

Claudia Beiersmann

Dr.sc.hum.

Malnutrition in young children of rural Burkina Faso

Promotionsfach: Epidemiologie (Institut für Public Health)

Doktorvater: Prof. Olaf Müller

Malnutrition is still a major public health problem in young children of low and middle income countries. It largely contributes to the global burden of disease and is a major risk factor for mortality in children below five years of age. Reduction of malnutrition concerns in particular the Millennium Development Goals (MDG) number 1 and number 4.

This study describes the development of anthropometric characteristics of young children in a rural area in Burkina Faso over a 10 years period (1999 versus 2009). In addition, it describes the development of malaria prevalence as well as the prevalence of other relevant parasites in the study population.

The study took place in the health and demographic surveillance system (HDSS) of the Nouna Health Research Centre in the Kossi Province in north-western Burkina Faso. Nutritional and parasitological parameters were compared in two cohorts of young children of the same age range from eight villages. Surveys took place in June and December of the years 1999 and 2009. Data on other relevant parasites was collected only during the 2009 surveys. For the 1999 study, data were analysed for 179 and 197 children who took part in the June and December survey respectively. In 2009, corresponding data were analysed for 460 and 409 children.

Malnutrition rates were high in all surveys but showed a tendency to decrease from 1999 to 2009. In June 2009, 35% of the children were underweight, 26% of the children were wasted, and 30% were stunted. After adjustment for age, sex and village, there was a slight but not always significant improvement in the z-scores of weight-for-age, weight-for-length, length-for-age, and mid-arm circumference between 1999 and 2009.

While in 1999, none of the study children slept under an insecticide-treated mosquito net (ITN), in 2009 the great majority of study children's mosquito nets (72%) were ITNs. *P. falciparum* prevalence was significantly lower in the 2009 compared to the 1999 surveys. There was an overall 22.8% reduction in *P. falciparum* prevalence.

The reduction in malaria parasite prevalence in young children between 1999 and 2009 in a rural and formerly malaria holoendemic area of Burkina Faso is likely attributable to the increase in ITN utilization over time. Regarding the nutritional situation of children, the findings from this study confirm the still unacceptable high prevalence of malnutrition in young children of rural sub-Saharan Africa. Progress in the reduction of malnutrition remains slow on this continent making it rather unlikely that the corresponding MDGs will be achieved.

Instead of investing into an ever increasing number of disease-specific health initiatives, a multi-sectoral systems approach is needed. A combination of large-scale implementation of nutrition interventions, strengthening of the health and education systems, investment in environmentally sustainable agricultural techniques and improvements in hygiene and sanitation in the frame of sustainable community development are urgently needed for sustained long-term effects on morbidity and mortality in populations of low income countries.