Trend of Women's Romantic and Platonic Sociality Across the Ovulatory and Luteal Phases of the Menstrual Cycle

Kaylee Phimmasene

Follow this and additional works at: https://scholarworks.uark.edu/psycuht

Citation

This Thesis is brought to you for free and open access by the Psychological Science at ScholarWorks@UARK. It has been accepted for inclusion in Psychological Science Undergraduate Honors Theses by an authorized administrator of ScholarWorks@UARK. For more information, please contact scholar@uark.edu.
Trend of Women’s Romantic and Platonic Sociality Across the Ovulatory and Luteal Phases of the Menstrual Cycle

Honors Thesis submitted in partial fulfillment of the requirements of Honors Studies in Psychological Science

By Kaylee E. N. Phimmasene

Spring 2023
Psychological Science
J. William Fulbright College of Arts and Sciences
The University of Arkansas
Table of Contents

Abstract .............................................................................................................................. 3

Introduction ................................................................................................................... 4

Method ............................................................................................................................ 11

Results ........................................................................................................................... 15

Discussion ..................................................................................................................... 18

Conclusion .................................................................................................................... 21

References .................................................................................................................... 23
Abstract

Sociality (i.e., affiliative behavior) is a fundamental human motivation, and, while it has been extensively researched in the past, little research has examined how women’s menstrual cycle fluctuations may affect their sociality. Most studies examining women’s behavior across the menstrual cycle focus on mating. The few studies that have examined affiliation focused on general sociality; however, sociality can be divided into multiple domains: romantic and platonic. Romantic sociality is defined through social interactions with a romantic partner, whereas platonic sociality describes interactions between family, friends, and potential new friends. The current study investigated the trends in women’s general, romantic, and platonic sociality across the menstrual cycle. For this study, 25 female participants wore Ava bracelets and took a 10-min daily survey every night, then synced the bracelet to the corresponding app the following morning. This was repeated for one full menstrual cycle. Results showed that women’s romantic sociality peaks during the ovulatory phase, but platonic sociality increases during the luteal phase only with respect to family. These findings suggest that women’s sociality is influenced by the menstrual cycle, and the use of general sociality may not yield the most accurate results in affiliative studies focusing on women.

Keywords: sociality, menstrual cycle, women
Trend of Women’s Romantic and Platonic Sociality Across the Ovulatory and Luteal Phases of the Menstrual Cycle

Affiliation is defined as social behavior that helps satisfy the desire to experience and maintain close relations with others (Hill 2009). People’s affiliative behavior can be influenced by many different factors such as mood, social class, and hormones (Côté et al., 2017; Sandi & Haller, 2015; Feldman, 2012). Likewise, affiliation can be used as a general term, but it can also be divided into more specific domains such as romantic sociality and platonic sociality. Although the intersection between affiliation and hormones has been previously investigated, little research has examined how women’s affiliative behavior may be influenced by the menstrual cycle. During the menstrual cycle, women experience fluctuations in different hormones within their bodies to first prepare for ovulation and then possible pregnancy. These fluctuations also affect women’s psychology and motivation throughout their cycle (Larson et al., 2013; Krohmer et al., 2019). For example, women’s perception of mate attractiveness increases during the ovulatory phase (Larson et al., 2013) and self-perception becomes more negative as they transition into the luteal phase (Krohmer et al., 2019). Given shifts in other domains of social behavior, it is plausible that women’s affiliative behavior also shifts dynamically with cycle phase. Thus, this research aims to fill this empirical gap in knowledge by investigating how women’s sociality differs across the ovulatory and luteal phases of the cycle. Specifically, we will be examining affiliation in multiple contexts, such as romantic and platonic sociality.

