs and experiences pre-date sexual expression. Longitudinal studies, perhaps beginning at puberty, will be needed if we are to gather evidence relevant to the existence and direction of causal influence.

APPENDIX: PERSONAL COMFORT WITH SEXUALITY SCALE

Please answer the following questions as honestly as possible by circling the answer that best suits your response.

1	2	3	4	5	6	
strongly disagree	moderately disagree	mildly disagree	neither agree nor disagree	mildly agree	moderately agree	strongly agree

1. I feel comfortable talking about sexuality with strangers.
2. I think I am a sexy person.
3. I would feel comfortable explaining to a same sex sibling or friend how to masturbate.
4. I wish everyone had an open attitude towards sexuality.
5. Even when not in a relationship, I still feel like a sexual person.
6. I do not feel comfortable watching movies or reading literature that I find sexually stimulating. [reversed]
7. I would not feel comfortable carefully examining my genitals. [reversed]
8. I am willing to act on new sexual ideas I get from others.
9. I use words like nipples, penis, vagina, or clitoris in conversation, with no trouble.
10. The main purpose of sex is for people to enjoy themselves.

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