Applying psycho-behavioural segmentation analysis to understand healthy weight management behaviours in Northern Ireland

Executive Summary

Institute of Public Health

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1 Background

1. Background

Obesity is a significant risk factor for developing non-communicable diseases and its increasing prevalence is a growing concern (WHO, 2021). Globally, the incidence of obesity has almost tripled over the last 50 years (WHO, 2021; Ng et al., 2014). In 2016, the World Health Organization estimated that nearly 2 billion adults (18 years+), were living with being overweight, and of these, 650 million were living with obesity. If current trends persist, the WHO estimates that over 2.5 billion adults will be overweight and over 1 billion will be living with obesity by 2025 (WHO, 2016). In 2019/20, approximately 65% of adults in Northern Ireland were classified as either overweight (38%) or living with obesity (27%) (DoHNI, 2020).

Previous research on obesity has tended to concentrate on prevalence with little focus on behavioural and demographic characteristics. Likewise, public health messaging has also typically followed a universal approach.

Public health interventions have the potential to influence and promote sustained healthy weight management behaviour changes. Despite this, little is known about the psycho-behavioural factors (health and health behaviours, motivation, intention, confidence, perceptions of influence on own health) of subgroups when applying public health interventions at a population level (Jenkins et al., 2021).

Psycho-behavioural segmentation provides a more in depth understanding and insight into the underlying factors (belief systems, preferences, interests, ambitions, motives, current behaviours, habits) that can influence and lead to behaviour change (Dolnicar et al., 2018). Its application has been advocated by previous researchers (Jenkins et al., 2021; Brennan et al., 2020; Kitunen et al., 2019). However, to date there have been limited studies investigating this with regards to weight management (Jenkins et al., 2021).

The Institute of Public Health have carried out a psycho-behavioural segmentation cluster analysis to help understand healthy weight management behaviours in Northern Ireland. There are many social, socio-economic, cultural, environmental, and commercial determinants which can influence lifestyle factors and the risk of developing obesity. However, the focus of this report is to gain a better understanding of attitudes and motivations with respect to healthy weight management behaviours to help inform the targeting of messages, incentives and weight management interventions.

2 Aim

2. Aim

The aim of this study was to:

- Gain insights into the attitudes, motivations, and priorities of people in Northern Ireland, with respect to their weight management behaviours;
- Identify distinguishable segments of the population; and
- Describe the characteristics that are predictive of each cluster segment and provide insights on these profiles.

3 Methodology

3. Methodology

This research was informed by the Transtheoretical model approach of behaviour change (Prochaska and DiClemente, 1983) which considers that health behaviour change involves progress through six stages of change: precontemplation, contemplation, preparation, action, maintenance, and termination (Prochaska and Velicer, 1997).

This research uses the Health Survey NI 2017/2018 (DOH NI) - 2100 participants aged 16+ were included in the analysis. The survey items included respondents' perceptions of health, knowledge, attitudes, and intentions to control weight, eat healthily and engage in physical activity, and demographics. This was examined by employing a Two-Step cluster analysis using Schwartz's Bayesian Information Criterion[1], to identify segmented clusters based on their motivations, intentions, and confidence to change their behaviours for healthy weight management. Bivariate statistics including Chi-square and one-way ANOVAs were conducted for cluster comparisons.

[1] Schwartz's Bayesian Information Criterion (Schwartz, 1978) is a criterion of statistics of good fit and used for the selection of the most appropriate best-fit model (Menegaki, 2021).

4 Results

4. Results

The Two-Step cluster psycho-behavioural segmentation analysis found four distinct cluster segment profiles of adults in Northern Ireland according to attitudes towards healthy eating habits, physical activity, and weight management behaviours, suggesting the requirement for different messages or incentives.

Overview of Cluster 1

This cluster has the highest proportion of participants with a healthy weight (54%) and generally perceived their weight to be 'about the right weight' (66%).

Unsurprisingly this is the cluster most likely to have hardly any motivation to control their weight or eat more healthily.

