

Risk Taking and Women's Menstrual Cycle: Near Ovulation, Women Avoid a Doubtful Man

Nicolas Guéguen*

Université de Bretagne, Business Department, rue de la loi, 56000 Vannes, France

*Author for correspondence (nicolas.gueguen@univ-ubs.fr)

Studies using surveys in which risk taking behaviors were measured show a decrease in risk taking during the ovulatory phase of the women's menstrual cycle. In this study, the distance between a woman and a shady confederate was measured in a waiting room. Then, a LH test was done in order to measure the participant's fertility risk. Results showed that near ovulation, participants sat further away from the confederate, revealing that women in their fertile phase displayed behavior to decrease the risk of sexual assault.

Keywords

rape, adaptation, menstrual cycle

Introduction

Rogel (1977) examined the distribution of rapes during different phases of the menstrual cycle among several hundred victims of sexual assault and found that fewer women were raped during the mid-portion of their menstrual cycle (days 10–22). Morgan (1981) found that among victims of sexual assault, women who were in the ovulatory phase at the time of the encounter were underrepresented.

To explain these results, Chavanne and Gallup (1998) suggested that women unconsciously engage in less risk taking behavior around the time when conception would be most likely. Using a questionnaire submitted to college students about their activities during the past 24 hours and asking them about the first day following their last menstruation, they found a significant decrease in risk taking behavior (e. g. walk in dimly lit area) during the ovulatory phase. No difference was found with birth control pill-users. Bröder and Hohmann (2003), contesting the methodological measure of risk taking, confirmed these results with a questionnaire listing more activities than in

Chavanne and Gallup's (1998) study. According to these authors, this effect could be due to a tendency for women to behave in ways to reduce the risk of rape-induced conception and becoming pregnant with a non selected man.

Thus, if women behave in order to reduce such risk near ovulation, we could suspect that they also display additional behaviors such as avoiding physical proximity with a man of doubtful appearance. It was then hypothesized that near ovulation, women should sit further away from a doubtful man than during the other periods of their cycle.

Methods

Participants

One hundred and eighty-seven women, undergraduate business and social sciences students, ranging in age from 18 to 22, were surveyed with a questionnaire concerning age, sexual orientation, the use of oral contraception, pregnancy, and the current status of their sexual relationship. At the issue of the survey, only those women with heterosexual orientations, who used no oral contraception, who were not pregnant, and who declared not having a relationship with a man were retained as participants for further experimentation. A total of 96 women were included in our experiment.

Procedure

Upon arrival at the laboratory office, the participant was welcomed by the experimenter who said that she was taking part in a study on lexical decision using a computer. The experimenter informed the participant that she had to wait in the waiting room while he finished preparing the experimental room. The experimenter added that someone else was waiting in the room to participate in another study. The experimenter then accompanied the participant to the waiting room, opened the door and invited the participant to take a seat. Then the experimenter said: "I will be back in two minutes. Please sit down and I will come to get you when everything is ready". The experimenter left the room and closed the door. A confederate was present in the room and his physical appearance and attire were manipulated in order to make him look doubtful. His clothes were messy and torn, his head was shaved and decorated with a large tattoo representing a spider web, and he had a heavy three-day beard. A fake 5 cm long red scar was visible on his cheek. He was instructed to glare angrily at the participant when she arrived and not to respond to her if she used the usual greetings

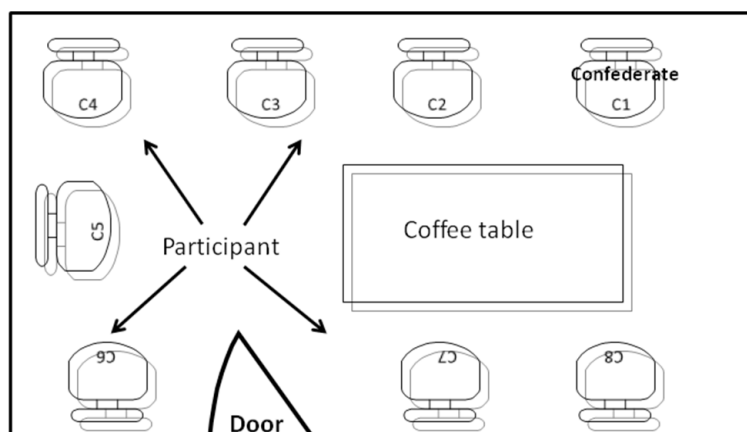


Figure 1. Graphical representation of the waiting-room

when she entered the room. Eight chairs were placed in the waiting room with dimensions 3 meters by 4.5, and the confederate was seated on a chair at the far end of the room on the opposite side of the door as shown in Figure 1.

