

What is the role of Epidemiological Factors in Shaping the Social Imperative of Monogamy?

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Received June 25th 2011, accepted July 14th 2011, published July 18th 2011

1 Introduction

”That for which nearly a year had been Vronsky’s sole and exclusive desire, supplanting all his former desire: That for which Anna had been impossible, dreadful, but all the more bewitching dream of happiness, had come to pass. Pale, with trembling lower jaw, he stood over her, entreating her to be calm, himself not knowing how nor why. ... ‘It’s all over’, she said. ‘I have nothing but you left. Remember that.’“^[1]

Anna Karenina is one of the most prominent and at the same time most tragic adulterers in world literature. What begins as passionate but forbidden love between her and Alexey Vronsky leads to years of ostracism and finally reaches its climax in Anna Karenina’s suicide. In the above scene, where the sexual aspect of their relationship cannot be overlooked, Anna Karenina already foretells her fate: ”It’s all over“.

The novel is a grand example of how individuals are torn apart between the social imperative of monogamy and their intrinsic passions. Monogamy is indeed a puzzling social construct, since there seem to be two incompatible souls in us: Our wish for intimacy, consistency, and security on the one hand and our adventurous desires on the other. Some scientists interpret these two souls in a way that suggests that our own evolutionary biology is in conflict with norms and imperatives imposed on us by society and culture.

It seems difficult, if not impossible, to determine what is the homo sapiens’ ”natural“ way of living: Monogamic, polygamic, or even promiscuous. An easier task is to point to historical and evolutionary facts that may have led to the sexual norms dominating our society.

Reasons for a monogamous lifestyle are manifold. The upbringing of a human child is laborious, therefore both father and mother are involved. By simple evolutionary arguments, the parents want to make sure they don’t raise other peoples’ children. Economic factors as well as ancient religious commandments play a role for the appearance of monogamy as the primary form of family organization in the western world. These have been discussed elsewhere, but we think that one crucial aspect is missing from the discussion on monogamy.

An eye-catching reason for a monogamous lifestyle is that, medically speaking, it makes sense. Staying with one life-long sexual partner minimizes the risk of falling ill with a

sexually transmitted disease (STD) like syphilis, gonorrhoea, the human immunodeficiency virus, the human papilloma virus, etc.

Thus, could it be the case that infectiological and epidemiological factors have contributed to the cultural imperative of monogamy? And if yes, in which way and to what extent? We approach this problem from two perspectives: First, we take on a purely biological view of sexually transmitted diseases and monogamy. In the second part, we try to discuss how our image of monogamy could have been shaped historically by epidemiological factors.

2 Do sexually transmitted diseases support the evolution of monogamy from a biological point of view?

From an evolutionary point of view we have to ask the question, if our genetic constitution could have been shaped by sexually transmitted diseases and if human behaviour can be determined by our genes. A genetic determination of our lifestyle cannot be ruled out easily, but reducing the complexity of an individual’s behaviour to just a few genetic factors falls short of taking life events, education, and development of a person into consideration.

A possible way, in which sexually transmitted diseases could have led to a monogamous lifestyle by natural selection, though, is an actual decrease in an individual’s fertility rate due to the STD. In this way, monogamous behaviour could be imprinted in our genetic material.

An STD can lead to a decreased fertility rate by different mechanisms: Death of a patient of reproductive age, impairment of the reproductive system, external mutilations that make the patient less attractive during the reproductive age span, or serious affection of the child during pregnancy or birth leading to death or decreased fertility rate of the child.

Since there are many STDs, this will be discussed using the example of syphilis. Syphilis was first described in the late 15th century when it began to spread in the mediterranean area, especially in Spanish and Italian port cities before it became epidemic for the next 50 years all over Europe. Syphilis does not kill the patient during the reproductive

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age – patients might die due to complications like syphilitic aortitis but this normally occurs only decades after the primary infection. Syphilis usually does not impair the reproductive system of men, but in women it is associated with increased rates of abortion and fetal death. Children whose mothers are infected might suffer from congenital syphilis since infection can occur during pregnancy or birth but not all of the children will be affected by congenital syphilis. Primary syphilis only causes a small, indolent lesion at the site of infection, so that the infection can only be recognized by potential partners by examination of the genitals. Secondary syphilis can cause a rash that usually disappears quite soon. There are long latencies, so that usually the promiscuous behavior is not impaired in these states of the disease. Tertiary syphilis may cause the so called gummata, soft subcutaneous tumors that may be a few centimeters in diameter, and by this cause severe mutilation of the patient. These mutilations might decrease the fertility rate of the patient since they are easy to identify by potential partners. By these mechanisms syphilis might lead to a decreased fertility rate, but most severe symptoms occur years to decades after the primary infection, so that there is enough time to produce children.[2,3]

