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Risk of Conception



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Synonyms

[Daily fecundability](#); [Probability of fertilization](#)

Definition

The day-specific probability that a single act of intercourse will result in conception.

Introduction

Conception risk refers to the probability that a single act of unprotected coitus will result in conception. A woman's conception risk varies as a function of life's historical, contextual, and cyclical factors, all of which are accompanied by different hormonal milieus that modulate conception risk (Motta-Mena and Puts 2017). Researchers have drawn on evolutionary theory to posit that women's mating psychology may change in relation to conception risk in adaptive ways. Further, women may adjust their attitudes and behaviors

toward men and other women – and be perceived differently by other men and women – as a function of conception risk. Here, we briefly review work suggesting that mating psychology, intrasexual competition, and perceptions by men and other women vary with conception risk.

Although conception risk changes across the 6-day “fertile window” of the ovulatory cycle, peaking approximately the day prior to ovulation (Wilcox et al. 1995), many studies in evolutionary psychology do not treat conception risk as a continuous variable and instead dichotomize it as either nonzero (during the late follicular phase) or zero (during all other cycle phases). Cycle phase and conception risk are frequently assessed through the use of urinary luteinizing hormone (LH) test kits, self-reports of menses dates, or hormone values, with hormonal (including LH) methods being more precise (Gangestad et al. 2016).

Mating Psychology

Women's self-reported desire for sexual behavior rises throughout the follicular phase, peaks around ovulation, and falls during the luteal and menstrual phases (reviewed in Motta-Mena and Puts 2017), and is likely influenced by concentrations of estradiol and progesterone (Roney and Simmons 2013). Increases in general sexual desire concomitant with increases in conception

risk may serve as the mechanism by which energy and effort are concentrated on reproductive behavior, when reproduction is most likely or when the benefit–cost ratio of engaging in sexual behavior is high (Roney and Simmons 2013). Increases in the desire for uncommitted sex or extra-pair sex specifically may also track conception risk, perhaps functioning to recruit genetic benefits for offspring when conception is possible (Thornhill and Gangestad 2008).

Shifts in women's mate preferences as a function of conception risk are comparably less robust. Whereas some meta-analyses suggest that women express heightened preferences for partners with putative markers of genetic quality, such as facial symmetry, vocal masculinity, and behavioral dominance, when fertile (Gildersleeve et al. 2014); others do not (Wood et al. 2014). Moreover, recent large, within-subjects studies have failed to find support for the predicted patterns of association between changes in women's ovarian hormone levels and their preferences for masculine characteristics (e.g., Jones et al. 2018). As such, additional work using large samples and confirmed ovulatory cycle phase or hormonal measures is necessary to detect where shifts in women's mate preferences exist and, if they do, their magnitude.

Intrasexual Competition

Intrasexual competition may increase during periods of heightened conception risk, with observational and lab-based studies suggesting differences in women's clothing and make-up use across the ovulatory cycle. Testosterone is the primary endocrine mediator of changes in self-reported competitiveness, suggesting that increases in intrasexual competition around ovulation may be driven by mid-cycle peaks in testosterone. Levels of intrasexual competition may be predicted not just by a woman's own conception risk, but by the conception risk of same-sex rivals. For example, when partnered women were exposed to photographs of other women taken during ovulatory and non-ovulatory

cycle phases, women consistently reported intentions to socially avoid women in the ovulatory (but not non-ovulatory) phase, and only when their own partners were highly desirable (Krems et al. 2016).

Perceptions

Studies examining participant ratings of women's voices, odors, faces, and bodies generally suggest that heightened conception risk is accompanied by subtle but perceptible cues. For example, increases in progesterone across laboratory sessions (indicating decreases in conception risk) negatively predicted women's facial and vocal attractiveness to both men and other women (Puts et al. 2013). Hormone-driven changes in phenotypes such as complexion, skin color, and facial expression (reviewed in Motta-Mena and Puts 2017) are likely the more proximate causes of differences in perceived attractiveness across the ovulatory cycle. It is possible that such changes function to increase women's attractiveness when they are most fertile, perhaps especially to long-term mates, who might most easily detect such subtle intraindividual changes. Alternatively, changes in observable cues may reflect imperfect suppression of ovulatory cues tied to fluctuating hormones, coupled with strong selection on competitors and potential mates to detect these cues.

Conclusion

Relative to the pronounced genital swellings observed in many other primate species around estrus, physical changes that track conception risk in women are subtle, though likely perceptible by potential mates and same-sex competitors. Cyclic changes in women's mating psychology may function to adaptively allocate mating effort in relation to expected costs and benefits. Future work should continue to draw upon evolutionary theory to identify in which psychological and behavioral domains cyclic

shifts may be reliably observed. Such work, and work on shifts concomitant with conception risk more generally, will significantly benefit from a sustained methodological emphasis on large samples, within-subjects designs, and hormone-confirmed cycle phase.

Cross-References

- ▶ [Human Courting](#)
- ▶ [Ovulatory Hormones](#)
- ▶ [Ovulatory Shifts in Psychology](#)
- ▶ [Perceiving Sexual Intent](#)
- ▶ [Sexual Selection in Evolutionary Psychology](#)

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