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## Key findings

- ❖ Unhealthy foods (UPF/HFSS) contribute 26.7% of adolescent's daily energy intake
- ❖ UPF/HFSS consumption is associated with poor nutrient intake, but not adolescent's nutrition status

## BACKGROUND

- ✓ Persistent undernutrition, micronutrient deficiency and increasing overnutrition in adolescents in sub-Saharan Africa (SSA)
- ✓ Consumption of unhealthy foods e.g. ultra processed (UPF) and foods high in fat, salt, sugar (HFSS) is associated with poor diet quality, overweight/obesity, NCD risk in adolescents in high-income countries.
- ✓ Urban foods environment are major driver of UPF/HFSS availability and accessibility
- ✓ Need for context specific evidence to inform decisions and policy on healthy food environment in urban Kenya and SSA
- ✓ This study investigated the magnitude of UPF/HFSS consumption, factors associated with UPF/HFSS consumption and the association between UPF/HFSS energy intake, nutrient intake and double burden of malnutrition (DBM\*) among adolescents in urban slums, Kenya



## METHODS

### Study design and setting & population :

- ✓ Cross sectional survey among adolescents (n=609), in 3 major slums, Nairobi, Kenya

### Data collection

- ✓ Multiple (two) 24hr recall, multiple pass method of dietary data collection
- ✓ Food atlas to estimate food amount / portion sizes
- ✓ Food composition tables to estimate the energy & nutrient content of food.
- ✓ Socio-demographic and anthropometric data collected

