The Effect or Urbanization on Adiposity and Insulin Resistance among Indonesians

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Introduction

Sedentary lifestyle and unhealthy diet, which are commonly seen in urban areas might lead to different adiposity profile and insulin resistance (IR), thus different risk of having Type 2 Diabetes (T2DM) in the future.

Our study aims to characterize the differences in adiposity profile and IR among urban and rural Indonesians, and to explore the effects of duration of time living in urban area to adiposity profile and IR.

Methods

We recruited 36 adult male participants with Flores ethnicity from a rural area of Ende (Flores, Indonesia) and 36-age-sex-ethnic matched participants who had moved to urban area (Jakarta, Indonesia) for more than one year. We measured body mass index [BMI (kg/m^2)], waist circumference [WC (cm)], waist-hip ratio (WHR), 4-sites skinfold [biceps SF, triceps SF, supra iliac SF, subscapular SF (cm)], body fat composition (BIA), fasting glucose (mmol/L), fasting insulin (IU/L), 2h-glucose post 75g glucose load [PPG (mmol/L)], HbA1c (%) and insulin resistance (HOMA-IR).

Results and Discussion

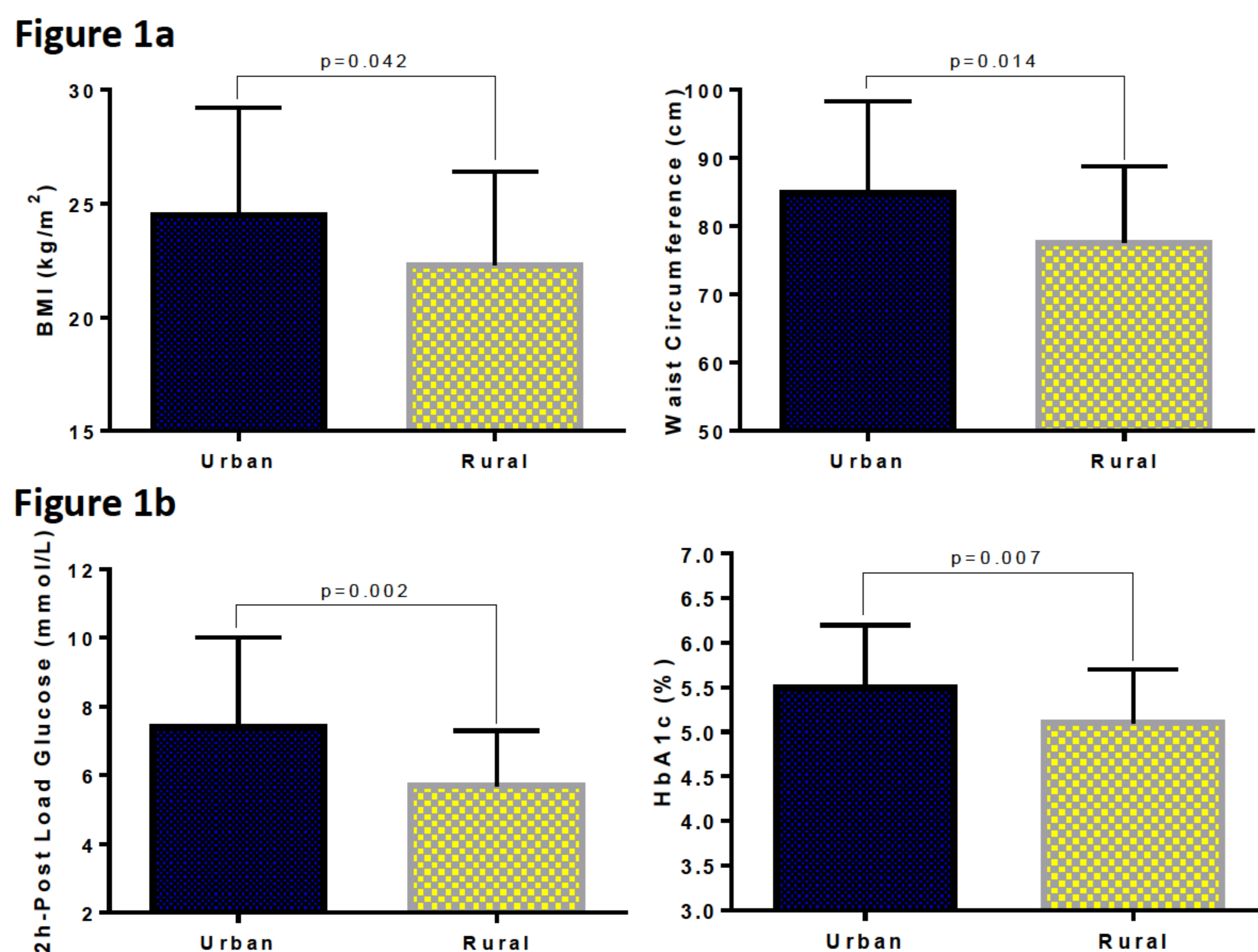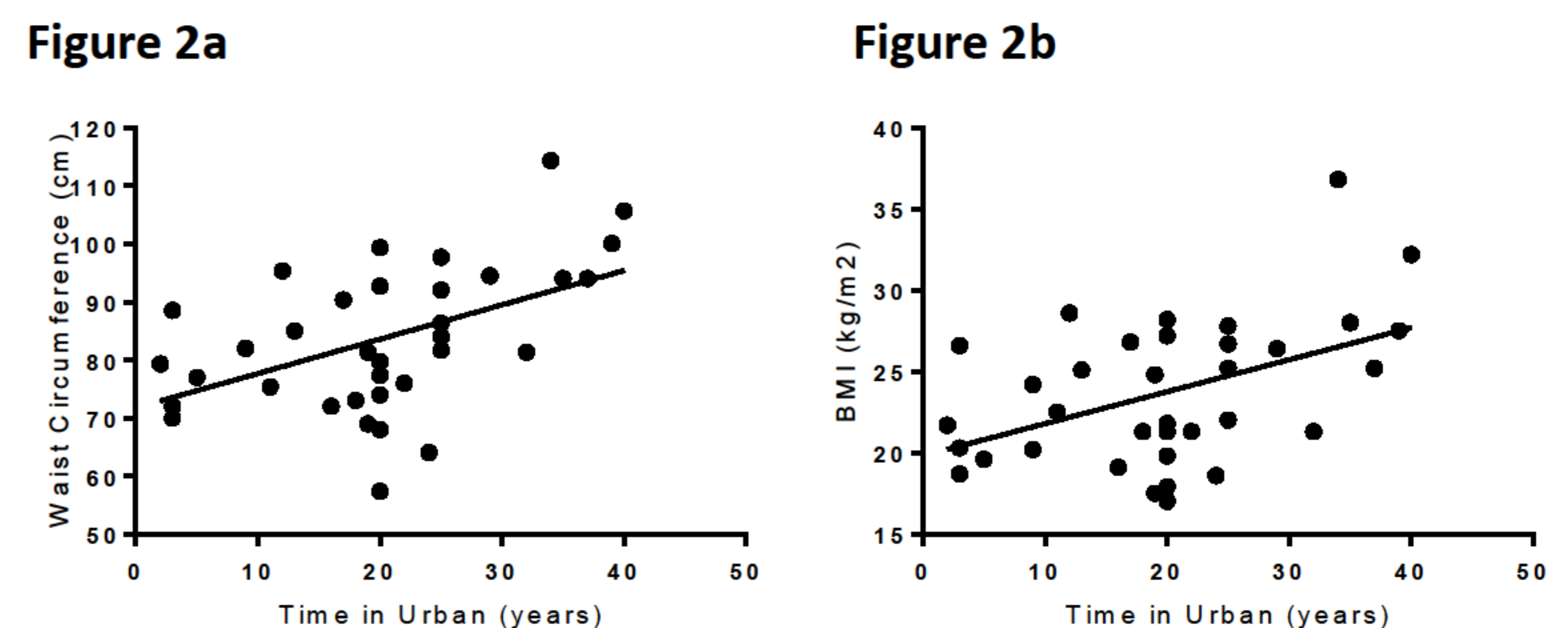**Figure 1.** Subjects who moved to urban area had an unfavorable adiposity profile (**Figure 1a**) and worse glucose level (**Figure 2a**)

Figure 2. The longer the duration of living in the urban area, the higher the Waist Circumference (**Figure 2a**) and BMI (**Figure 2b**)

Figure 1a

Figure 1b

Figure 2a

Figure 2b

- Urban group not only had a significantly higher BMI and WC, but also higher PPG and HbA1c.
- IR was higher in urban group but not statistically significant [1.38 (1.05-1.760] vs 1.05 (0.76-1.40)] ; p=0.173], which might be explained by the lower number of subjects.
- After age adjustment, the duration of time living in urban area is still positively correlated with worse adiposity profile, but not with IR or other glucose parameters

Conclusions

The people who move to urban areas have unfavourable adiposity profile and worse glucose level. The duration of time living in urban areas is positively correlated with worse adiposity profiles which might put them into higher risk of having IR, hence T2DM in the future.

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