

Volume 03, Issue 07, July 2026,

Publish Date: 29-07-2026

DOI: <https://doi.org/10.64917/fmcs/Volume03Issue07-01>

PageNo.32-44

Socio-Demographic Predictors of Weight Management Behaviours among Mothers of Primary School Children in the United Kingdom

Oludolapo Dada, MScPH

Department of Interdisciplinary Research and Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

 **Kennedy Oberhiri Obohwemu, PhD**

Department of Interdisciplinary Research and Statistics, PENKUP Research Institute, Birmingham, United Kingdom.
<https://orcid.org/0000-0001-5175-1179>

Freedom Nwakaego Igheghe, MScPH

Department of Interdisciplinary Research and Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

 **Celestine Emeka Ekwuluo, MPH**

Family Health International, Ukraine; and Department of Interdisciplinary Research and Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

 **Gordon Mabengban Yakpir, PhD**

Faculty of Health, Wellbeing & Social Care, Oxford Brookes University, GBS Partnership, Birmingham Campus, United Kingdom; Department of Interdisciplinary Research and Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

 **Maame Ama Owusu-Asante, PhD**

Department of Health, Wellbeing and Social Care, Oxford Brookes University, GBS Partnership, Birmingham, United Kingdom; and Department of Interdisciplinary Research & Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Aduke E. Ipingbemi, PhD

Department of Clinical Pharmacy, University of Ibadan, Nigeria; Department of Health and Social Care, East Kent Colleges Group, Ashford, Kent, United Kingdom; Department of Interdisciplinary Research and Statistics, PENKUP Research Institute, Birmingham, United Kingdom

Ripeitikehe Theresa Oshaka, MSc PHHP

General Medicine Department, Aberdeen Royal Infirmary, Scotland; and Department of Interdisciplinary Research and Statistics, PENKUP Research Institute, Birmingham, United Kingdom

 **Obiageli Uzoamaka Onyemelukwe, FWACP**

Alras General Hospital, Alras, Al-Qassim, Saudi Arabia; and Department of Interdisciplinary Research and Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

 **Chinenye Cynthia Akwolu, MSc**

Liverpool Women's Hospital NHS Foundation Trust, United Kingdom; and Department of Interdisciplinary Research & Statistics, PENKUP Research Institute, Birmingham, United Kingdom. <https://orcid.org/0009-0000-7616-1036>

Corresponding Author: Dr. Kennedy Oberhiri Obohwemu, PhD, Department of Interdisciplinary Studies & Statistics, PENKUP Research Institute, Birmingham, United Kingdom. Email: Kennedy.Obohwemu@penkup.com; ORCID: <https://orcid.org/0000-0001-5175-1179>.

RECEIVED - 12-06-2026, RECEIVED REVISED VERSION - 26-06-2026, ACCEPTED- 07-07-2026, PUBLISHED- 29-07-2026

ABSTRACT

Background: Socio-demographic inequalities are recognised as important determinants of obesity and weight management, yet limited research has examined how these factors influence knowledge, attitude and practice (KAP) of

weight management among mothers of primary school children. This paper investigated the associations between selected socio-demographic characteristics and KAP towards weight management among mothers residing in Sunderland, United Kingdom.

Methods: A cross-sectional quantitative study was conducted among 267 mothers of primary school children. Data were collected using a structured questionnaire assessing socio-demographic characteristics, knowledge, attitude and practice of weight management. Descriptive statistics were used to summarise participant characteristics, while Chi-square tests and one-way analysis of variance (ANOVA) examined differences in KAP across age, ethnicity, educational attainment and monthly household income. Pearson's correlation analysis explored relationships between the three KAP domains.