Menstrual Cycle Overview

The menstrual cycle is a naturally occurring, monthly process that most women experience when they are of reproductive age. Menarche, the onset of the menstrual cycles, typically occurs around the age of twelve; menopause, the end of the menstrual cycles, typically occurs around the
average age of fifty-one (Cleveland Clinic, 2019). During the menstrual cycle, women’s bodies prepare for the possibility of pregnancy. At the beginning of a new cycle, a woman’s ovaries begin a sequence of hormonal changes within the body to prepare for potential conception and pregnancy (Mayo Clinic, 2021). The fluctuation of ovarian hormones (e.g., estrogen and progesterone) trigger changes within the body to support a pregnancy; in humans this happens regardless of whether conception occurs (Reed & Carr, 2018).

Often confused with periods in lay language, the term “menstrual cycle” represents the whole sequence of physiological changes and hormonal fluctuations that occur from the start of one period to the start of the next period. The menstrual cycle takes approximately twenty-eight days for most women (OASH, 2018). The cycle has three distinct phases: follicular, ovulatory, and luteal. The follicular phase is the first stage in the menstrual cycle. This phase begins on day one of the menstrual cycle and lasts until approximately day eight; the first few days of the follicular phase is when a woman has her period, otherwise known as the period of bleeding. It is commonly noted that during this phase, estrogen levels begin to rise, and an egg is prepared to be released (Knudston et al., 2019). Compared to the other two phases, the follicular phase is regarded as the control or comparison phase.

The ovulatory phase, otherwise known as the late proliferative phase, is the second phase of the menstrual cycle. The ovulatory phase is the shortest of the three menstrual phases, lasting a total of 4 to 5 days. It can begin anywhere between cycle day 6 and 21 (Wilcox et al., 2000). Ovulation is harder to estimate because the ovulatory phase includes the day of ovulation (which is calculated by counting backwards from the next cycle onset), and then the 4-5 days before ovulation occurs. Just before ovulation – between sixteen and thirty-two hours, the body experiences a surge in the luteinizing hormone (LH) triggered by increasingly high estrogen levels.
(McLaughlin, 2022). The increase in LH initiates the release of an egg into the fallopian tube. Once the egg is released, it can be fertilized for up to 12 hours, and estrogen levels begin to drop (Ray & Michalowski, 2018). During the ovulatory phase women may report increased vigor and elation (Dennerstein & Burrows, 1979).

The luteal phase is the third phase of the menstrual cycle. It begins just after ovulation and continues until the first day of the next period. On average, the luteal phase lasts approximately fourteen days (Knudston, 2019). During the luteal phase, the follicle sac that previously held the egg turns into a temporary endocrine structure known as the “corpus luteum” which secretes hormones that function to prepare the body for two situations: early pregnancy and no conception.

If the egg is fertilized just before ovulation ends, then the hormone progesterone hits its peak production during the middle of the luteal phase to ensure that the body can support an early pregnancy (Ray & Michalowski, 2018). The increased amount of progesterone helps thicken the uterine lining so that it is prepared to carry a fertilized egg (Ernst, 2018). If the body senses that conception did not occur, the corpus luteum breaks down, resulting in a decrease of both estrogen and progesterone. This signifies the beginning of a new menstrual cycle (Meisel, 2020). While in the luteal phase, women experience common premenstrual symptoms such as irritability, headaches, and sleep disturbances (Dennerstein & Burrows, 1979).

**Behavioral and Psychological Changes Across the Menstrual Cycle**

In addition to changes in physiological processes related to reproduction, research has demonstrated that women’s social behavior is also influenced by the processes within the ovulatory and luteal phases of the menstrual cycle (Gangestad et al., 2002; Jones et al., 2005; Li et al., 2022). For example, past research has shown that the hormonal changes that occur during the ovulatory phase increase women’s perception of mate attractiveness as well as relationship quality (relative
to women’s perceptions of these qualities during other phases). In one study, researchers examined how women’s feelings towards long-term partners shifted during the ovulatory phase and how this shift impacted perceived relationship quality (Larson et al., 2013). The researchers assessed the women’s perceptions of their partners’ sexual desirability over the course of the menstrual cycle. Their results showed that ovulating women who rated their partners as more desirable also reported feeling closer to their partner and more satisfied within the relationship overall. Similarly, another study found that ovulating women rate their partners as more attentive and exhibitory of ownership qualities (Gangestad et al., 2002). Interestingly, a separate study found that women are more inclined to socially avoid ovulating women when their partners were rated as highly desirable (Krems et al., 2016). These past findings suggest that women’s behavior, namely women’s perceptions of their close relationships, is influenced by hormonal changes that occur during the ovulatory phase.

