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Homogamy, genetic similarity, and imprinting; parental influence on mate choice preferences

T. Bereczkei*, P. Gyuris, P. Koves, L. Bernath

Department of General Psychology, University of Pecs, Ifjusag 6, 7624 Pecs, Hungary

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Abstract

Whereas the hypothesis of genetically mediated homogamy has been supported by several studies, certain theoretical and methodological criticisms have been raised against genetic similarity theory. As an alternative approach to assortative mating, we suppose that imprinting-like mechanisms, rather than "direct" genetic detection, are responsible for choosing similar spouses. In a study aimed at comparing more than 300 facial photographs of family members and controls, the judges correctly matched wives to their mother-in-law at a significantly higher rate than expected by chance. Furthermore, a higher degree of similarity was ascribed between the husbands' mother and the husbands' wife than between the husbands and their wives. A regression analysis has revealed that men who had been more frequently rejected by their mother during childhood were less likely to choose mates who resemble their mothers in physical appearance. These results suggest that under the influence of childhood experiences, sons internalize their mother's phenotype as a template for acquiring similar mates. © 2002 Published by Elsevier Science Ltd.

Keywords: Homogamy; Sexual imprinting; Evolutionary strategies

1. Introduction

The studies of so-called assortative mating or homogamy have shown that the majority of mates resemble each other in a high number of traits. Positive correlations have been found between their race, socioeconomic status, age, intellectual ability, education, personality variables, physical attractiveness, vocational interest and anthropometric measures (Ahern, Cole, Johnson, & Vandenberg, 1985; Bereczkei & Csanaky, 1996; Bereczkei, Vörös, Gál, & Bernáth,

* Corresponding author. Tel.: +36-72-501516; fax: +36-72-501516.
E-mail address: btamas@btk.pte.hu (T. Bereczkei).

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1997; Jaffe & Chacon-Puignau, 1995; Keller, Thiessen, & Young, 1996; Mascie-Taylor, 1988, 1995; Penton-Voak, Perrett, & Peirec, 1999; Susanne & Lepage, 1988; Thiessen, Young, & Delgado, 1997).

Homogamy appears to be under the influence of many cultural factors. It may result from physical propinquity of individuals, economic benefits associated with mating, and psychological comfort and compatibility spouses feel in such marriages (Thiessen, 1999). Although these mechanisms may mediate certain aspects of mate choice, the related hypotheses cannot interpret the ubiquity of homogamy across species and cultures, nor do they address the underlying reason for assortative mating—the ultimate causation. It is not surprising, therefore, that during the past two decades, genetic and evolutionary mechanisms have been described for a deeper and more comprehensive understanding of homogamy.

In their pioneer study, Thiessen and Gregg (1980) suggested an explanation for assortative mating as an extension of kin selection theory. They argued that rather than merely protecting kin at the expense of strangers, individuals have a tendency to detect other genetically similar organisms who are not relatives through common descent. They tend to choose mates on the basis of gene similarity, that is likely to yield reproductive benefits. First, as an extension of Hamilton's kin selection theory, the intensity and direction of altruism are linked to the degree with which interacting individuals share homologous genes. Second, positive assortment increases the degree to which parents share genes with offspring. This is because parents with identical genes will add 50% of their genes to the offspring *plus* portions of genes that are held in common by them (Thiessen, 1999).

In his Genetic Similarity Theory, Philippe Rushton argues that, because of these fitness gains associated with homogamy, selection is expected to have favored a complex psychological mechanism that can detect other, genetically similar organisms and channel altruistic behavior toward them (Rushton, 1989, 1999; Rushton, Russell, & Wells, 1984). The two mechanisms, the detection of similar traits and the mutual preferences of gene-related spouses—as well as of stable friends—have evolved together as a complex adaptive system

The evolutionary theory of homogamy has been supported by several studies. Assortative mating was found to enhance marital stability and fertility that seems supportive of adaptationist argument (Bentler & Newcomb, 1978; Bereczkei & Csanaky, 1996; Mascie-Taylor, 1988; Thiessen et al., 1997; Weisfeld, Russel, Weisfeld, & Wells, 1991). Other studies have shown that married couples were more genetically similar than randomly paired individuals, and the correlations, measured between them, depended on the magnitude of genetic influence on certain physical, personality, and cognitive features (Buunk & Frees, 1997; Rushton, 1988; Rushton & Nicholson, 1988; Russell, Wells, & Rushton, 1985, Tesser, 1993).

Obviously, in order to pursue assortative mating, an individual has to be able to detect genetic similarity in mates. According to genetic similarity theory,*phenotype matching* would be responsible for controlling homogamy without the help of learning from familiarity or proximity. The individuals are genetically guided to respond to specific phenotypic cues in others and direct altruism selectively toward individuals with shared genes. (Dawkins, 1982; Hepper, 1991; Holmes and Sherman, 1983). Obviously, it can occur if there is a high correlation between genetic similarity and phenotypic similarity on traits that individuals use to distinguish potential mates. The individuals, equipped with specific innate algorithms, detect some aspect of their own phenotype, match it to new, unfamiliar individuals, and prefer those who possess the same or similar