Segmentation in communities with greatest health inequalities: so what for public health interventions?

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1. Background
A lifestyle survey solicited baseline health data from four Healthy Halifax wards (pop:52,403), areas within the most deprived national quintile based on Indices of Multiple Deprivation (IMD). Healthy Foundations lifestyle segmentation model [2] was incorporated into survey design to categorise individuals into five attitudinal segments:

- Hedonistic
- Hedonistic Compromiser
- Balanced Attitudinal
- Compensator
- Fatalist

All segments can be found across deprived and affluent social strata. Socio-economic deprivation is linked to poorer health attitudes, behaviours and outcomes [3]. Targeting resources where they are most needed may help reduce health inequalities. Research has mainly been nationally focused. Local application of the model is engaging to inform public health interventions. Research within a population skewed in ethnicity and deprivation covers new ground and sheds light on some limitations in generalising the assumptions of the Healthy Foundations model.

2. Aims
- Enhance understanding of health attitudes and behaviours in local populations experiencing greatest health inequalities.
- Contract findings with Healthy Foundations model and synthetic estimates.
- Interpret data for public health planning.

Methods
The instrument incorporated previously validated and standardised measures of nutrition, smoking, alcohol and exercise. Segmentation was generated using the Healthy Foundations algorithm based on responses to 19 questions from the Healthy Foundations toolkit [4]. Data was collected in two phases in March-May (random sample) and October-November (quota sample based on ward demographics) by locally recruited staff. Online completion was offered in addition to the paper.

3. Respondent profile: is the data representative?
Healthy Foundations segmentation profile differs from Calderdale, deprived quintile and national profiles. Healthy Halifax profile is more representative for gender, age, health deprived quintile.

4. Ethnicity profile
Healthy Foundations ethnicity segmentation profile differs from Calderdale, deprived quintile and national profiles. Healthy Halifax profile is more representative for gender, age, health deprived quintile.

5. Healthy Halifax segmentation profile differs from Calderdale, deprived quintile and national profiles
Healthy Foundations lifestyle segmentation model has higher proportions of Hedonistic Compromiser and Fatalist (n=2108, quintile 40.2% control, 27.2% deprived). A survey of the Leeds area demonstrated a significant small effect size (n=201, p<0.001). We are therefore mindful that the proportions of our sample are not in line with national estimates. This data should not be considered a workforce in large effect.

6. Healthy Halifax ward level segmentation profiles differ from deprived quintile
Healthy Halifax segmentation profile differ from deprived quintile, Healthy Foundations national and estimates for Calderdale and the most deprived quintile. Therefore generalising from national segmentation estimates may not reflect reality. Demographically representative local lifestyle surveys provide more localised and specific profiles.

7. Discussion
Healthy Halifax segmentation profile by gender differed to the national profile, suggesting the gender biases across within the model cannot be generalised to local population. The high proportion of respondents suggest poor family health in some households if the women is the main decision maker [5].

Further analysis will involve augmenting segmentation profiles with postcode data to map and pair for local needs using Geographic Information Systems (GIS) technology [6]. This could offer greater precision for planning local social marketing and health interventions.

References
[6] = Indicates significant difference from the expected distribution of 50% for each sex, for each deprivation level.

Acknowledgements:
Scott Anderson, Yorkshire and the Humber Public Health Observatory