

Sexual selection under parental choice in agropastoral societies

Menelaos Apostolou

Department of Psychology, University of Warwick, CV4 7AL Coventry, UK

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Abstract

Evidence from the anthropological record indicates that in most human societies, parents control the mating access to their offspring. Based on these data, a model of sexual selection has been recently proposed, whereby along with female and male choice, parental choice constitutes a significant sexual selection force in our species. This model was found to provide a good account for the mating patterns which are typical of foraging societies. By employing data from the Standard Cross Cultural Sample, the present study aims at examining whether this model can also account for the mating patterns typical of agricultural and pastoral societies. In addition, comparisons between different society types are made and two model-derived hypotheses are tested. First, it is hypothesised that parents have more control over their offspring's mate choices in non-foraging societies. Second, it is hypothesised that male parents exert greater decision making power in agropastoral societies than in hunting and gathering ones. Both hypotheses are supported by the results presented here. The evolutionary implications of these findings are also explored.

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1. Introduction

In the majority of human societies parents have a substantial role in determining who is going to have mating access to their offspring. As the anthropological record indicates, the offspring are constrained from exercising mate choice freely and the selection of spouses is frequently made by their parents (Apostolou, 2007b; Broude & Green, 1983; Minturn, Grosse, & Haider, 1969; Stephens, 1963; Westermarck, 1925; Whyte, 1978). Based on this evidence, Apostolou (2007b) proposed a model whereby, along with female and male choice, parental choice constitutes a significant sexual selection force in our species.

This model was found to be consistent with the patterns of mating typical of modern foraging societies. However, given that most preindustrial societies base their subsistence on agriculture and animal husbandry (Murdock, 1981), understanding the workings of sexual selection today requires that the analysis is not restricted solely to foraging societies. Accordingly, this article aims at identifying the typical patterns of mating in contemporary agricultural and pastoral

societies, and examine whether these patterns are consistent with the model of parental choice.

Furthermore, anthropological evidence from contemporary societies provides valuable insights on how sexual selection had been working in ancestral human societies (Ember, 1978; Lee & DeVore, 1968). As modern agropastoral societies resemble ancestral ones, which appeared 10,000 years ago, the identification of the typical patterns of mating in the former enables us to infer the typical patterns of mating in the latter. And even though 10,000 years is a rather short time period in the evolutionary timescale, this later stage of human evolution is significant because, if certain conditions are met, substantial evolutionary change can take place in only a few generations.

In particular, two conditions can trigger rapid evolutionary change; namely the strength of the selection pressure and the genetic variability available in the population (Fisher, 1958). These conditions were satisfied at the onset of the Holocene and the transition from a social organisation based on hunting and gathering to a social organisation based on agriculture and animal husbandry. First, demographic growth accelerated substantially commencing 10,000 years ago in the Middle East and Asia spreading into Europe and Australasia in the next 6000 years (Price, 2000). Conse-

E-mail address: m.apostolou@gmail.com.

quently, this population growth provided the necessary genetic variability required for rapid evolution to take place.

Second, the agropastoral revolution had a subsequent dramatic change in the environment of human evolution, as humans started leading a sedentary life instead of a nomadic one and their social environment was no longer a small band of people, but villages and cities of hundreds or thousands. It is no surprise that [Hawks, Wang, Cochran, Harpending, and Moyzis \(2007\)](#) found evidence of rapid acceleration of genetic evolution in our species and attributed this to changes in human cultures and the rapid demographic growth over the last few thousand years (see also [Armelagos & Harper, 2005](#)).

Overall, if shifting economic structures caused changes in the patterns of mating, the right circumstances were there for directional selection to take place. Accordingly, this study further aims at examining whether the change in the mode of subsistence had an effect on human mating by comparing the patterns of mating in agropastoral societies with the respective patterns of mating in foraging societies in order to identify recurring differences between the two.

2. The model of parental choice

Parents and offspring are not genetically identical and as a consequence they do not share identical interests with respect to mating ([Trivers, 1974](#)). Specific traits in a mating candidate give asymmetrical benefits to each party resulting into conflict between the two. Research has revealed disagreement over genetic quality, family background, religiousness and personality ([Apostolou, 2007a, 2008b, 2008c; Buunk, Park, & Dubbs, 2008](#)). Therefore, the choice of a spouse that maximises the inclusive fitness of the offspring does not necessarily maximise the inclusive fitness of their parents. Thus, asymmetric interests with respect to mating induce parents to control their offspring's mating decisions and select in-laws who maximise their own inclusive fitness.

Parental control over mating is made possible mainly by two factors: the extensive period that the offspring are dependent upon their parents' investment for survival and reproduction, and the fact that parents and their kin are physically stronger than their children ([Apostolou, 2007b](#)). Thus, parents can withhold their resources and/or apply physical punishment so as to take control of their offspring's mating decisions. As parents are able to influence their children's mate choices, parental choice becomes a significant sexual selection mechanism: traits that make an individual appealing to parents are likely to be selected and increase in frequency in the population.

Furthermore, parental control over mating is asymmetrical, with parents exercising more control over their daughters' mating decisions ([Apostolou, 2007b; Perilloux, Fleischman, & Buss, 2008](#)). There are two main reasons that account for this asymmetry: first, the female, by investing

more in her offspring, becomes the scarce reproductive resource to which males are seeking access ([Trivers, 1972](#)). Accordingly, by controlling the mating behaviour of their daughters, parents effectively gain control over mate choice. Second, relaxation of parental control over the female offspring may potentially have severe consequences for the parents: a sexual adventure can commit her to a long period of investment (i.e. pregnancy) in the offspring of a man whom her parents do not necessarily approve. It should also be added that women are physically weaker than men, which makes them more susceptible to parental manipulation.

Parental choice is also asymmetrical in favour of male parents. By means of greater physical strength, exclusive use of weaponry and control of political institutions ([Flinn & Low, 1986](#)), male parents have more influence over the offspring's mate choices than their female spouses ([Apostolou, 2007b](#); see also [Smuts, 1995](#)). Moreover, control over weapons and political institutions enables males to retain control over their children, and especially the female ones, even when they get old and can no longer impose their will by means of their physical strength.

Parental control over the offspring's mate choices has its limits, as the offspring have space to exercise their own choice. Parents cannot always be present guarding and monitoring the actions of their children. Furthermore, parental control wanes as the offspring grow-up and become physically stronger, while their parents grow older and become physically weaker. Also, as they age, the offspring become more experienced in subsistence activities, and consequently, less dependent upon their parents for survival. Additionally, the offspring can exercise mate choice in later marriages where their parents and close kin may be absent due to death, or less able to impose their will due to old age ([Apostolou, 2007b](#)). Finally, the offspring are not simply pawns in the hands of their parents as they can evolve adaptations to psychologically manipulate their parents towards their own ends ([Trivers, 1974](#)).

2.1. Parental choice in agricultural and pastoral societies

In the model of parental choice, when and where they can, parents exert control over their offspring's mating decisions. This strategy, and consequently the strength of parental choice as a significant sexual selection force, is contingent upon the ecological niche a population occupies. More specifically, in technology based post-industrial societies, such as the United Kingdom or the United States, wherein extensive schooling and training is required, marriage is postponed until the conclusion of one's education. Therefore, individuals tend to get married later in adulthood when they are no longer financially dependent on their parents. As a result, free mate choice is the typical pattern of mating in these societies.

On the other hand, in preindustrial agropastoral societies the offspring are heavily dependent upon parental investment, and parents are able to use physical force on their

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