

Growth Trajectory of Body Size in Baduy People

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Abstrak

Mengukur ukuran tubuh adalah cara yang paling baik untuk melihat tingkat kesehatan, status nutrisi, dan kualitas hidup dari suatu populasi manusia. Banyak penduduk asli dan lokal, tersebar, dan kurang atau tidak terlibat dalam jaringan pelayanan sosial, ekonomi, dan politik, memiliki pola pertumbuhan yang spesifik. Orang Baduy adalah penduduk asli yang kurang lebih hidup terisolasi secara sosial. Pernikahan hanya dilakukan sesama Orang Baduy saja. Penelitian ini bertujuan untuk menentukan lintasan pertumbuhan Orang Baduy yang meliputi wanita dan pria dengan metode cross-sectional. Ukuran tubuh Orang Baduy dapat dikategorikan kedalam populasi Pygmy. Mereka memiliki tingkat pertumbuhan yang lambat pada masa transisi dari anak-anak ke remaja, percepatan pertumbuhan yang rendah dan lama dengan tingkat pertumbuhan lebih panjang daripada masa kematangan reproduksi. Percepatan pertumbuhan yang rendah, menyebabkan ukuran tubuh kecil di masa pertumbuhan, mungkin merupakan cara menyimpan daya untuk pemeliharaan tubuh. Pertumbuhan somatik yang berkepanjangan diimbangi dengan tingkat pertumbuhan yang lambat pada masa anak-anak ke remaja dan percepatan pertumbuhan yang rendah. Orang Baduy yang lebih tua lebih dari 30 tahun, lebih pendek dan kecil dari orang yang lebih muda, hal ini menunjukkan tren sekuler.

Abstract

Human life history begins from prenatal life, birth, and then growth and development into infancy, children, juvenile, adolescent, adult and senescence. Growth dominates about two decades after birth. The body height and body weight are the most commonly used anthropometric measurement in growth study. The growth pattern of body size is the best way to find out the health, nutritional status and quality of life of a population. The growth pattern researches in Indonesia are scarce in relation to hundreds of existing tribes and especially to indigenous populations. These populations are socio-cultural groups that are local, scattered, and less or not involved in the network of social services, economic, and politics. Baduy people are indigenous population, live in Kendeng Mountains, Banten Province, Indonesia.

Present study aims to determine the growth pattern of female and male of Baduy people with cross-sectional method. Total subjects were 284 females and 168 males aged 5 to 42 years. The data of body weight (kg), body height (cm), and body mass index (kg/m²) were analyzed using Generalized Additive Models for Location, Scale and Shape (GAMLSS). The median values of growths were used to calculate annual velocity. Body size of Baduy people may be categorized as pygmy according to Perry and Dominy's definition because their average adult height is less than 160 cm. Being small body, Baduy people have similar body height to the 5th percentile of Purwakarta population. Their body weight was greater than 5th percentile but smaller than 50th percentile of Purwakarta population. On the other hand, Baduy people were consistently smaller than 5th percentile of U.S. population. Low growth spurt, which leads to small body size in the growing period, may be a saving on body-maintenance costs. On the other hand, slow growth in adolescent and short stature is related to GHR (Growth Hormone Receptor), GHBP (Growth Hormone Binding Protein), and IGF-I level. However, the level of GH and IGF-I in Baduy people remains to be measured. Prolonged somatic growth into 30 years of age proceeds well beyond reproductive maturation. This prolonged phase offset the slow growth rate at child to juvenile transition. Age at menarche of Baduy people is similar to other pygmy populations. However, age at first reproduction is slower than Pygmy populations which have early first reproduction to maximize reproductive fitness in a high-mortality environment.

Baduy people older than 30 year are shorter and smaller than younger people. Differences in body size between Baduy people separated in these three decades may suggests secular trend.