

Is there a link between Infertility and promotion of Sexually transmitted Infections?



It is known that STIs are a common cause of human infertility worldwide. For example, *Chlamydia trachomatis* and *Neisseria gonorrhoeae* are the major causes of pelvic inflammatory disease (PID), which in untreated women results in tubal factor infertility in 10%–40%. A number of nonsexually transmitted infections can also cause infertility (e.g., schistosomiasis, tuberculosis, leprosy), but these infections are typically associated with high overall virulence, and if untreated result in host mortality. In contrast, STIs tend to cause little mortality and morbidity and in the July edition of PLoS Pathogens, there is a very elegantly discussed, albeit provocative, hypothesis on the adaptive survival of STIs and sexual behaviour.

The authors state: “Reduced fertility and an increased risk of complications during and following pregnancy both contribute to reduced reproductive success in the host—and may benefit the sexually transmitted pathogen by destabilizing

partnerships and increasing promiscuity. The birth of a child has a strong positive effect on marital stability; conversely, infertility often results in the break-up of a couple and a change of partners, and a childless couple may also have increased rates of extramarital sexual contacts. An STI pathogen that causes infertility or miscarriage will therefore benefit from increased rates of partner exchange and promiscuity, which facilitates its transmission within the population. STIs are particularly likely to affect the “hubs” or “core” of the sexual network: the individuals of highest promiscuity, who may have a decisive role in the transmission dynamics. Not only are highly promiscuous individuals exposed to a higher risk of acquiring STIs, but STIs may also actively generate hubs of transmission in a vicious circle of promiscuity and infertility.” So the idea that STIs could have evolved to induce infertility is not necessarily a new notion, but the authors postulate, by looking at the data in a different way, that STI-induced infertility is linked with multiple partners which promotes ongoing STI transmission and pathogen survival.

[Apari, P. et al. 2014. Why Sexually Transmitted Infections Tend to Cause Infertility: An Evolutionary Hypothesis. PLOS.](#)