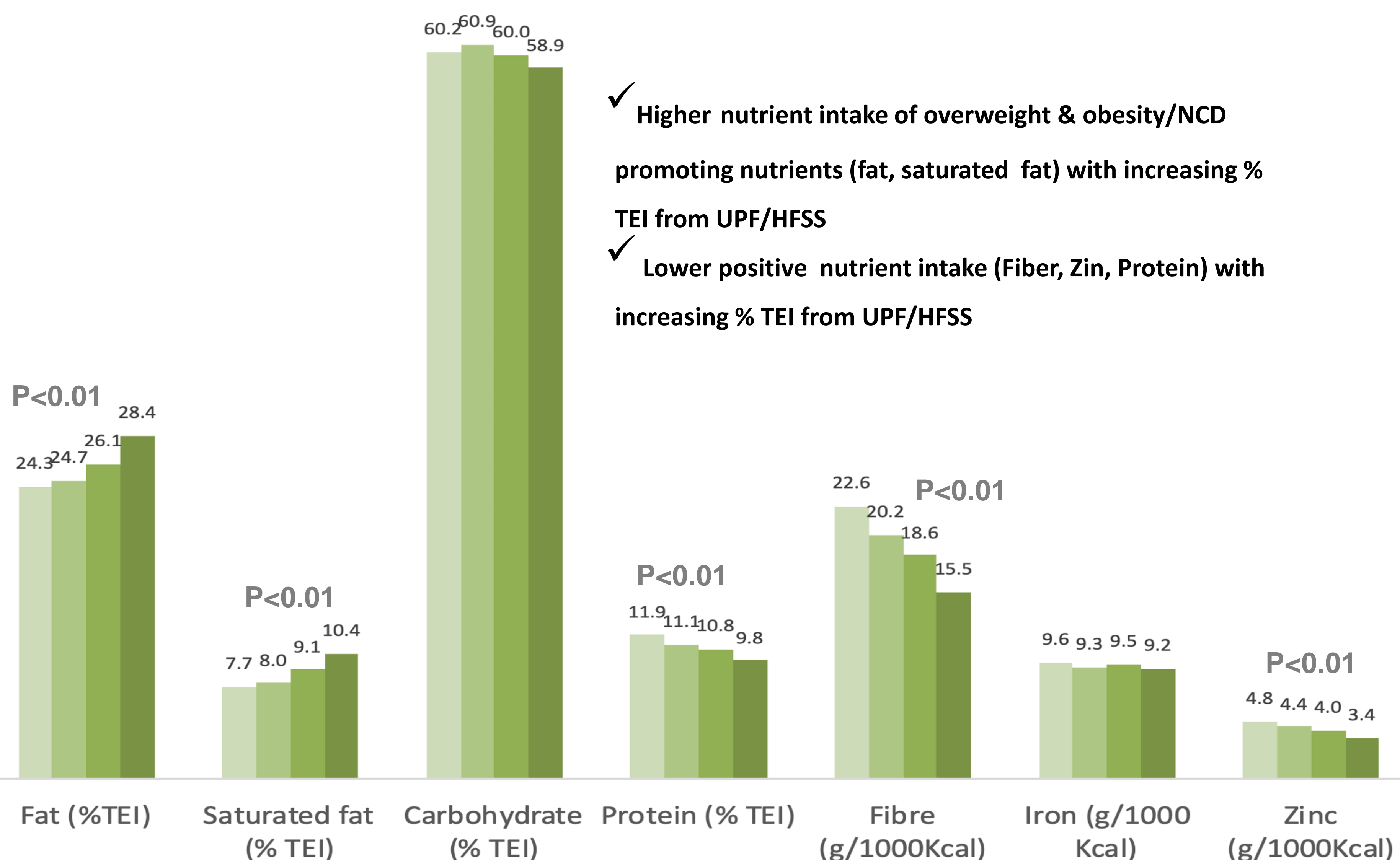
### Data analysis

- ✓ Foods categorised used NOVA food classification method based on level of processing (minimally /unprocessed, processed culinary ingredients, processed and ultra processed (UPF)), included additional local HFSS
- ✓ UPF/HFSS energy intake categorised into quartiles
- ✓ Logistic regression to assess the association between quartiles of UPF/HFSS energy intake and socio-demographic characteristics (adjusting for age, sex, ethnicity, wealth index, neighbourhood, duration in slum, screen time)
- ✓ Logistic regression to assess the association between quartiles of UPF/HFSS energy intake and DBM (adjusting for age, sex, ethnicity, wealth index, neighbourhood, duration in slum, screen time, energy intake & physical activity)
- ✓ Kruskal Wallis test for mean differences in nutrient intake across the quartiles of UPF/HFSS energy intake

## RESULTS

### UPF/HFSS (% TEI\*) and Nutrient intake

■ Quartiles of % UPF TEI Q1 ■ Quartiles of % UPF TEI Q2  
■ Quartiles of % UPF TEI Q3 ■ Quartiles of % UPF TEI Q4



- ✓ Higher nutrient intake of overweight & obesity/NCD promoting nutrients (fat, saturated fat) with increasing % TEI from UPF/HFSS
- ✓ Lower positive nutrient intake (Fiber, Zin, Protein) with increasing % TEI from UPF/HFSS

## RESULTS

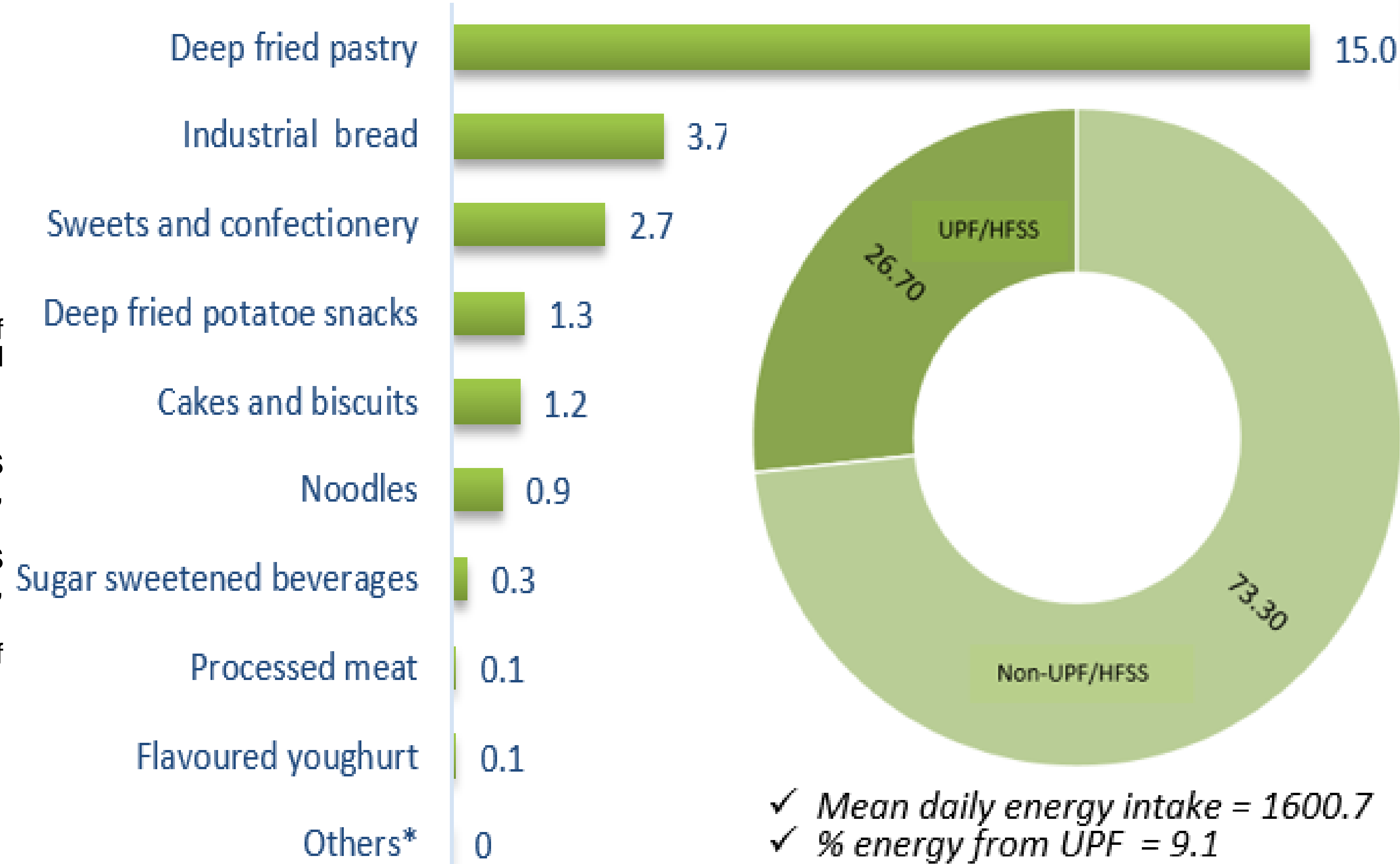
### Association between UPF/HFSS (Kcal/day) and Socio-demographics characteristics

