



Why pigs are important in Papua? Wealth, height and reproductive success among the Yali tribe of West Papua

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ABSTRACT

Many studies have investigated how different variables influence the reproductive success (RS) in the populations of natural birth control. Here, we tested hypotheses about positive relationship between wealth, height and several measures of RS in an indigenous, traditional society from West Papua. The study was conducted among the Yali tribe in a few small, isolated mountain villages. In this tribe, a man's wealth is measured by the number of pigs he possesses. We found that wealth was related to fertility and number of living children, but not to child mortality in both men and women. Additionally, child mortality increased with the number of children in a family. Finally, we did not observe any relationship between height and reproductive success measures or wealth. We provide several possible explanations of our results and also put forward hypothetical background for further studies of indigenous populations.

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1. Introduction

Many studies have investigated how different variables influence the reproductive success (RS) in the populations of natural birth control (e.g., Apicella et al., 2007; Hill and Hurtado, 1996; Mace, 1996a; Smith, 2004). It has been suggested that one of the most important elements related to male RS can be his status and wealth (Trivers, 1972); economically and socially successful individuals out-reproduce less successful individuals (Daly and Wilson, 1983; Fisher, 1930; Wilson, 1975). Wealth and status covary with lifetime RS in preindustrial human populations (e.g., Clarke and Low, 1992; Dribe, 2004; Lycett et al., 2000; Pettay et al., 2007; Røskaft et al., 1992; Skjærvø et al., 2011). Additionally, a lot of data confirm the presence of such relationship, at least for males (but not always for females) in indigenous, traditional societies existing

nowadays (in chronological order: Yomut Turkmen of Iran – Irons, 1979; Ifaluk of Caroline Islands – Turke and Betzig, 1985; Caribbean farmers – Flinn, 1986; Kipsigis of Kenya – Bergerhoff Mulder, 1987; Efe of Zaire – Bailey, 1991; Bakkarwal of India – Casimir and Rao, 1995; Gabbra of Kenya – Mace, 1996a; Mukogodo of Kenya – Cronk, 1991; Dogon of Mali – Strassmann, 1997). Although the relationship between wealth and RS is rather hard to observe in industrialized societies (because of common usage of contraceptives), recent studies have attempted to analyze this phenomenon also in such societies, and some preliminary data demonstrate its existence in males (e.g., Hopcroft, 2006).

Another element related to RS is height of an individual. In the context of traditional societies, the majority of studies regarding this relationship concerns women. In !Kung San people (Northern Namibia), shorter women had more children (Kirchengast, 2000). Devi et al. (1985) showed a similar correlation for women from lower casts in India. This result was an effect of both lower fertility and higher mortality of children of taller women. On the other hand, Fielding et al. (2008) did not find any relationship

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between height and RS of Chinese women. At the same time, Sear et al. (2004) showed that although shorter women in Gambia have children earlier, their reproductive success is lower than of taller women, whose children survive more frequently. A similar relationship was observed in Guatemala (between 1977 and 1979) by Martorell et al. (1981). Also Pollet and Nettle (2008) observed that very short women in Guatemala more frequently give birth to a dead fetus, and therefore height is positively correlated with biological fitness of women in this population. Baqui et al. (1994) obtained similar results in Bangladesh. Additionally, height in women is known to correlate with other reproductive outcomes, for example, taller women's babies tend to have higher birthweight (Kirchengast et al., 1998). What is more, a recent comparative study using Demographic and Health Survey data from 42 developing countries has also effectively demonstrated a positive relationship between maternal height and child survival that holds across varying levels of development in these countries (Monden and Smits, 2008), which is one of the most convincing comparative studies indicating a clear advantage for height, at least for women in high mortality populations.