Results: Significant associations were observed between knowledge and both age ($\chi^2 = 33.219, p < .001$) and ethnicity ($\chi^2 = 28.766, p < .001$), while educational attainment and monthly income were not significantly associated with knowledge. Attitude differed significantly according to age ($\chi^2 = 14.620, p = .002$), ethnicity ($\chi^2 = 36.275, p < .001$) and educational attainment ($\chi^2 = 12.240, p = .002$), but not income. Behavioural practice demonstrated no significant associations with socio-demographic characteristics, except for differences in mean practice scores across age groups ($F = 3.577, p = .015$). Correlation analysis identified weak positive relationships between knowledge and attitude ($r = 0.143, p = .019$) and between attitude and practice ($r = 0.236, p < .001$), whereas knowledge was not significantly correlated with practice ($r = 0.112, p = .067$).

Conclusion: Socio-demographic characteristics influence knowledge and attitudes towards weight management more strongly than behavioural practice among mothers of primary school children. These findings suggest that improving awareness alone is unlikely to achieve meaningful behavioural change. Public health interventions should combine demographic sensitivity with strategies that address the broader contextual factors influencing weight management behaviours.

KEYWORDS: *Weight management; knowledge, attitude and practice; socio-demographic factors; mothers; obesity; health inequalities; public health.*

INTRODUCTION

Obesity remains one of the most significant public health challenges facing the United Kingdom and other high-income countries. Recent national estimates indicate that 64.5% of adults in England are either overweight or living with obesity, with prevalence continuing to rise despite sustained public health efforts (Office for Health Improvement and Disparities, 2025a; World Health Organisation, 2025a). Women remain disproportionately affected by obesity-related health consequences, particularly during and after the childbearing years, making weight management an important priority across the life course (House of Commons Library, 2025; NHS Digital, 2026).

The health implications of excess weight among women extend beyond individual outcomes. Maternal obesity has been associated with a range of adverse physical and psychological consequences, including cardiovascular disease, type 2 diabetes, pregnancy complications and

reduced quality of life. Evidence also suggests that maternal obesity may contribute to long-term health risks among offspring, including childhood obesity and metabolic disorders, reinforcing its intergenerational significance (Ziauddeen et al., 2022; Kent et al., 2024).

Although obesity is often discussed as an individual behavioural issue, growing evidence demonstrates that weight-related outcomes are strongly shaped by broader social and economic conditions. The social determinants of health framework emphasises that health behaviours and outcomes are influenced by the environments in which people are born, live, work and raise families. Factors such as education, income, ethnicity, neighbourhood conditions and access to resources exert considerable influence on health opportunities and constraints. Public health research increasingly recognises that obesity cannot be fully understood without considering these wider determinants (Baez et

al., 2023; Office for Health Improvement and Disparities, 2025b).

Marked inequalities in obesity prevalence have been documented across socio-demographic groups in the United Kingdom. Women living in more deprived circumstances experience substantially higher rates of obesity than those in more affluent groups. Similarly, important ethnic disparities have been reported, with obesity prevalence varying considerably across ethnic communities. Recent evidence indicates that obesity is particularly prevalent among some Black ethnic populations, especially Black African and Black Caribbean women, highlighting the need for culturally informed approaches to prevention and management (Maynard et al., 2023; Office for Health Improvement and Disparities, 2024).

These inequalities extend beyond obesity prevalence to engagement with weight-management services and interventions. Research has shown that participation in behavioural weight-management programmes is often influenced by educational attainment, socio-economic position, cultural norms and perceived accessibility of services. Ethnic minority groups, despite often carrying a disproportionate burden of obesity, remain underrepresented in many weight-management studies and interventions (Whitehall et al., 2025). Barriers relating to cultural relevance, service accessibility and trust have been identified as important determinants of engagement.

Within this context, mothers of primary school children represent a particularly important but under-researched population. Much of the existing literature has concentrated on pregnancy and the immediate postpartum period, with comparatively little attention given to women after these stages. Yet this period of motherhood is characterised by complex and competing responsibilities that may influence health behaviours. Employment commitments, childcare demands, household responsibilities and financial pressures can shape opportunities for healthy eating, physical activity and participation in weight-management activities. Understanding how socio-demographic characteristics influence these behaviours is therefore essential for developing effective interventions (Dada et al., 2026).