Unlike the ovulatory phase, the luteal phase affects women’s psychology in a different way. For example, women report feeling less attractive post ovulation and tend to fixate more on the areas of their body they perceive as most unattractive (Krohmer, 2002). Additionally, research shows that women are more susceptible to experiencing anxiety, feel notably more stressed, and are more sensitive to social stimuli during the luteal phase than they do during other phases of the menstrual cycle (Reynolds et al., 2018; Shayani et al., 2020; Maner & Miller, 2014). Furthermore, during the luteal phase, studies have shown that women often experience an elevation in depressed mood. In one study, Owens and Eisenlohr-Moul (2018) investigated suicidal ideation across the menstrual cycle. The results showed that women in the luteal phase are at the greatest risk of dying by suicide due to a surge of negative affect and heightened sensitivity to emotional stimuli in response to negative life events. While more research is being done on the effects both the
ovulatory and luteal phases on women’s behavior, there remains a large gap in investigation of the social components that result from either phase.

Currently, the majority of menstrual cycle research centers on mating and self-perception as opposed to social behavior. For instance, studies that focus on the ovulatory phase tend to report results that suggest women feel more attractive and indicate a desire to attend events where meeting potential mates is a possibility (Haselton et al., 2006). Other studies that revolve around the ovulatory phase demonstrated that women were more likely to give men their contact information (Gueguen, 2009). In research specializing in women’s behavior during the luteal phase, though, one study found that women’s commitment to their partner and relationship are strongest during this phase (Jones et al., 2005). Although past research concerning social domains suggests that hormone fluctuations do change behavior across the menstrual cycle, it focusses heavily on mating with only some emphasis on general social trends (Guillermo et al., 2010). By generalizing sociality, this research fails to capture how hormonal fluctuations affect the variability of socialness across multiple domains.

**Sociality Across the Menstrual Cycle**

Sociality broadly describes the interactions individuals have with other people. Although many view sociality as beneficial, people fail to realize that sociality and the need to belong are fundamental human motivations (Baumeister & Leary, 1995). Fundamental human motivations are thought to be psychological drives that people need to satisfy to achieve self-fulfillment and establish dynamic social behavior (Kenrick et al. 2010; Maslow, 1943). Sociality is an aspect of life humans yearn for and innately seek due to the advantages it posed to survival. Sociality is crucial for humans because of its influence on overall health and mood (Baumeister & Leary, 1995; Civitci, 2015; Isen, 1999). Indeed, the solidity of a person’s social attachments affects their
emotions (Baumeister & Leary, 1995). When a person’s social attachments are more solid, they display more positive emotions such as happiness and satisfaction. However, as solidity in social attachments decreases, negative emotions like distress and anxiety become more prevalent. Moreover, people who lacked social relationships had more issues with their psychological and physical health than those with strong social relationships. Past studies found that higher perceived social support was able to play protective roles against depression and reduce individuals’ risk to health conditions such as cardiovascular disease and high blood pressure (Santini et al., 2015; Umberson & Montez, 2010).

In addition to effects on health and well-being, studies have shown that sociality strongly correlates with mood. In one study, Isen (1999) observed that when someone is in a positive mood, they are more likely to engage in helping behaviors and interact with others. In another study, Civitci (2015) found that sociality is commonly used as a coping mechanism for negative moods such as stress. During the study, it was found that people reported lower perceived stress and higher life satisfaction when their belongingness within their community increased.

