

The Effect of Consanguinity on Reproductive Fitness and Selection Intensity in the Muslim Population of Western Uttar Pradesh, India

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ABSTRACT The study sought to ascertain the adverse effects of consanguinity among Muslim parents of Aligarh city located in western Uttar Pradesh in India. More than 478 families were visited and data were collected from only 100 of them being inbred to varying degrees of consanguinity. It was found that increasing degree of consanguinity decreases fertility ($R^2 = 0.2671$, $r = -0.1568$), but increases mortality ($R^2 = 0.3161$, $r = 0.5622$). Selection intensity ($R^2 = 0.1734$, $r = 0.4164$) and secondary sex ratio ($R^2 = 0.3757$, $r = 0.6129$) also go up as the degree of consanguinity increases. However, the genomic basis of Runs of Homozygosity (ROH) is a more accurate method of calculating homozygosity. Next Generation Sequencing may help better understand ROH and their utility as a tool for inbreeding detection. To avoid the inbreeding load, there is a need to raise public awareness of reproductive health and the potential negative effects of consanguinity.