The Knowledge, Attitude and Practice (KAP) framework provides a useful lens through which these issues can be explored. While knowledge reflects awareness and understanding of weight-management principles, attitudes capture beliefs and perceptions that influence motivation, and practices represent actual behavioural engagement. Previous research has often examined KAP outcomes in aggregate. Far less attention has been given to the socio-demographic factors that shape variation within these domains, particularly among mothers of school-aged children.

This paper addresses that gap by examining the socio-demographic determinants of weight-management knowledge, attitude and practice among mothers of primary school children in Sunderland. Particular attention is given to age, ethnicity, educational attainment and income as potential influences on KAP outcomes. Rather than focusing solely on whether women possess knowledge of weight management, this paper seeks to understand how social position shapes awareness, attitudes and behavioural engagement. Such an approach is important because effective obesity prevention requires more than universal health messaging. It requires an understanding of how social and demographic circumstances influence the capacity to access, interpret and act upon health information.

The findings contribute to ongoing debates surrounding health inequalities and obesity prevention by providing evidence from a population that has received limited attention in existing research. In doing so, the paper offers insight into how socio-demographic factors shape weight-management engagement and highlights the importance of targeted, context-sensitive public health strategies.

METHODS

Study Design

This paper reports findings from a cross-sectional quantitative study that examined the socio-demographic determinants of weight management knowledge, attitude and practice (KAP) among mothers of primary school children. A cross-sectional design was considered appropriate because it enables the examination of associations between participant characteristics and outcome variables at a single point in time. The study

specifically focuses on the influence of socio-demographic factors on KAP outcomes.

Study Setting

The study was conducted in Sunderland, a metropolitan district in North East England. Sunderland has experienced persistent public health challenges related to overweight and obesity and exhibits considerable socio-economic variation across communities. These characteristics make it an appropriate setting for investigating how demographic and socio-economic factors may influence weight management behaviours.

Study Population

The study population comprised mothers of children attending primary schools within Sunderland. Participants were eligible if they were aged 18 years or older, resided within the study area and had at least one child enrolled in a primary school. Mothers who did not meet these criteria or who submitted incomplete questionnaires were excluded from the analysis.

The decision to focus on mothers of primary school children was informed by the limited attention this group has received within the weight management literature. Existing studies have concentrated predominantly on pregnancy and the early postpartum period, whereas considerably less is known about women navigating the longer-term demands of motherhood.

Sampling and Recruitment

A non-probability convenience sampling strategy was employed. Participants were recruited through online community networks, parenting groups and social media platforms that served families within Sunderland. This approach enabled efficient access to the target population while facilitating participation across different demographic groups.

Initially, 382 questionnaires were received. Following data screening and application of the eligibility criteria, 267 complete responses were retained for statistical analysis, representing a valid response rate of 66.75%. The sample provided sufficient observations to undertake descriptive and inferential statistical analyses examining differences in KAP across socio-demographic groups.

Data Collection Instrument

Data were collected using a structured self-administered questionnaire consisting of four sections. The first section collected socio-demographic information, including age, ethnicity, highest educational qualification and monthly household income. These variables were selected because previous research has consistently identified them as important determinants of obesity risk and health behaviour.

The remaining sections measured knowledge, attitude and practice relating to weight management. Knowledge items assessed participants' understanding of healthy weight management principles, dietary behaviours and physical activity recommendations. Attitude items explored beliefs, perceptions and motivation towards maintaining a healthy weight, while practice items examined participants' engagement in behaviours associated with effective weight management.

The questionnaire employed Likert-type response scales throughout, allowing responses to be quantified for statistical analysis.

Outcome Variables

The primary outcome variables were knowledge, attitude and practice scores. Individual responses were aggregated to produce composite scores for each domain. Scores were converted into percentages and classified using a 70% threshold, whereby participants scoring at or above this level were categorised as demonstrating good knowledge, positive attitude or good practice.

The principal explanatory variables examined in this paper were age, ethnicity, educational attainment and monthly income.

Statistical Analysis

Data were analysed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including frequencies, percentages, means and standard deviations, were used to summarise participant characteristics and KAP scores.