Most studies involving affiliation use general sociality to measure participants’ collective social preferences and behaviors. In other words, general sociality is nondescript and pools social attitudes from multiple domains. Within general sociality, there are two main types of social interaction that can occur: romantic and platonic. Romantic social interaction describes social behaviors in which a person actively seeks situations where romantic benefits are possible. This type of social interaction could entail behaviors with serious intentions, such as seeking and pursuing a long-term relationship, or more frivolous intentions like flirting, garnering compliments, and casual dating. Platonic social interaction differs from romantic in that an individual is not seeking romantic gain but rather closeness. Closeness provides numerous benefits to individuals
such as increasing happiness, reducing stress, and encouraging one to avoid unhealthy lifestyle habits (Umberson & Montez, 2010). Individuals who socialize platonically are less interested in finding a partner and more interested in social input and increasing their sense of belonging (Apostolou et al., 2021). Platonic social interaction emphasizes non-romantic closeness and includes interactions between friends, family, and even strangers (with the intent to befriend). Although romantic and platonic relationships differ from each other, the two are equally important yet separate components of human sociality and must be more closely examined.

**Current Study**

The current study examines trends in romantic and platonic sociality across the ovulatory and luteal phases of the menstrual cycle, with the follicular phase acting as a control. Romantic sociality was chosen as a domain because women tend to value their partners more during ovulation and, evolutionarily, are more concerned with pregnancy. Platonic sociality was selected because women tend to feel more negatively about themselves during the luteal phase and may rely on nonromantic relationships to counteract these feelings. Past studies have found that women’s attention to social stimuli and attachment anxiety increase during the luteal phase, so women may turn to their nonromantic relationships to garner social support (Maner & Miller, 2014; Reynolds et al., 2018). This study used Ava Fertility Bracelets and their corresponding app to track biometric data (i.e., body temperature, heart rate variability, sleep) and pinpoint ovulation. Since the luteal phase occurs directly after ovulation, we were able to easily identify the phase once it began. We measured general sociality, as well as romantic and platonic sociality, through daily questionnaires then matched the data to the corresponding menstrual phases.

We tested three hypotheses (see Figure 1). First, we predicted general sociality would increase during both the ovulatory and luteal phases (compared to the follicular phase). Next, we
predicted romantic sociality would increase during the ovulatory phase then decrease during the luteal phase. Lastly, we expected the opposite to occur for platonic sociality; platonic sociality would decrease during the ovulatory phase, then increase during the luteal phase.

Figure 1.

*Expected Sociality Across the Menstrual Cycle*

![Graph showing expected sociality across menstrual cycle phases](image)

**Method**

**Participants**

For this study, 25 participants were recruited. All participants were women who were currently enrolled in General Psychology at the University of Arkansas and selected through the general pre-screening survey given at the beginning of the semester. Potential women were emailed an interest form and completed an eligibility survey. The survey included the following exclusion criteria: (1) being under 18 or over 40, (2) currently taking hormonal birth control, (3) currently not in a romantic relationship, (4) irregular menstrual cycles (selecting a 2 or lower), and (5) currently pregnant or nursing. Participants ranged from 18 to 28 years old ($M = 18.96; SD = 2.09$) and were either freshmen (88%) or sophomores (12%) in college. Only 20% of women were
in a sorority. The majority of the sample self-identified as Caucasian (96%), with 16% self-identifying as Hispanic or Latino, and 8% self-identifying as Asian. Most women described their sexuality as heterosexual (64%), while 32% identified as bisexual, and 4% identified as mostly heterosexual. Although all participants were in a romantic relationship, 44% reported being in a long-distance relationship and 8% reported that they live with their partner. Participants completed the study in exchange for up to 6 SONA credit hours towards their General Psychology research requirement. To increase motivation to complete the daily surveys, participants were entered into a raffle to win 1 of 5 $100 Amazon gift cards if they completed 85% of the daily surveys given to them during the study. Due to limited supply of Ava bracelets, only 11 women could participate in the study at one time.

