

Reproductive function in Turkana women with enzyme immunoassays of urinary hormones in the field.

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Abstract:

The frequently reported observation that nomadic populations have lower fertility than their settled counterparts is often attributed to what are perceived as harsh, stressful conditions under which the nomads live. But the consequences of the hypothesized stresses for the reproductive biology or demography of these populations have been documented only a little. Traditionally, the Turkana of northwest Kenya are nomadic herders, but increasing numbers have settled on agricultural development schemes. We used an array of hormonal assays along with anthropometric indexes of nutritional status and interviews covering reproductive history, recent menstruation, diet, and health to compare reproductive function in nomadic and settled Turkana women. First morning urine samples were collected for three consecutive days during a series of surveys. Human chorionadotropin (hCG; a marker for pregnancy), luteinizing hormone (LH; an indicator of ovulation), and pregnanediol glucuronide (PdG; an indicator of postovulatory luteal function) were assessed in the field with commercially available dipstick enzyme immunoassays. These assays along with the interview data allowed us to determine the reproductive status (e.g., pregnant or cycling, and if cycling, which phase of the ovarian cycle) of 166 nomadic and 194 settled Turkana women. The cross-sectional classifications allowed inferences of conception rates and normality of ovarian function. Follow-up surveys provided rates of pregnancy loss. Compared with the settled women, the nomadic women exhibited lower pregnancy rates and cycling nomadic women were less likely to show evidence of ovulation or luteal function. These results suggest that reproductive function of the nomadic women is diminished relative to the settled women. However, the settled women experienced a much higher rate of pregnancy loss, which may mean that their effective fecundability is in fact lower than that of the nomadic women. This study is the first to apply such a wide range of hormonal assays in the field. It demonstrates that field-based assays are feasible and robust and can play an important role in epidemiological and biodemographic studies, even in remote locations under conditions that would ordinarily be considered incompatible with on-site laboratory analysis.