The analytical focus of this paper was to determine whether socio-demographic characteristics were associated with differences in KAP. Chi-square tests of independence were therefore performed to examine associations between categorical socio-demographic

variables and KAP classifications. One-way analysis of variance (ANOVA) was used to compare mean KAP scores across demographic categories where appropriate. Statistical significance was assessed at the conventional level of $p < .05$.

Unlike Paper 1, which focused primarily on relationships between knowledge, attitude and practice, the present analysis concentrates on identifying demographic patterns that may contribute to variation in these outcomes.

Ethical Considerations

Ethical approval was obtained from the University of Sunderland's Ethics Committee prior to the commencement of the study. Participation was voluntary, and informed consent was obtained electronically before respondents accessed the questionnaire. Participants were informed of the study objectives, assured that their responses would remain anonymous and confidential, and advised that they could withdraw at any point before submitting their questionnaire. Data were stored securely and managed in accordance with institutional research governance procedures and relevant data protection requirements.

This methodological approach provided a robust framework for examining socio-demographic differences in weight management knowledge, attitudes and practices while ensuring consistency, transparency and reproducibility in the analytical process.

RESULTS

Participant Characteristics

The analysis was based on 267 mothers of primary school children residing in Sunderland. The sample represented a broad range of socio-demographic characteristics, providing an appropriate basis for examining demographic variation in knowledge, attitude and practice of weight management. Respondents were distributed across four age categories, four ethnic groups, three educational levels and five monthly income categories.

Table 1 presents the socio-demographic profile of the study population. The largest proportion of participants was aged 30–39 years (50.2%), followed by those aged 40–49 years (27.5%). Participants aged above 50 years represented the smallest proportion of the sample (4.5%). With respect to ethnicity, Black participants constituted the largest ethnic group (57.1%), followed by White (22.9%), Asian (16.9%) and Mixed ethnicity (3.0%). Educational attainment was generally high, with almost four-fifths (78.9%) reporting tertiary education. Regarding monthly household income, almost half of respondents (44.9%) reported earnings between £1,000 and £2,000 per month, whereas only 2.7% reported monthly incomes exceeding £4,000. These characteristics provide important context for the subsequent analyses examining socio-demographic differences in weight management knowledge, attitudes and practices.

Table 1. Socio-demographic Characteristics of Participants (N = 267)

Variable	n	%
Age (years)		
20–29	47	17.7
30–39	133	50.2
40–49	73	27.5
≥50	12	4.5
Ethnicity		
Black	152	57.1

White	61	22.9
Asian	45	16.9
Mixed ethnicity	8	3.0
Education		
Primary	12	4.5
Secondary	44	16.6
Tertiary	209	78.9
Monthly household income (£)		
<1,000	71	27.0
1,000–2,000	118	44.9
2,001–3,000	55	20.9
3,001–4,000	12	4.6
>4,000	7	2.7

Note: Values are presented as frequencies and percentages. Percentages may not total exactly 100 because of rounding. $N = 267$.

Association Between Socio-demographic Characteristics and Knowledge of Weight Management

Knowledge of weight management was generally high within the study population, with 235 participants (88.0%) classified as having good knowledge and a mean knowledge score of 79.71. Despite this high level of awareness, important differences were observed across several socio-demographic characteristics.

As presented in Table 2, statistically significant associations were identified between age and knowledge of weight management ($\chi^2 = 33.219$, $p < .001$) and between ethnicity and knowledge ($\chi^2 = 28.766$, $p < .001$). In contrast, educational attainment ($\chi^2 = 2.367$, $p = .306$) and monthly household income ($\chi^2 = 1.952$, $p = .745$) were not significantly associated with knowledge classification. These findings indicate that age and ethnicity were the

principal demographic characteristics associated with differences in knowledge within this sample.

