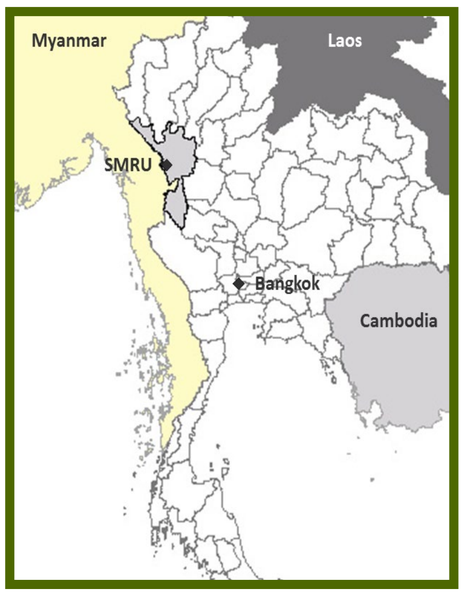

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Nutritional transition: A retrospective analysis of the nutritional status of pregnant women along the Thailand-Myanmar border

Background

'Nutritional transition' is occurring worldwide, particularly in Asia, with a trend towards increasing obesity which in pregnancy can affect maternal and fetal health.

This phenomenon in developing countries is complicated by 'duel burden' households – those affected by both under and over nutrition.

Shoklo Malaria Research Unit (SMRU) has provided antenatal care along the Thai-Myanmar border since 1986. The risk of low BMI has been associated with fetal growth restriction and preterm birth[1], however in this last decade increased BMI has also impacted clinical obstetric practice[2].

Maela refugee camp

Both malnourishment and obesity in pregnancy increase the risk of adverse outcomes (Table 1). It is therefore important to identify nutritional trends, especially in populations where resources are limited, so that appropriate services can be planned to identify and support nutritionally compromised women most at risk during their pregnancy, and improve maternal and child health.

Table 1:

Risks of undernutrition	Risks of being overweight
Fetal health	
Preterm delivery	Preterm delivery
Fetal growth restriction	Large for gestational age
Small for gestational age and low birthweight	Macrosomia
	Low birth weight
Birth defects including neural tube defects	Birth defects including neural tube defects
Pregnancy loss – miscarriage and stillbirth	Pregnancy loss – miscarriage and stillbirth
Long term health problems	Long term health problems
Maternal complications	
Pre-eclampsia	Pre-eclampsia
	Gestational diabetes
	Premature rupture of membranes
	Cephalopelvic disproportion
	Caesarean section, delivery complications
	Perineal tears
	Post-partum haemorrhage

Aim

To describe changes in the nutritional status of refugees and migrants along the Thai-Myanmar border from 1986-2013.

Method

A retrospective analysis of maternal characteristics and anthropometric measures for 62,556 pregnancies recorded in SMRU antenatal clinics from 1986-2013.

Ethical approval OXTREC 28-09; TCAB -9/2/2015.

Results

Height data, and hence BMI, was only available from 2004.
The proportion of women who were overweight increased over time, with refugees more affected by this trend than migrants (Figure 1).

Proportion of women overweight or obese, as measured by BMI:

2004: 6.9% (95% CI 5.6-8.1)

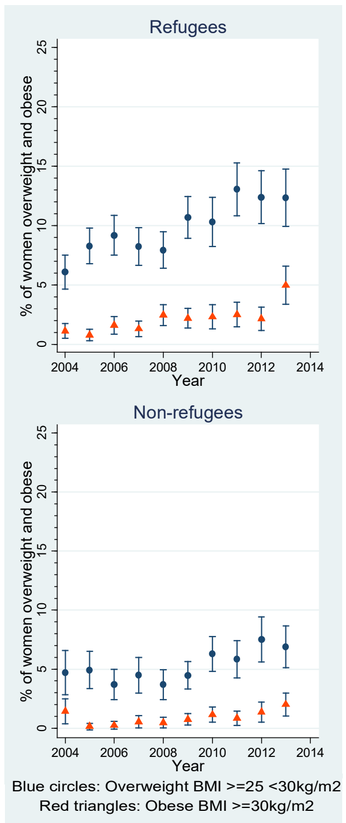
2013: 12.8% (95% CI 11.2-14.5)

Proportion of women underweight (BMI <18.5):
Steady at ~ a fifth of the population.

Weight data available since 1986 shows a similar trend towards a greater proportion of women at risk of health problems due to high weight, when using the population average maternal height to classify those at risk (Figure 2).

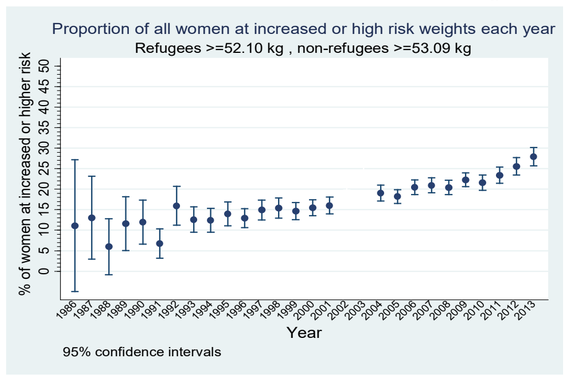
Risk factors for being overweight included being literate, of older age and a multigravida. Being underweight was associated with smoking, anaemia, younger age, first pregnancy and illiteracy.

Figure 1



Blue circles: Overweight BMI >=25 <30kg/m2
Red triangles: Obese BMI >=30kg/m2

Figure 2



Conclusions

This population is undergoing a nutritional transition; whilst undernutrition remains a problem, increasing numbers of women are overweight, with a near doubling of the overweight population in 9 years. Although the proportion overweight is negligible in comparison to the UK population, where 60.8% were overweight and 27.7% obese in 2008[3], this trend indicates the beginning of a public health problem with implications for healthcare agencies in the area.

It is recommended that further analysis of this data to examine maternal and neonatal pregnancy outcomes in relation to nutritional status, as measured by BMI, would be most helpful. This would help determine which women are highest risk for adverse pregnancy outcome and provide local guidance on optimal weight targets in this particularly short population (1/3 of women <150cm) in order to direct limited health staff and resources in a way that achieves the most benefit.

Stalls inside the refugee camp sell packaged foods high in fat, salt and sugar

Supplementary rations of beans and AsiaMIX ready to be distributed to undernourished women in clinic

References: 1. Rijken MJ et al. **Quantifying low birth weight, preterm birth and small-for-gestational-age effects of malaria in pregnancy: a population cohort study**. *PLoS ONE* 2014, **9**:e100247.
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3. World Health Organization Regional Office for Europe. **Nutrition, Physical Activity and Obesity: United Kingdom of Great Britain and Northern Ireland.** *WHO 2013.*