- ✓ **Area of residence** : Adolescents in Mathare (largest slum of the three) were more likely to have a high UPF/HFSS energy intake (Q4) (OR=2.4, 95%CI=1.3-4.3) compared to Korogocho
- ✓ **Screen time** : Adolescents spending more screen time ( $\geq 2$  hours/day) (OR=1.9, 95%CI=1.2-3.1) were more likely to have a high UPF/HFSS energy intake (Q4) compared to those spending less time ( $< 2$  hours/day) on media, respectively.
- ✓ **Duration of residence in slum**: Those with a longer slum duration ( $>10$  years) (OR=0.5, 95%CI=0.3-0.8) were less likely to have high (Q4) UPF/HFSS energy intake compared to those with a shorter duration of stay in the slum ( $\leq 10$  years).
- ✓ **Wealth index**: Adolescents from wealthier households (wealth index quintile 4 (OR=2.6, 95%CI= 1.2-5.8) and wealth index quintile 5 (OR=2.8, 95%=1.3-6.0)) were more likely to have a high non-UPF/HFSS energy intake (Q4) compared to those from poorer households (wealth index quintile 1).

### Association between UPF/HFSS (% TEI\*) and DBM

- ✓ No association between UPF/HFSS, thinness or overweight & obesity and stunting

### Percentage energy from UPF/HFSS foods (Kcal/day)



- ✓ Mean daily energy intake = 1600.7
- ✓ % energy from UPF = 9.1
- ✓ % energy from HFSS = 17.6

## CONCLUSIONS

- ✓ Unhealthy foods (UPF/HFSS) contribute about a third of adolescents' daily energy intake in urban slums => lower than other studies especially from high income countries
- ✓ UPF/HFSS contribute to poor nutrient intake (increased intake of unhealthy nutrients and lower intake if positive nutrients)
- ✓ Neighborhood (area and duration) and household /adolescent screen time and wealth index) influence consumption of UPF/HFSS & non-UPF/HFSS foods
- ✓ UPF/HFSS energy intake is not associated with adolescent's nutritional status in urban slums, Kenya
- ✓ Need For further longitudinal research on association between UPF/HFSS and nutritional status in adolescents in urban slums and SSA

## ADDITIONAL INFORMATION

- ✓ **Notes:**  
DBM\* = coexistent of overweight obesity + underweight + stunting in the same population ;  
TEI\* Total energy intake ; OR =Odds ratio ; Others\*= Margarine , sauces & Ketchup
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