One-way analysis of variance provided further evidence of group differences. Significant differences in mean knowledge scores were observed according to age ($F = 8.769$, $p < .001$), ethnicity ($F = 7.676$, $p < .001$) and educational attainment ($F = 5.611$, $p = .004$), whereas no statistically significant difference was identified across income categories ($F = 0.934$, $p = .445$). Mean knowledge scores increased progressively across age categories, from 74.35 among participants aged 20–29 years to 83.01 among those aged over 50 years. Similarly, Black participants recorded the highest mean knowledge score (81.53), while Asian participants reported the lowest (75.09). Respondents with tertiary education also demonstrated higher mean knowledge scores than those with secondary education.

Table 2: Association Between Socio-demographic Characteristics and Knowledge of Weight Management

Variable	Category	Good	Poor	Mean	Statistic	p
Age	20–29	31 (66.0)	16 (34.0)	74.35	$\chi^2=33.219$; F=8.769	<0.001
	30–39	120 (90.2)	13 (9.8)	80.51		
	40–49	72 (98.6)	1 (1.4)	81.11		
	≥50	12 (100.0)	0 (0.0)	83.01		
Ethnicity	Black	144 (94.7)	8 (5.3)	81.53	$\chi^2=28.766$; F=7.676	<0.001
	White	56 (91.8)	5 (8.2)	78.97		
	Asian	30 (66.7)	15 (33.3)	75.09		
	Mixed	7 (87.5)	1 (12.5)	79.09		
Education	Primary	12 (100.0)	0	78.37	$\chi^2=2.367$; F=5.611	0.306/0.004
	Secondary	37 (84.1)	7 (15.9)	76.01		
	Tertiary	186 (89.0)	23 (11.0)	80.55		
Income	<1000	65 (91.5)	6 (8.5)	79.42	$\chi^2=1.952$; F=0.934	0.745/0.445

Note: χ^2 statistics refer to categorical associations between socio-demographic characteristics and attitude categories.

F-statistics represent one-way ANOVA comparisons of mean attitude scores. *N* = 267.

Association Between Socio-demographic Characteristics and Attitude Towards Weight Management

Attitude towards weight management was considerably less favourable than knowledge, with 43% of respondents demonstrating a positive attitude and a mean attitude score of 60.73. Examination of demographic differences revealed that attitudes varied across several socio-demographic characteristics.

As shown in Table 3, statistically significant associations were observed between age and attitude towards weight management ($\chi^2 = 14.620$, $p = .002$), ethnicity ($\chi^2 = 36.275$, $p < .001$) and educational attainment ($\chi^2 = 12.240$, $p = .002$). No statistically significant association was identified between monthly household income and attitude ($\chi^2 = 5.864$, $p = .201$). These findings indicate that differences in

attitude were more strongly associated with demographic characteristics than with economic circumstances.

Analysis of variance supported these observations. Significant differences in mean attitude scores were found according to age ($F = 6.321$, $p < .001$), ethnicity ($F = 18.725$, $p < .001$) and educational attainment ($F = 5.079$, $p = .007$), whereas no statistically significant variation was detected across income groups ($F = 0.739$, $p = .566$). Participants aged 30–39 years recorded the highest mean attitude score (63.65), while those aged 20–29 years reported the lowest (55.06). Black respondents (65.11) and those of Mixed ethnicity (64.50) demonstrated higher mean attitude scores than White (54.16) and Asian (54.22) participants. Respondents with tertiary education also recorded higher mean attitude scores than those with primary or secondary education.

Table 3: Association Between Socio-demographic Characteristics and Attitude Towards Weight Management

Variable	Category	Good	Poor	Mean	Statistic	p
Age	20–29	7 (14.9)	40 (85.1)	55.06	$\chi^2=14.620$; F=6.321	0.002/<0.001
	30–39	53 (39.8)	80 (60.2)	63.65		
Ethnicity	Black	67 (44.1)	85 (55.9)	65.11	$\chi^2=36.275$; F=18.725	<0.001
	White	7 (11.5)	54 (88.5)	54.16		
Education	Primary	2 (16.7)	10 (83.3)	53.00	$\chi^2=12.240$; F=5.079	0.002/0.007
	Tertiary	72 (34.4)	137 (65.6)	61.86		
Income	<1000	21 (29.6)	50 (70.4)	61.10	$\chi^2=5.864$; F=0.739	0.201/0.566

Note: N = 267. χ^2 values represent categorical associations; F values represent one-way ANOVA.