**Procedures**

Women contacted the study coordinator at the start of their period and were scheduled to come into the lab for a 1-hour orientation up to 3 days after the first day of menstruation. This time frame was to ensure that the Ava app would be able to detect the ovulatory period of each participant.

During orientation, participants underwent informed consent, received the Ava bracelets, and were guided through installation and setup for the bracelet’s corresponding app to their mobile device by the study coordinator. All participants were given an email and password to use for the app so that the data collected could be easily accessed by the study coordinator and kept confidential. To provide a baseline for the Ava technology, participants entered information regarding their menstrual cycle, such as typical cycle length, average period length, and the first day of the participant’s most recent period. For the last portion of orientation, participants completed a 30-minute baseline survey in the lab. The baseline survey asked participants for
general information as well as questions regarding their personal relationships that were beyond the scope of the current hypotheses. Once complete, participants were told to take the bracelet home and put the bracelet on just before going to bed. Participants wore the bracelet for the entirety of their sleeping period and synced the bracelet to the app upon waking the following morning. This procedure allowed the Ava technology to update health information and provided more accurate estimations for ovulatory periods for each participant.

In addition to wearing and syncing the bracelet every day, participants completed a short questionnaire, no longer than 10 minutes in length, daily. Participants accessed the questionnaire by scanning the QR code on the back of the study booklet given to them during orientation. They were instructed to complete the daily survey in the evening before going to bed so that answers more accurately reflected their feelings throughout the day. The daily survey was divided into three sections: general sociality, romantic sociality, and platonic sociality. General sociality was measured through the item “I felt social today.” Romantic sociality was determined by focusing on five key items on the daily survey. Platonic sociality was broken into three categories: family ($\alpha = 0.86$), close friends ($\alpha = 0.76$), and potential new friends ($\alpha = 0.82$). Items used for romantic and platonic sociality are listed in Table 1 and Table 2, respectively.

Table 1.

**Romantic Sociality Items**

<table>
<thead>
<tr>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>How satisfied were you with the <strong>emotional intimacy</strong> in your relationship today?</td>
</tr>
<tr>
<td>How satisfied were you with the <strong>physical intimacy</strong> in your relationship today?</td>
</tr>
<tr>
<td>Today, how much did you desire to have sex with your partner?</td>
</tr>
<tr>
<td>I wanted to spend quality time with my partner today</td>
</tr>
<tr>
<td>I actually spent quality time with my partner today</td>
</tr>
</tbody>
</table>
Table 2.

**Platonic Sociality Composite Items**

<table>
<thead>
<tr>
<th>Family</th>
<th>I wanted to spend quality time with one or more family member(s) today</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I would like to talk more with my family than I have recently.</td>
</tr>
<tr>
<td></td>
<td>Today, I wanted to be around my family.</td>
</tr>
<tr>
<td></td>
<td>Today, I felt like my family loves me very much.</td>
</tr>
<tr>
<td></td>
<td>Today, I loved my family very much.</td>
</tr>
<tr>
<td>Close Friends</td>
<td>I am happy with the <strong>quality of friendships</strong> I have right now.</td>
</tr>
<tr>
<td></td>
<td>I am happy with the <strong>number of friendships</strong> I have right now.</td>
</tr>
<tr>
<td>New Friends</td>
<td>Today, I wanted to interact with <strong>new people</strong>.</td>
</tr>
<tr>
<td></td>
<td>Today, I wanted to be around <strong>people</strong> more than usual.</td>
</tr>
<tr>
<td></td>
<td>Today if I was asked to attend a social gathering where <strong>meeting new people</strong> is possible, I would go.</td>
</tr>
<tr>
<td></td>
<td>I went out of my way to have a conversation with someone I do not know very well.</td>
</tr>
<tr>
<td></td>
<td>I would be excited to make a <strong>new friend</strong> right now.</td>
</tr>
<tr>
<td></td>
<td>I met someone new today who I feel could be a <strong>potential friend</strong>.</td>
</tr>
</tbody>
</table>

All items were measured using a slider scale from 1 to 100. Participants completed the daily surveys each evening and synced the bracelet to the corresponding app each morning until the first day of bleeding of their next menstrual cycle (roughly 30 days). After notifying the study coordinator that their period started for the following month, participants returned all study materials and were debriefed.

