

FATHER ABSENCE AND AGE AT MENARCHE

A Test of Four Evolutionary Models

Sabine Hoier
University of Kassel

Life history data, attractiveness ratings of male photographs, and attitudes towards partnership and child-rearing of 321 women were used to test four evolutionary models (quantitative reproductive strategy, male short-age, polygyny indication, and maternal reproductive interests) which attempt to explain the influence of family composition on reproductive strategies. Links between early menarche and other markers of reproductive strategy were investigated. Childhood stress and absence of a father figure, whether genetically related or not, were found to have accelerated menarche whereas having younger siblings decelerated it. Early menarche was associated with attractiveness ratings, the number of partners desired for the immediate future, and the early onset of intimate relationships. It was not linked with sociosexual orientation, mate choice criteria, and investment in the subjects' own children, but these three markers were interrelated. The implications of the findings for the four evolutionary models are discussed.

KEY WORDS: Conditional reproductive strategies; Father absence; Mate choice; Menarche; Sex ratio; Stress

Life history theory considers the life course itself as an adaptation, with an optimal allocation of efforts as the major task (Stearns 1992). An important trade-off is assumed to exist between somatic and reproductive effort. The

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Address all correspondence to Sabine Hoier, Department of Psychology, University of Kassel FB 03, Holländische Straße 36-38, D-34127 Kassel, Germany. Email: hoier@uni-kassel.de

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former aims at the accumulation of reproductive resources, the latter at their expenditure (Alexander 1987). Major shifts in human life efforts are characterized by developmental transitions, and a prominent one is puberty. The timing of puberty, marked by menarche in girls, is therefore a major issue in evolutionary studies of human life history. Factors which have been shown to accelerate the onset of menarche are childhood stress and father absence (Ellis and Garber 2000; Ellis et al. 1999; Kim et al. 1997; Moffit et al. 1992; Surbey 1990; Wiersen et al. 1993), whereas a delay is often caused by anorexia (Riley et al. 1993) or physical exhaustion (Calabrese et al. 1983; Frisch et al. 1980). Different models to explain the conditional timing of age at menarche have been proposed in the literature, the most prominent being that by Belsky, Steinberg, and Draper (1991, henceforth BSD model), based on the original idea of Draper and Harpending (1982).

BELSKY, STEINBERG, AND DRAPER'S MODEL

Belsky and colleagues postulate two types of psychosexual developmental pathways which end in two different adult reproductive strategies: a quantitative and a qualitative one. The quantitative strategy is marked by a stressful family context during childhood.¹ In this environment, attachment to parents is insecure and behavioral problems are frequent. The quantitative strategy is manifest during adolescence in early puberty and early sexual activity, and during adulthood in unstable pair bonds and lowered parental investment. The qualitative strategy shows the opposite features: During childhood, stress-free family conditions, secure attachment, and few behavioral problems, then delayed puberty as well as delayed adolescent sexual activity; during adulthood, durable pair bonds with high parental investment.

According to Belsky and his colleagues, the evolutionary function of a quantitative reproductive strategy results from the lowered probability of progeny surviving in environments with unstable pair bonds. The lower probability of survival is countered via maximizing offspring quantity by increasing the number of partners, limiting parental investment, and prolonging the reproductive portion of the lifecourse. The progeny maximization hypothesis, however, has received only limited empirical support. Age at menarche and number of children did not correlate in a Sudanese sample (Otor and Pandey 1998). A German sample even showed an unexpected positive correlation (Chasiotis 1999). The accelerating effect of early menarche on reproduction, however, is well documented. Age at menarche is substantially correlated with age at first sexual intercourse and first child birth (Bingham et al. 1990; Phinney et al. 1990; Udry and Cliquet 1982), which