Association Between Socio-demographic Characteristics and Practice of Weight Management

The practice of weight management was consistently low throughout the study population. Only 4.2% of respondents were classified as demonstrating good practice, despite relatively high knowledge levels observed elsewhere in the study.

As presented in Table 4, no statistically significant associations were identified between the practice of weight management and any of the socio-demographic characteristics examined. Age ($\chi^2 = 3.934$, $p = .337$), ethnicity ($\chi^2 = 1.549$, $p = .535$), educational attainment ($\chi^2 = 1.652$, $p = .268$) and monthly household income ($\chi^2 =$

1.229, $p = .702$) all failed to demonstrate statistically significant relationships with behavioural practice.

Analysis of variance similarly indicated limited demographic variation in practice scores. Significant differences were observed only across age groups ($F = 3.577$, $p = .015$). No statistically significant differences were identified according to ethnicity ($F = 2.088$, $p = .102$), educational attainment ($F = 0.096$, $p = .909$) or monthly household income ($F = 1.672$, $p = .157$). Mean practice scores increased modestly with age, ranging from 46.77 among participants aged 20–29 years to 55.42 among those aged over 50 years. Nevertheless, these differences remained relatively small in comparison with the substantial behavioural deficit observed across the study population.

Table 4: Association Between Socio-demographic Characteristics and Practice of Weight Management

Variable	Category	Good	Poor	Mean	Statistic	p
Age	20–29	0	47 (100)	46.77	$\chi^2=3.934$; F=3.577	0.337/0.015
	30–39	6 (4.5)	127 (95.5)	50.69		
Ethnicity	Black	6 (3.9)	146 (96.1)	51.09	$\chi^2=1.549$; F=2.088	0.535/0.102
Education	Primary	1 (8.3)	11 (91.7)	52.08	$\chi^2=1.652$; F=0.096	0.268/0.909
Income	<1000	3 (4.2)	68 (95.8)	51.55	$\chi^2=1.229$; F=1.672	0.702/0.157

Note: N = 267. χ^2 values represent categorical associations; F values represent one-way ANOVA.

Correlation Between Knowledge, Attitude and Practice

Relationships between knowledge, attitude and practice were examined using Pearson's correlation coefficients. The findings are presented in Table 5.

Knowledge demonstrated a weak but statistically significant positive correlation with attitude ($r = 0.143$, $p = .019$), indicating that higher levels of knowledge were

associated with slightly more favourable attitudes towards weight management. A stronger positive association was observed between attitude and practice ($r = 0.236$, $p < .001$), suggesting that respondents with more favourable attitudes were more likely to report positive weight management practices. In contrast, the correlation between knowledge and practice did not reach statistical significance ($r = 0.112$, $p = .067$).

Table 5: Pearson Correlation Matrix for Knowledge, Attitude and Practice

Variable	Knowledge	Attitude	Practice
Knowledge	1.000	0.143*	0.112
Attitude	0.143*	1.000	0.236**
Practice	0.112	0.236**	1.000

Note: * $p < .05$; ** $p < .001$. N = 267.

DISCUSSION

This paper examined the influence of socio-demographic characteristics on knowledge, attitudes and practices of weight management among mothers of primary school children in Sunderland. The findings demonstrate that demographic characteristics were associated more strongly with knowledge and attitudes than with behavioural practice. Age and ethnicity emerged as significant determinants of knowledge, while age, ethnicity and educational attainment were significantly associated with attitudes towards weight management. In

contrast, behavioural practice showed little variation across socio-demographic groups, with age representing the only characteristic associated with differences in mean practice scores. These findings indicate that demographic characteristics contribute to differences in awareness and perceptions of weight management but have a considerably weaker influence on the adoption of healthy weight management behaviours.