Social Demographic Characteristics

Members of this cluster were similar to the overall study sample:

- Female 54%; Male 46%,
- Aged 45-75 years and over (53%),
- Employed (53%),
- Urban environment (53%),
- No limiting long-term illness (62%).

Implications for public health interventions

At a population level it is important to support people to continue to maintain their healthy behaviours and to sustain healthy lifestyle habits. However, two-thirds of cluster 1 engaged in lower levels of physical activity and members were eating less fruit and vegetables per day than the recommended levels. This indicates that there needs to be increased support for people of healthy weight to understand and increase physical activity levels and improve diets.

Overview of Cluster 2

This group were predominately individuals living with overweight (44%) though 33% had a healthy weight.

Similar proportions perceived their weight to be either about right (49%) or too heavy (49%). Around two-thirds of this cluster were not motivated to be more physically active, or eat more healthily.

Social Demographic Characteristics

Members were:

- More likely to be female (60%),
- Aged between 25 to 54 years (65%),
- Educated to degree level (35%),
- Employed (67%),
- No longstanding illness (66%).

Implications for public health interventions

Cluster 2 were more likely to have tried to change their weight and had subsequently managed achieve this change. They have also managed to improve their physical activity and healthy eating behaviours, albeit 44% were deemed to be overweight. However, this group need support to continue to maintain their healthy behaviours to sustain healthy lifestyle habits and to support those that wish to move to a healthy weight.

Overview of Cluster 3

This cluster segment had the highest proportion of participants living with obesity (51%) and an additional 40% were overweight. This cluster were more likely to perceive their weight as being too heavy. Over half of this cluster were motivated to be more physically active, eat healthier and all individuals indicated their motivations to control their weight. Although this cluster are confident in their ability and have been actively trying to be more physically active and eating healthier, only around a third had managed to do so.

Social Demographic Characteristics

More likely to be

- Aged between 35-64 years (63%),
- Female respondents (61%),
- Lived in a least deprived area (27%),
- Educated to degree level (30%),
- In employment (63%),
- Live within an urban environment (63%).

Implications for public health interventions

Cluster 3 were highly motivated, confident and have high intentions to change their physical activity, weight control and eat healthier. They have tried to be more active and eat more healthily. However, whilst they are achieving good results, they aren't as successful as they could be in maintaining and sustaining their physical activity and eating more healthily. Evidence suggest that weight reduction efforts occurred in individuals who were likely to be more motivated and engaged, therefore due to their high levels of motivation, confidence and action taking, cluster 3 is the cluster most likely to target for expedient results in weight reduction.

Overview of Cluster 4

Around two-fifths of the respondents were living with obesity (42%), more than one-third were overweight (37%) in total 77%. This cluster were more likely to perceive their weight as being too heavy, though nearly a third also perceived it as being about right (31%). Around two-thirds of this cluster were not motivated to control their weight (70%), be more physically active (64%), or eat more healthily (71%). This cluster were least likely to intend to be more physically active, only around a third had some intention to control their weight and intended to eat more healthily in the subsequent 6-month period.

Social Demographic Characteristics

Similar to the general study sample :

- Female 55% Male 45%,
- Aged between 45 to 64 years of age (46%),
- More likely to have a limiting longstanding illness (67%),
- No qualifications (32%),
- Economically inactive (61%),
- Live within a most deprived area (26%),
- Live in an urban environment (65%).

Implications for public health interventions

This cluster was the least likely to have taken any action to be more physically active and were even less likely in being able to maintain these changes. The cluster most likely to feel that they have little or no influence on their health. They weren't sure if they had the ability to set some definite goals to improve their health or had confidence in meeting the goals they set themselves to improve their health. These results also suggest that this cluster have mainly stayed within the contemplating stage and seem uncertain about whether they can change or want to make the required steps towards change.

Interventions for this group need to address the lack of intention to act by identifying the triggers that can help move people from the contemplation stage to action.

This cluster were also the cluster most likely to report signs of mental health concerns and lower mental wellbeing. They were likely to be from lower socio-economic characteristics; lower educational attainment, living with a limiting long-term illness, be economically inactive and live within a most deprived area.

