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Effect of Birth Control on Women's Mate Preferences

Synonyms

Hormonal contraception; oral contraception; contraceptive pill

Definition

Birth control relates to any method of preventing conception while engaging in sexual intercourse. This can include avoiding intercourse while the woman is fertile (e.g. rhythm method), pre-ejaculatory withdrawal, and barrier methods (e.g. condom, uterine cap) which prevent sperm from reaching the egg. So far as we know, choice of these methods have no effect on women's mate preference. This article is instead concerned with modern hormonal methods of birth control (especially the oral contraceptive pill) which achieve contraceptive function by manipulating women's reproductive physiology and function.

Introduction

Birth control (BC) is one of the most successful and widely-used of all medical interventions. More than one-fifth of women of reproductive age (15-49) and in a relationship use the "pill", injectable or implant BC methods across the world, and these rates are typically even higher among younger and unmarried women (United Nations, 2015). BC has undoubtedly improved women's quality of life, giving women

control over their reproductive lives and enabling them to postpone childbearing and pursue other important goals. Nonetheless, given the prevalence of use in younger women, at a life stage where most are seeking to establish life-long partnerships and begin families, any unintended effect on the success of those family units warrants rigorous attention. There is accumulating evidence that use of BC may indeed have just such effects, by exerting subtle changes in mate preferences.

Hormonal contraceptives and women's mate preferences

Some previous studies suggest that women's preferences for male traits exhibit an increased periovulatory preference for traits that appear to signal high mate quality (e.g. Roberts & Little, 2008). It is argued that stronger preference for such traits as facial masculinity when conception probability is high suggests a mechanism by which females maximise quality of mating partners (Penton-Voak et al., 1999). If these cyclic shifts are shaped by changing hormonal levels associated with ovulation, then they should be absent in BC users.

Consistent with this suggestion, Little et al. (2002) showed that a stronger preference for facial masculinity in attractiveness judgements for short-term than long-term partners, which was present in normally cycling women at ovulation, was absent in women using BC. Another study showed that users of BC have weaker changes in masculinity preferences for both faces and voices (Feinberg, DeBruine, Jones, & Little, 2008). Similarly, while normally cycling women show increased ovulatory preference for the odors of symmetrical over asymmetrical men, this preference is absent in BC users (Thornhill & Gangestad, 1999). These studies indicate that BC use is associated with reduced demand for male characteristics that ovulating women typically display.

Other studies show that BC users have qualitatively different preferences compared with non-users. For example, they appear to have stronger preferences for health, which is also characteristic of women with high progesterone levels, such as during the luteal phase of the menstrual cycle or in pregnancy (Jones et al., 2005). Furthermore, in contrast to normally-cycling women who were more attracted to odors of men who are genetically dissimilar at genes in the major histocompatibility complex (MHC), BC users display the opposite trend, preferring more MHC-similar men (Wedekind, Seebeck, Bettens, & Paepke, 1995). Among vertebrates, preferences for MHC-dissimilarity are thought to be usually favored because this may increase offspring heterozygosity and in turn to enhance the ability to fight infectious diseases.

Although such studies indicate that BC may influence women's mate preferences, it might be argued that differences between users and non-users are simply a product of between-group behavioural or attitudinal characteristics, rather than a direct consequence of BC use. To address such concerns, Roberts et al. (2008) used a longitudinal design to compare odour preferences for MHC-similar/dissimilar men before, and three months after, initiating BC use. Consistent with a direct BC effect, women's preferences shifted after initiating BC towards MHC-similar odours, compared with a non-user control group tested across the same 3-month interval. This study provided the first direct evidence of a causal link between BC use and disruption of partner preferences.

One other study has demonstrated a similar effect. From a sample of the same women tested in Roberts et al.'s (2008) study, preferences for facial masculinity was also tested using the same design. Whereas there was little change in the control group, women's preference for masculinity was reduced after initiating

BC use, and this effect was observed in male but not female faces, suggesting a mate choice-specific effect rather than one that affects general face perception (Little, Burriss, Petrie, Jones, & Roberts, 2013). Not only this, but in a separate sample, it was found that, in women who used BC when the couple met, the male partners had more masculine faces compared with partners of women who were not using BC when the couple met (Little et al., 2013). Although this latter result could be due to between-group differences, it raises the possibility that changes in mate preferences could have real-life effects on actual mate choice.