The association between age and knowledge observed in this paper is consistent with previous research suggesting that health knowledge accumulates across

adulthood through greater exposure to healthcare services, public health campaigns and lived experience (Nutbeam & Lloyd, 2021). Older mothers may have had more opportunities to engage with health information during pregnancy, through child health services and through routine contact with primary care. These cumulative experiences may explain the progressively higher knowledge scores observed among older respondents. Age-related differences in attitudes followed a similar pattern, suggesting that increased exposure to health information may also influence perceptions regarding the importance of weight management. Nevertheless, the relatively modest differences in behavioural practice indicate that greater awareness alone is insufficient to produce sustained lifestyle change.

Ethnicity was another important determinant of both knowledge and attitudes. Black participants reported higher mean knowledge and attitude scores than other ethnic groups, whereas White and Asian respondents recorded comparatively lower scores. Ethnic differences in health behaviours have been widely reported in public health research, although the direction and magnitude of these differences often vary according to cultural context, health conditions and access to healthcare (Maynard et al., 2023). Cultural beliefs, community norms, patterns of healthcare utilisation and exposure to health promotion initiatives may all contribute to differences in health-related knowledge and attitudes. These findings reinforce the importance of culturally responsive approaches to obesity prevention rather than assuming that uniform interventions will be equally effective across diverse populations.

Educational attainment was significantly associated with attitudes towards weight management but not with knowledge classification. Participants with tertiary education demonstrated more favourable attitudes and higher mean attitude scores than those with lower educational attainment. Education is recognised as an important social determinant of health because it influences health literacy, critical appraisal of health information and engagement with preventive behaviours (World Health Organisation, 2025b). Although the high prevalence of good knowledge across the study population may have reduced observable differences in knowledge classification, educational attainment appeared to influence how that knowledge was interpreted and valued. This finding suggests that

education may shape motivational processes more strongly than factual understanding.

Monthly household income was not significantly associated with knowledge, attitude or practice. This finding contrasts with studies reporting socio-economic inequalities in obesity-related behaviours and access to healthy lifestyles (Office for Health Improvement and Disparities, 2025c). One possible explanation is the relatively homogeneous income distribution within the study population, with almost three-quarters of respondents concentrated within the two lowest income categories. Limited variability may have reduced the ability to detect statistically significant differences. Alternatively, factors such as education, cultural influences and family responsibilities may have exerted greater influence on weight management than income alone within this sample.

Perhaps the most important finding is the absence of meaningful socio-demographic differences in behavioural practice. Despite significant variation in knowledge and attitudes, very few respondents reported good weight management practices, and behavioural engagement remained consistently low across nearly all demographic groups. This suggests that the barriers preventing healthy behaviour may extend beyond demographic characteristics and reflect broader environmental, social and behavioural influences. Mothers of primary school children frequently balance employment, childcare and domestic responsibilities, all of which may constrain opportunities for physical activity, healthy meal preparation and sustained participation in weight management programmes. Recent research increasingly emphasises that health behaviour is shaped by interactions between individual capability, opportunity and motivation rather than knowledge alone (Screti et al., 2024; Young-Silva et al., 2024; Dada et al., 2026).

The findings also have important implications for public health policy. Universal health education campaigns remain essential, but the results indicate that improving knowledge alone is unlikely to reduce obesity or improve weight management behaviours. Public health strategies should recognise demographic differences in knowledge and attitudes while simultaneously addressing the structural and practical barriers that impede behavioural change. Interventions should therefore be culturally

appropriate, educationally accessible and responsive to the everyday circumstances of mothers. Community-based programmes, flexible delivery models and family-centred interventions may be particularly valuable in supporting sustained engagement with healthy behaviours.

This paper contributes to current research by demonstrating that socio-demographic characteristics influence awareness and perceptions of weight management more strongly than behavioural practice among mothers of primary school children. These findings reinforce the importance of addressing social determinants alongside behavioural interventions, indicating that effective obesity prevention requires approaches that are sensitive to the demographic and contextual realities of the populations they are intended to serve.