In this way, the participant had seven possibilities and the distance between the chair selected by the participant and the confederate's chair was the main dependent variable. A hidden camera was placed in the room and one minute after the participant sat down, the experimenter reentered the room. The experimenter said that before beginning, he wanted to evaluate their cortisol level. The experimenter gave the participant and the confederate a narrow labial band strip and asked them to place it on their tongue for two seconds and to give it to him. The experimenter took them and measured the participant's LH concentration in order to determine her fertility risk. He feigned to act in the same way with the confederate's saliva sample. After that, the participant was asked to indicate what she thought the purpose of the research was and to indicate if she had noticed anything unusual about the experiment (none expressed suspicion). After responding, the participant was fully debriefed.

The first dependent variable was the distance between the chair on which the participant sat and the place where the confederate was seated. The second dependent variable was the verbal salutation made by the participant when she entered the room. The third dependent variable was the non verbal behavior such as gazing and/or smiling displayed by the participant. Two coders (2 males), unaware of the experimental conditions and predictions, were instructed to view each of the 96 videos of the participants and to rate the extent to which they made a verbal salutation when they entered the room and displayed a smile/gaze at the confederate during the one minute period when she was seated in the room. A high level of inter-coder reliability was found, $r = .99$, $p < .001$, $N = 96$; the mean of the two coders' counts was used for statistical analyses.

Results

The results of the three dependent variables are presented in Table 1.

A main effect of fertility risk was found with the distance between participant and confederate, $F(2, 93) = 12.06$, $p < .001$, $\eta^2_p = .20$. A post hoc test revealed that the high fertility risk condition was significantly different from the low fertility risk condition (LSD test, $p < .001$) and the moderate fertility risk condition (LSD test, $p = .005$), whereas the moderate fertility risk condition and the low fertility risk condition were not statistically different (LSD test, $p = .23$) from each other.

A main effect of fertility risk was found with the number of gazes-smiles during the one-minute wait in the room, $F(2, 93) = 7.09$, $p = .002$, $\eta^2_p = .13$. A post hoc test revealed that the high fertility risk condition was significantly different from the low fertility risk condition (LSD test, $p = .001$) but not from the moderate fertility risk condition (LSD test, $p = .35$). However, the moderate fertility risk condition and the low fertility risk condition were statistically different (LSD test, $p = .01$).

Fisher's exact test was used on the frequency of verbal salutations and revealed that the high risk condition was significantly different from the low risk condition ($p = .02$) and the moderate risk condition ($p = .03$), whereas the moderate risk condition was not significantly different from the low risk condition ($p = .48$).

Discussion

In this experiment, congruent with our hypothesis, we found that women near ovulation displayed behavior to increase the social and physical distance between themselves and a shady man. These results are congruent with the results found by Chavanne and Gallup (1998), and Bröder and Hohmann (2003) who found that near ovulation, women claimed to engage in less risky activities than during their other phases. Our results seem to show that when women identified a possible risky interaction with a man during this period, they displayed behaviors in order to reduce this risk. In

Table 1. Distance between the Participant and the Confederate and Frequency of Participant's Verbal and Non-verbal Behavior According to Their Fertility Risk.

| | Fertility risk | | |
|--------------------------------|----------------|--------------------|---------------|
| | High (N=15) | Moderate (N=20) | Low (N=61) |
| Distance (in centimeters) | | | |
| <i>M</i> | 236.5 | 196.2 | 185.4 |
| <i>SD</i> | 29.4 | 35.8 | 37.6 |
| Gaze-smile during interaction | | | |
| <i>M</i> | 0.32 | 0.58 | 1.07 |
| <i>SD</i> | 0.45 | 0.77 | 0.89 |
| Frequency of verbal salutation | 1 | 8 | 22 |

our experiment, the only opportunity the women had was to increase the physical distance between themselves and the confederate, and to avoid nonverbal behavior traditionally considered as cues to show their interest in a man (Moore, 2010). In our experiment, the women sat further away from the confederate, perhaps in order to increase their chances of escaping the room. They also displayed less nonverbal behavior associated with courtship, probably to avoid leading the male confederate to interpret such a cue as showing possible interest in him.

From an evolutionary point of view, these combined behavioral effects are probably explained by a woman's tendency to prevent possible rape-induced conception with a non-desired man near ovulation. Previous studies found that during their fertile phase, women display behavior to increase their interest for men (Durante, Li, & Haselton, 2008; Grammer, Renninger, & Fischer, 2004; Haselton, Mortezaie, Pillsworth, Bleske-Rechek, & Frederick, 2007; Saad & Stenstrom, 2009) but probably to attract men that are not doubtful as in this experiment. The reverse effect is displayed with such individuals and women probably acted in a way so as to be less attractive for men in order to avoid drawing their attention.

The next step now is to ask which psychological processes mediate this behavioral change toward such doubtful men near ovulation. Perception of threat and physiological measures associated with threat could be interesting to evaluate in the same context.

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