**Analytic Strategy**

We used multi-level modeling to account for the nested structure of our data—each woman completed many assessments across three distinct menstrual cycle phases. For each diary entry, we determined whether women were in the follicular, ovulatory, or luteal phase. We then examined how women’s general, romantic, and platonic sociality differed across the three phases. For this study, the follicular phase was treated as the control condition. Data collected from the ovulatory and luteal phases were first individually compared to the follicular phase, then compared against each other to determine significance. Our multi-level linear models first included two dummy
codes for cycle phase that used the follicular phase as the control group. That is, we tested the
difference between (a) follicular and ovulatory phases and (b) follicular and luteal phases. We then
estimated the same model with different dummy codes using the ovulatory phase as the control
group to allow us to test the difference between ovulatory and luteal phases.

Results

Trend for General Sociality

Compared to the follicular phase, there was no significant difference in women’s general
socialness during the ovulatory phase, $t(586.45) = 0.75, p = .452$, and luteal phase, $t(592.83) =
-0.88, p = .381$. Additionally, the ovulatory and luteal phases were not significantly different from
each other, $t(588.86) = -1.53, p = .126$. These results do not show support for hypothesis one which
predicted that general sociality would increase during both the ovulatory and luteal phases of the
menstrual cycle.

Trend for Romantic Sociality

When asked about their satisfaction with the emotional intimacy within their relationships,
women were more satisfied during the ovulatory phase, $t(585.45) = 2.04, p = .041$, and the luteal
phase, $t(588.31) = 2.51, p = .012$, compared to the follicular phase. When compared to each other,
the ovulatory and luteal phases were not significantly different, $t(586.59) = -.027, p = .978$. When
reflecting on the physical intimacy within their relationships, women reported being more satisfied
during the ovulatory phase, $t(570.32) = 3.95, p < .001$, and the luteal phase, $t(572.13) = 2.51, p =
.012$, compared to the follicular phase. Here, the ovulatory and luteal phases were significantly
different from each other, $t(571.03) = -2.01, p = .045$; women reported greater satisfaction with
physical intimacy during the ovulatory phase relative to the luteal phase. Similarly, women’s
sexual desire for their partners increased during the ovulatory phase, $t(577.45) = 6.51, p < .001$,
and the luteal phase, $t(580.72) = 2.94$, $p = .003$, relative to the follicular phase. The ovulatory and luteal phases were also significantly different from each other, $t(578.67) = -4.36$, $p < .001$. From these results, it seems that women have an overall higher satisfaction with the emotional and physical intimacy in their relationship as they move across the menstrual cycle. More specifically, when looking at satisfaction with physical intimacy and sexual desire for their partner, women report being the most satisfied and view their partners as the most desirable during the ovulatory phase compared to any other phase during the menstrual cycle.

Interestingly, there was no significant difference in women wanting to spend quality time with their partners during the ovulatory phase, $t(587.05) = 1.25$, $p = .211$, and the luteal phase, $t(592.05) = -1.25$, $p = .212$, compared to the follicular phase. However, the ovulatory and luteal phases were significantly different from each other, $t(588.87) = -2.38$, $p = .018$. This means that women wanted to spend more time with their partners during ovulation than during the luteal phase. Despite this finding, women reported spending significantly more quality time with their partners during the ovulatory phase, $t(571.91) = 5.62$, $p < .001$, and the luteal phase, $t(574.39) = 2.63$, $p = .009$, relative to the follicular phase. When compared to each other, the ovulatory and luteal phases were significantly different, $t(572.73) = -3.68$, $p < .001$. The trends for romantic sociality are depicted in Figure 2. These results show support for hypothesis two which predicted that romantic sociality would increase during the ovulatory phase, then decrease during the luteal phase.
**Figure 2.**