Implications of altered mate preferences

The clearest implications of altered mate preference choice due BC come from the studies on MHC-correlated mate preferences. If preferences of non-users are typically for MHC-dissimilar partners but BC use brings about a preference for MHC-similarity (Roberts et al., 2008), then we might expect couples who meet while the woman is using BC to be comparatively MHC-similar. One possible consequence of this would be direct health consequences for any offspring due to their lower heterozygosity. Such consequences could include higher rates of miscarriage (Beydoun & Saftlas, 2005) and lower resistance to infectious diseases in offspring (Carrington et al., 1999). Furthermore, reduced heterozygosity and hence perceived poorer health may additionally influence the perceived attractiveness of offspring (Roberts et al., 2005).

It is also likely that alteration of mate preference, for any given preferred trait, will directly influence a woman's attraction towards her partner when she changes BC use. Imagine, for example, a woman who is using BC when she meets her partner, and presumably finds him very attractive. If she ceases BC use, then both

her hormonal levels and her preferences will revert to their normally cycling states, and she may subsequently no longer find her partner as attractive as she did.

Alternatively, if the same woman began BC use *after* meeting her partner, she might experience the reverse pattern of changes, but ultimately with the same kind of outcome: a preference *now* that is different (or non-congruent) to what it *was* when she met her partner. Both these examples have been captured in what has been termed the *congruency hypothesis* for BC effects on women's sexual desire for, and satisfaction with, their partner (Roberts, Cobey, Klapilova, & Havlicek, 2013).

The first evidence for the congruency hypothesis comes from a comparison of approximately 2500 women who were BC users or non-users when they met their male partner, but who were all non-users when they were surveyed. Although women who were using BC when they began their relationship were more satisfied with their partner's level of support, they reported lower attraction towards him and lower sexual satisfaction with him (Roberts et al., 2012). In another sample of about 350 couples, women's sexual satisfaction was higher if their current BC use was congruent with that at the time they met their partner, compared to non-congruent women, although BC congruency did not affect levels of non-sexual satisfaction (for a replication, see Russell et al., 2014), nor either kind of satisfaction among the male partners (Roberts et al., 2014). Similarly, levels of sexual but not other kinds of jealousy were higher in women if their current and previous use of BC was congruent (Cobey, Roberts, & Buunk, 2013). Other studies that simply compare BC users and non-users report comparable differences in not just sexual jealousy (Cobey, Pollet, Roberts, & Buunk, 2011) but also other related aspects of mate-guarding behaviour (Welling, Puts, Roberts, Little, & Burriss, 2012). Ultimately, such sexual dissatisfaction and mistrust may have consequences on relationship survival;

indeed, Roberts et al. (2012) found that in couples who had subsequently separated, women who more likely to have initiated the separation if they met their partner while using BC.

Conclusion

There is growing evidence that use of hormonal contraceptives influence both women's mate preferences and have consequences on subsequent relationship satisfaction. Cross-sectional studies may be strongly influenced by between-group differences, and more longitudinal studies are needed in the future.

Cross-References

Attraction During Ovulation

Dual Mating Hypothesis

Male Perception of Cycle-Related Fluctuations in Women's Attractiveness

Menstrual cycle

Ovulatory Hormones

Ovulatory Shifts in Psychology

Sexual Signaling During Ovulation

Women's Preferences During Ovulation

References

Beydoun, H., & Saftlas, A. F. (2005). Association of human leucocyte antigen sharing with recurrent spontaneous abortions. *Tissue Antigens*, 65, 123-135.