The results of this study suggest that for those in cluster 4, interventions should be primarily targeted at those who are from disadvantaged backgrounds.

5 Conclusion

5. Conclusion

- This study identified four clusters according to their attitudes towards their readiness to change their diet, physical activity levels and weight management behaviours. Each segment had different attributions, values, motivations, and behaviours to healthy weight management irrespective of life stage.
- It suggests that different clusters are likely to require different messages, different support and should be offered health interventions to necessitate behaviour health change to improve their weight management behaviours. This can help provide a more targeted approach for policy and practice to use the most appropriate techniques for public health interventions (Wills et al., 2015; Mahmood and Lowe, 2017).
- This research can also help inform Personal and Public Involvement work, national obesity strategies and action plans, stigma, weight-management interventions and social marketing strategies that are more tailored to subgroup requirements and preferences.
- Psycho-behavioural segmentation provides a more refined method of identifying people by their motivation and intentions to change and the beliefs they equate with change. Segmenting participants by readiness to change may lead to long-term, sustained behaviour change.

The increasing levels of people living with an unhealthy weight highlights the need to change our approach to prevention and support. Health behaviour change theories and interventions can help to understand the factors that affect an individual's attitudes, choices and behaviours that impact their health and wellbeing (Teixeira and Marques, 2017). Segmenting the population based on their attitudes and choices can help to inform the most appropriate technique required for a more tailored and individualised approach. This study provides insights on distinct characteristics of each cluster based on their health behaviours and readiness to change, which can help inform the application of targeted weight management interventions and social marketing strategies.

6 References

6. References

Brennan L, Chin S, Molenaar A, Barklamb AM, Lim MS, Reid M, et al. Beyond body weight: Design and validation of psycho-behavioural living and eating for health segments (LEHS) profiles for social marketing. Nutrients 2020;12(9):2882.

Department of Health in Northern Ireland. Health Survey (NI): First Results 2017/18. 2018. https://www.health-ni.gov.uk/topics/health-survey-northern-ireland

Department of Health in Northern Ireland. Health Survey (NI): First Results 2019/20. 2020. https://www.health-ni.gov.uk/topics/health-survey-northern-ireland

Dolnicar S, Grün B, Leisch F. Market segmentation analysis: Understanding it, doing it, and making it useful. Springer Nature; 2018.

Jenkins EL, Legrand S, Brennan L, Molenaar A, Reid M, McCaffrey TA. Psycho-behavioural segmentation in food and nutrition: A systematic scoping review of the literature. Nutrients 2021;13(6):1795.

Kitunen A, Rundle-Thiele S, Kadir M, Badejo A, Zdanowicz G, Price M. Learning what our target audiences think and do: Extending segmentation to all four bases. BMC Public Health 2019;19(1):1-10.

Ng M, Fleming T, Robinson M, et al.. Global, regional, and national prevalence of overweight and obesity in children and adults during 1980-2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet. 2014;384(9945):766–781

Mahmood H, Lowe S. Population segmentation: an approach to reducing childhood obesity inequalities. Perspectives in Public Health 2017;137(3):190-195.

Menegaki A. A Guide to Econometric Methods for the Energy-Growth Nexus. Chapter 3. : Academic Press; 2021.

Prochaska JO, DiClemente CC. Stages and processes of self-change of smoking: toward an integrative model of change. Journal of Consulting and Clinical Psychology 1983;51(3):390.

Prochaska JO, Velicer WF. The transtheoretical model of health behavior change. American journal of health promotion 1997;12(1):38-48.

Schwarz G. Estimating the Dimension of a Model. Annals of Statistics, 1978; 6: 461-464. http://dx.doi.org/10.1214/aos/1176344136

Teixeira PJ, Marques MM. Health Behavior Change for Obesity Management. Obesity facts 2017;10(6):666-673.

Wills J, Crichton N, Lorenc A, Kelly M. Using population segmentation to inform local obesity strategy in England. Health Promot Internation 2015;30(3):658-666.

World Health Organization. 2016. - https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight

World Health Organization. Fact Sheet Obesity and Overweight. 2021. Accessed February 2022.

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