*Romantic Sociality Trends Across the Menstrual Cycle*

![Graph showing Romantic Sociality Trends across different phases of the menstrual cycle.](image)

**Trend for Platonic Sociality**

Compared to the follicular phase, there was no significant difference in women’s affiliation with their family during the ovulatory phase, \( t(591.14) = 1.83, p = .068 \), but there was a significant difference during the luteal phase, \( t(591.98) = 2.63, p = .009 \). This means that women tend to affiliate more with their families during the luteal phase relative to the follicular phase. However, the ovulatory and luteal phases were not significantly different from each other, \( t(591.45) = 0.30, p = .765 \).

When considering their close friendships, women affiliated more with their close friends during the ovulatory phase, \( t(587.07) = 3.23, p = .001 \), and luteal phase, \( t(587.45) = 2.41, p = .016 \), compared to the follicular phase. Though, the ovulatory and luteal phases were not significantly different from each other, \( t(587.21) = -1.36, p = .175 \). When considering potential new friends, there was no significant difference during the ovulatory phase, \( t(587.34) = 1.39, p = .165 \), and the luteal phase, \( t(591.35) = -.218, p = .828 \), relative to the follicular phase. The ovulatory and luteal...
phases were not significantly different from each other, $t(588.46) = -1.65, p = .099$. These trends are shown in Figure 3. Due to developing trends within platonic sociality, the results show partial support for hypothesis three which predicted that platonic sociality would decrease during the ovulatory phase, then increase during the luteal phase. According to the results found, it seems that familial platonic sociality is following this trend, but close friendships and potential new friends are not.

**Figure 3.**

*Platonic Sociality Trends Across the Menstrual Cycle*

---

**General Discussion**

Sociality (i.e., affiliative behavior) describes interactions that humans innately seek to achieve self-fulfillment and establish dynamic social behavior (Hill, 2009; Kenrick et al. 2010; Maslow, 1943). While past research has investigated different factors that impact sociality, most studies use sociality as a general term and do not focus on women or the hormone fluctuations that take place during the menstrual cycle. Although we did not specifically examine hormone levels, results found within this study suggest that menstrual cycle phase influence women’s sociality.
More specifically, the support of hypothesis two suggests that women value romantic sociality and engage in romantic social behavior (geared toward their partners) more during the ovulatory phase than any other menstrual phase.

This finding is consistent with the evolutionary perspective of the ovulatory phase. Since the ovulatory phase is the phase where conception can occur, women may affiliate more with their romantic partners during this phase because it offers the highest chance for producing an offspring (Pillsworth et al., 2004). This theory is further supported when considering the trends for satisfaction with physical intimacy, sexual desire, and actually spending quality time with partners. These items on the daily survey correlate most to the evolutionary goal of reproduction, and our results found that women aligned with these items the most during the ovulatory phase compared to the other phases. Similar to this, our results were consistent with the previous finding that women rate their partners as more desirable during the ovulation (Larson et al., 2013). However, the trend in women wanting to spend time with their partners was unexpected. Our results suggest that there is not a difference in women wanting to spend time with their partners during the ovulatory phase or luteal phase compared to the follicular phase, though, there is a significant difference when the ovulatory phase is compared to the luteal phase. This trend is interesting because it contrasts the trend for women actually spending time with their partners. This dissonance may suggest that there is a gap between women’s perception for their desire for romantic sociality and their subconscious drive for romantic sociality.

Although the effects found within platonic and general sociality were not as strong as those found in romantic sociality, their trends still spark room for conversation. In this study, we found partial support for hypothesis three, in that only familial platonic sociality decreased during the ovulatory phase, then increased during the luteal phase. This is result is reasonable considering
past findings involving the luteal phase. When women have an overall increase in negative mood (i.e., depression and anxiety), it is understandable that they would rely more on family, as family acts as a primary support system for most people (Thomas et al., 2017). Interestingly, women reported feeling much less affiliative with potential new friends than close friendships. This trend may suggest that women prefer to put more effort into established relationships as opposed to forming new relationships. This could be because established relationships provide a higher likelihood for personal advantages (i.e., feeling accepted, social support), and these advantages are ambiguous when forming new relationships because there is a lack of trust (Apostolou & Keramari, 2020).