All in all, the fertility rate of promiscuous people can be decreased due to syphilis but it remains unclear whether the possibility to produce more children due to increased number of partners outweighs the negative effects of a probably only mildly decreased fertility rate after the infection. Valid statistic data regarding this topic would be necessary to solve this question.

In our opinion, monogamic behavior cannot be explained by a purely biological evolutionary process.

3 A sensation of danger: Epidemiological factors from a historic point of view

There is another way in which the social imperative of monogamy could have been shaped by epidemiological factors. Historically, the real statistical threat of an STD does not play nearly as big a role as the sensation of danger that it causes. The way in which the danger of the disease is perceived and interpreted in a society has influence on an individual's sexual life.

Again, the syphilis epidemic³ of the late 15th century is discussed as an example. There are diverging opinions about how syphilis arrived in Europe. Some argue it arrived with the return of the Columbus expedition, others argue that it had existed in Europe before 1492. It was soon clear, though, that this novel disease was transmitted by sexual contact and as soon as it was associated with sexual intercourse it became associated with the female body. Men were mostly considered victims of the disease while the woman's womb was held responsible for transmitting syphilis.[4] One theory for the emergence of syphilis, first

described in 1615 by Giovanni Tomasso Minadoi in Padua, embraced that virulent material resulted when the semen of different men is mixed in a woman's uterus.[5] This medical explanation on how men could get infected with the disease obviously dovetails with two imperatives: Women should engage in an absolutely monogamous lifestyle, and men should avoid sexual intercourse with women likely to sleep with more than one man, i. e. prostitutes.

Indeed, one can state that the perception of prostitution changed because of the syphilis epidemic in the 15th century. Prostitution had always been linked to disease but in the Renaissance it was viewed quite positively, because it was not only about sex and money. Guido Ruggiero argues that prostitution in the Renaissance was "as much about buying love and falling in love as about sex." [6] While a beautiful young wife offered security and reputation to a man, courtesans offered sex and love. Thus, it is not surprising that brothels were often publicly run and placed in the center of the cities, visible for everyone.

But as early as 1546, Henry VIII closed public brothels and Scottish edicts banned prostitutes in 1560 due to their connection with the new disease. And although prostitution did not get eradicated by these efforts, its social acceptance declined.

The discourse on monogamy was certainly shaped by the syphilis epidemics, and not only by syphilis. Looking at more recent developments, the discourse on the human immunodeficiency virus would also serve as a splendid example of how the sensation of danger influences an individual's sexual behaviour.

4 Conclusion

It is not likely that sexually transmitted diseases have led to monogamic behaviour by imprinting them into our genetic make-up in the process of natural selection. We argue, though, that epidemiological factors probably have contributed to our ideals of monogamy via the sensation of danger that sexually transmitted diseases cause in a society. In this context one arrives at a related questions: How much overlap is there between the actual, statistical threat of a sexually transmitted disease and the peoples' fear of it? And in which way is the sensation of danger related to the actual threat?

As a conclusion, we would like to pose the question if these two views, the biological or medical view and the historic or sociological view on the epidemiology of sexually transmitted diseases, can even be separated cleanly. Certainly, the distinction we make between "biology" and "history", between how monogamy was shaped by "nature" or by "culture", is not nearly as unambiguous as we present it in this article.

Unquestionably, sexually transmitted diseases do not play any role in Anna Karenina's or Alexey Vronsky's thoughts. The most present threat for them is loss of reputation and exclusion from society. This eventually leads to Anna

³In the late 15th century there was no distinction between a plethora of sexually transmitted diseases that early modern doctors subsumed under the term "The Venereal Disease"

Karenina's suicide, one of the most tragic moments in world literature. We conclude that no matter how the imperative of monogamy was shaped it undoubtedly provides some of the most splendid material for reading enjoyment.

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