- Carrington, M., Nelson, G. W., Martin, M. P., Kissner, T., Vlahov, D., Goedert, J. J., et al. (1999). HLA and HIV-1: Heterozygote advantage and B*35-Cw*04 disadvantage. *Science*, *283*, 1748-1752.
- Cobey, K. D., Pollet, T. V., Roberts, S. C., & Buunk, A. P. (2011). Hormonal birth control use and relationship jealousy: Evidence for estrogen dosage effects. *Personality and Individual Differences*, *50*, 315-317.
- Cobey, K. D., Roberts, S. C., & Buunk, A. P. (2013). Hormonal contraceptive congruency: Implications for relationship jealousy. *Personality and Individual Differences*, *55*, 569-573.
- Feinberg, D. R., DeBruine, L. M., Jones, B. C., & Little, A. C. (2008). Correlated preferences for men's facial and vocal masculinity. *Evolution and Human Behavior*, *29*, 233-241.
- Jones, B. C., Perrett, D. I., Little, A. C., Boothroyd, L., Cornwell, R. E., Feinberg, D. R., et al. (2005). Menstrual cycle, pregnancy and oral contraceptive use alter attraction to apparent health in faces. *Proc. R. Soc. B*, *272*, 347-354.
- Little, A. C., Burriss, R. P., Petrie, M., Jones, B. C., & Roberts, S. C. (2013). Oral contraceptive use in women changes preferences for male facial masculinity and is associated with partner facial masculinity. *Psychoneuroendocrinology*, *38*, 1777-1785.
- Little, A. C., Jones, B. C., Penton-Voak, I. S., Burt, D. M., & Perrett, D. I. (2002). Partnership status and the temporal context of relationships influence human female preferences for sexual dimorphism in male face shape. *Proc. R. Soc. Lond. B*, *269*, 1095-1100.

- Penton-Voak, I. S., Perrett, D. I., Castles, D. L., Kobayashi, T., Burt, D. M., Murray, L. K., et al. (1999). Menstrual cycle alters face preference. *Nature*, *399*, 741-742.
- Roberts, S., Little, A., Burriss, R., Cobey, K., Klapilová, K., Havlíček, J., et al. (2014). Partner choice, relationship satisfaction and oral contraception: the congruency hypothesis. *Psychological Science*, *25*, 1497-1503.
- Roberts, S. C., Cobey, K. D., Klapilova, K., & Havlicek, J. (2013). An Evolutionary Approach Offers a Fresh Perspective on the Relationship Between Oral Contraception and Sexual Desire. *Archives of Sexual Behavior*, *42*, 1369-1375.
- Roberts, S. C., Gosling, L. M., Carter, V., & Petrie, M. (2008). MHC-correlated odour preferences in humans and the use of oral contraceptives. *Proc. R. Soc. B* *275*, 2715-2722.
- Roberts, S. C., Klapilova, K., Little, A. C., Burriss, R. P., Jones, B. C., DeBruine, L. M., et al. (2012). Relationship satisfaction and outcome in women who meet their partner while using oral contraception. *Proc. R. Soc. B*, *279*, 1430-1436.
- Roberts, S. C., & Little, A. C. (2008). Good genes, complementary genes and human mate preferences. *Genetica*, *134*, 31-43.
- Roberts, S. C., Little, A. C., Gosling, L. M., Perrett, D. I., Carter, V., Jones, B. C., et al. (2005). MHC-heterozygosity and human facial attractiveness. *Evolution and Human Behavior*, *26*, 213-226.
- Russell, V. M., McNulty, J. K., Baker, L. R., & Meltzer, A. L. (2014). The association between discontinuing hormonal contraceptives and wives' marital satisfaction depends on husbands' facial attractiveness. *Proceedings of the National Academy of Sciences*, *111*, 17081-17086.

- Thornhill, R., & Gangestad, S. W. (1999). The scent of symmetry: A human sex pheromone that signals fitness? *Evolution And Human Behavior*, 20, 175-201.
- United Nations, Dept of Economic and Social Affairs, Population Division (2015). World Contraceptive Use 2015. (POP/DB/CP/Rev2015).
- Wedekind, C., Seebeck, T., Bettens, F., & Paepke, A. J. (1995). MHC-dependent mate preferences in humans. *Proc. R. Soc. B*, 260, 245-249.
- Welling, L. L. M., Puts, D. A., Roberts, S. C., Little, A. C., & Burriss, R. P. (2012). Hormonal contraceptive use and mate retention behavior in women and their male partners. *Hormones and Behavior*, 61, 114-120.