As for general sociality, the results suggest that women’s socialness does not significantly change across the different phases of the menstrual cycle; however, as previously established, women’s romantic sociality significantly increases during the ovulatory phase. This contrast suggests that generalizing sociality may not accurately represent women’s socialness due to menstrual cycle effects. Future studies involving women’s sociality may need to consider specific social domains so that they may capture the variability of socialness and gather more refined data.

Limitations and Future Directions

It is important to acknowledge the limitations of the present study. This study utilized a small sample size of 25 women. This was due to time constraints and a limited supply of Ava bracelets. Since we need to track women for one full menstrual cycle and could only purchase 11 Ava bracelets, it impacted recruitment and enrollment for the study. More data need to be collected before conclusions can be drawn about the effects of menstrual cycle phases on women’s sociality across the different domains.
Another limitation of the study is potential response bias. Participants answered the same survey every day for roughly one month. It is possible they moved the sliders to arbitrary numbers as opposed to reflecting on each question before answering. We tried to control this by using a large scale (1-100). Providing a larger scale reduces the risk for participants choosing the same answer repeatedly.

In the future it may be beneficial to include items on the daily survey that assess risk-taking behaviors. As previously discussed, women are less interested in affiliating with strangers and potential new friends because personal advantage may be ambiguous due to lack of trust (Apostolou & Keramari, 2020). Investigating risk-taking behaviors may correlate to women’s willingness to affiliate with someone new.

Additionally, our sample only utilized naturally cycling women. It may be interesting to recruit women who are currently taking hormonal contraceptives to see how their sociality compares to naturally cycling women during the menstrual cycle. The purpose of hormonal contraceptives is to inhibit ovulation by suppressing hormone fluctuations that take place during the menstrual cycle (Rivera et al., 1999). As discussed previously, these hormonal fluctuations are what underpin women’s behavioral changes throughout the cycle, so it may be beneficial to investigate how suppressing these fluctuations impact women’s social decisions. Moreover, it has become more commonplace for women to use hormonal contraceptives in recent years, so the results found within this sample would be more applicable to our current society.

**Conclusion**

Overall, this study was interesting because it provided an in-depth explanation to women’s social behaviors throughout the menstrual cycle in a framework that is hardly explored. It was able to capture the variability in women’s perceived socialness as well as investigate the
legitimacy of using general sociality as an overarching category, with respect to women. More importantly, this study also uncovered different patterns within specific social domains. Although the trends found within the study are small shifts, they provide a more holistic understanding of the effects that the menstrual cycle has on women’s behavior. This ultimately helps women navigate their social interactions as well as understand the biological and psychological factors that influence their social decisions. In a much broader sense, this research also expands on current research involving women’s psychology during the menstrual cycle, and it also opens the opportunity for future research that wishes to examine the intersection of biology and psychology.
References


Jones B.C., Little A.C., Boothroyd L., DeBruine L.M., Feinberg D.R., Law Smith M.J., Cornwell
R.E., Moore F.R., & Perrett D.I. (2005) Commitment to relationships and preferences for femininity and apparent health in faces are strongest on days of the menstrual cycle when progesterone level is high. *Hormones and Behavior, 48* (3)

https://doi.org/10.1016/j.yhbeh.2005.03.010.


https://doi.org/10.1037/h0054346


OASH. (2018). *Your menstrual cycle.* Office on Women’s Health. Retrieved January 21, 2022, from https://www.womenshealth.gov/menstrual-cycle/your-menstrualcycle#~text=Also%2C%20a%20woman's%20menstrual%20cycle,every%2024%20to%2038%20days.&text=This%20means%20that%20the%20time,not%20more%20than%2038%20days.