Human male height is associated with mate choice and intra-sexual competition, and therefore is only indirectly correlated with RS (Pawłowski et al., 2000). However, the results regarding males from native societies exhibit a considerable variation, sometimes even in the same study Kirchengast and Winkler (1995) observed that in Namibian Kavango males from Urban area of Rundu, and Kavango males from the rural areas around Rundu the relationship between height and RS was different. Generally, as summarized by Sear (2010), the findings regarding height and RS in both men and women should be interpreted with caution (also because they vary in terms of ages and control variables) and there seem to be no unambiguous conclusions. The discrepancies in these results suggest that the relationship between height and RS is heavily dependent on the environmental context (review: Sear, 2010).

The present study tries to extend the generalizability of the previous results by conducting research in a native tribe of very limited contact with Western culture, the Yali (West Papua). In the context of the previously examined populations, this is a very specific and culturally different tribe, for example, because Yali men and women live separately (even if they are married), cohabiting only when they want to have a child. Since only a few accessible sources (Boissiere, 2002, 2009; Koch, 1974; Milliken, 1994; Sorokowski and Sorokowska, in press; Zoellner, 1988) have described the Yali and they are often very specific, describing only one, narrow problem, such as conflicts, agriculture, or beauty preferences, we present a detailed description of the Yali tribe, their economy and customs.

1.1. Yali population

The research was conducted among the Yali tribe (Papua, semi-independent Indonesian province previously known as a Irian Jaya). The Yali inhabit the mountainous terrain east of the Baliem valley (3.92 S, 138.73 E for

Wamena – central part of Baliem valley) known as Yalimo. It is a region of tropical climate. The Yali are one of many indigenous ethnic groups in West Papua. Because of difficult accessibility, Papua mountain terrains had not been explored until about 50 years ago (Koch, 1974; Milliken, 1994). The present study was conducted north of the summit of Mount Elit (also known as Gunung Elit; about 4000 m.a.s.l.) in a few small, isolated, mountain villages (e.g., Pui, Hiklahin, Ohomtongo, Sali, Fik-Fak, Mogobie, Penyam) and a larger village (Piliam). The villages were rarely visited by tourists (about 1–3 times in the last five years for small villages; 10–15 times a year for Piliam according to the inhabitants). Even though Christianity is present in this region, Yali have still preserved their traditional lifestyle including polygyny or clothing (some men wear only traditional koteka covering their penis; for information about koteka in other Papuan tribes see: Howard, 2000). Yali villages either have a doctor or are sometimes visited by a “mobile” nurse, traveling around the area, but none of the participants had access to any modern contraceptives. The Yali villages consist of one or more of the large men's houses (*yowa*), and a cluster of smaller family huts (*homea*) (Boissiere, 2002). The men's house is inhabited by all initiated males from the unit, and the house is a communal property. It has a ritual status, and uninitiated boys and females are not allowed inside. A family hut, constructed for a woman by her husband or sons, is where a married woman, her uninitiated sons and unmarried daughters live. Her own or her husband's widowed or divorced mother might also live with her. In polygynous marriages the wives might share a household, but more frequently each of them has her own hut (Koch, 1974). After marriage, a woman lives in her husband's village (personal observation by PS and AS). Yali are probably one of a few cultures such as Trobrianders and Marind Anim of Papua New Guinea (Oliver-Miller, 2004; Weiner, 1988) where men and women live separately (even if they are married). Yali inheritance rules are clearly defined and are described thoroughly by Koch (1974). They are very detailed and described inheritance practices in virtually all possible cases of someone's death. Because of that as well as abundant land resources, and rather limited movable property of Yali, conflicts over property are infrequent.

The tribe members' sexual life is limited by certain traditional restrictions (*taboos*), both before and after the marriage. Girls and boys are discouraged from copulation before they reach sexual maturity. Boys are threatened that this might damage their vitality; most of girls are married before they have menarche but they are supposed to wait until they are ready to have children with their husband. However, pre-marital sexual intercourses also take place (personal observation). After marriage, a man should sleep in the men's house at least every other night (otherwise he might be laughed at – Koch, 1974). Also, when a woman finds out that she is pregnant, the husband ceases to sleep in the family hut. Sexual intercourse should not take place for about four years after birth, so until the child is relatively independent (Koch, 1974). However, it is possible that some people do not comply with these rules (personal observation).

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