Natural variation in the human sex ratio

Dear Sir,

We read with interest the article (Jacobsen *et al.*, 1999) analysing the effects of multiple birth, birth order, age of parents and the sexes of preceding siblings on the secondary sex ratio. The maternal age, maternal parity and sexes of the previous children in the family were found to have no significant effect on the sex ratio.

The literature from 1950 to the present indicated a declining trend in the male ratio (Moller, 1996; Van der Pal-de Bruin *et al.*, 1997). In Hungary too a pronounced decrease was observed between 1950 and 1990. However, from 1991 to 1999 there was a gradual increase, except in 1998 (Figure 1).

In contrast with Jacobsen *et al.*, (1999) we found that the maternal age has an effect on the secondary sex ratio. The neonatal outcome of pregnancies in mothers aged 40 years or older was compared with that for women aged between 20 and 29 years. The two groups were identical in numbers of gravidity and parity. Between January 1995 and December 1999, there were 9060 births at the Department of Obstetrics and Gynaecology, University of Szeged. During this 5 year period, 230 mothers were ⩾40 years old. Forty-six women (20%) were nulliparous. The proportion of male infants was significantly lower in the older group (0.438 versus 0.545, $P < 0.05$) (Table I). The male sex ratio was likewise significantly lower only in the older multiparous group (0.403 versus 0.538, $P < 0.05$) (Table II). Our results suggest that the secondary sex ratio is influenced by the maternal age and maternal parity.

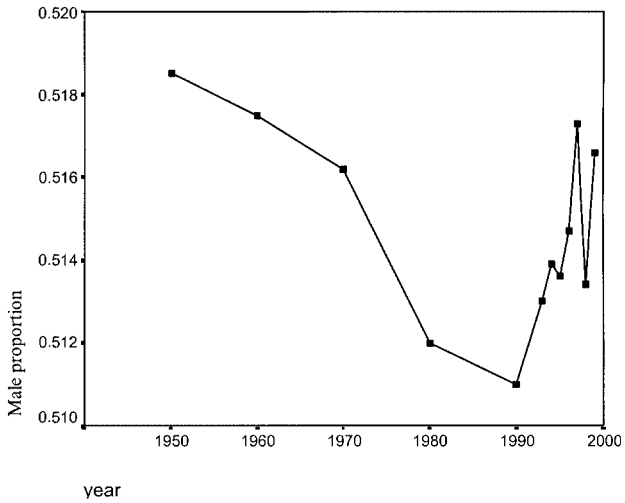

Figure 1. Male proportion among newborn infants in Hungary between 1950 and 1999.

Table I. Male infant proportion in the younger versus older groups

	20–29 years (n = 230)	⩾40 years (n = 230)	P	OR (95% CI)
Male ratio	0.545	0.438	< 0.05	0.65 (0.45–0.94)

Table II. Male infant proportion in the nulliparous versus multiparous subgroups

	Nulliparous			
Age group	20–29 years (n = 47)	⩾40 years (n = 47)	P	OR (95% CI)
Male ratio	0.574	0.574	NS	1 (0.44–2.27)
	Multiparous			
Age group	20–29 years (n = 186)	⩾40 years (n = 186)	P	OR (95% CI)
Male ratio	0.538	0.403	< 0.05	0.58 (0.39–0.88)

References

Moller, H. (1996) Change in male:female ratio among newborn infants in Denmark. *Lancet*, **348**, 828–829.

Van der Pal-de Bruin, K.M., Verloove-Vanhorick, S.P. and Roeleveld, N. (1997) Change in male:female ratio among newborn babies in Netherlands. *Lancet*, **349**, 62.

Jacobsen, R., Moller, H. and Mouritsen, A. (1999) Natural variation in human sex ratio. *Hum. Reprod.*, **14**, 3120–3125.

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