CONCLUSION

This paper examined the influence of socio-demographic characteristics on knowledge, attitudes and practices of weight management among mothers of primary school children in Sunderland. The findings demonstrate that socio-demographic factors shape awareness and perceptions of weight management more strongly than behavioural practice. Significant differences in knowledge were observed across age and ethnicity, while attitudes varied according to age, ethnicity and educational attainment. In contrast, behavioural practice remained consistently low across the study population, with only limited variation according to age.

These findings reinforce the importance of recognising obesity and weight management as issues influenced by broader social determinants rather than solely individual choice. Although demographic characteristics contribute to differences in health knowledge and attitudes, they appear to have considerably less influence on the adoption of healthy weight management behaviours. This suggests that behavioural engagement is shaped by a wider combination of social, environmental and practical factors that extend beyond demographic characteristics alone.

The findings have important implications for public health policy and intervention design. Universal health promotion messages remain valuable for improving awareness, but they are unlikely to achieve meaningful

behavioural change if they fail to acknowledge the differing circumstances of the populations they seek to reach. Interventions should therefore be tailored to reflect demographic diversity while also addressing the practical constraints that influence behaviour among mothers of primary school children. Culturally appropriate communication, accessible community-based programmes and educationally responsive interventions may improve engagement with healthy weight management practices.

Socio-demographic inequalities continue to influence knowledge and attitudes towards weight management, yet these differences do not translate consistently into behavioural practice. Addressing obesity among mothers requires public health strategies that combine demographic sensitivity with interventions capable of overcoming the broader barriers that limit sustained behaviour change. Such an approach is likely to contribute to more equitable and effective weight management outcomes within diverse communities.

AUTHOR CONTRIBUTION

All authors played a substantive role in shaping this study and developing the manuscript. O.D. conceptualised the work and designed the overall study framework, under the supervision of K.O.O. Data analysis, interpretation of data and validation of findings were carried out collaboratively, with each author contributing to the discussions that informed the final results. K.O.O. and C.E.E. prepared the initial manuscript draft, covering the introduction, methods, results and discussion. Co-authors strengthened the analysis, offered detailed revisions and enhanced the clarity and coherence of the final document. Every author reviewed the complete manuscript, approved the final version and accepted responsibility for the integrity of the work.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

FUNDING

This research did not receive any grant from funding agencies in the public, commercial, or not-for-profit sectors.

ACKNOWLEDGEMENT

The authors would like to acknowledge the management and technical staff of PENKUP Research Institute, Birmingham, United Kingdom for their excellent assistance and for providing manuscript writing/editorial support in accordance with Good Publication Practice (GPP3) guidelines.

REFERENCES

1. Baez, A. S., Ortiz-Whittingham, L. R., Tarfa, H., Osei Baah, F., Thompson, K., Baumer, Y., Powell-Wiley, T. M., (2023) Social determinants of health, health disparities, and adiposity. *Prog Cardiovasc Dis.* 2023 May-Jun;78:17-26. <https://doi.org/10.1016/j.pcad.2023.04.011>.
2. Dada, O., Obohewemu, K. O., Ekwuluo, C. E., Yakpir, G. M., Oguguo, C., Iyevhobu, K. O., ... & Edewor, O. P. (2026). Knowledge, Attitude and Practice of Weight Management among Mothers of Primary School Children in the United Kingdom. *International Journals For American Academic Publisher*, 359-369.
3. House of Commons Library, (2025). Obesity statistics. Available at: <https://commonslibrary.parliament.uk/research-briefings/sn03336/>, [Accessed: 14 November 2026]
4. Kent, L., McGirr, M. and Eastwood, K.-A. (2024) Global trends in prevalence of maternal overweight and obesity: A systematic review and meta-analysis of routinely collected data retrospective cohorts. *International Journal of Population Data Science*, 9(2). <https://doi.org/10.23889/ijpds.v9i2.2401>.
5. Maynard, M. J., Orighoye, O., Apekey, T., Simpson, E., van Dijk, M., Atherton, E., ... & Ells, L. (2023). Improving adult behavioural weight management services for diverse UK Black Caribbean and Black African ethnic groups: a qualitative study of insights from potential service users and service providers. *Frontiers in Public Health*, 11, 1239668.
6. Maynard, M.J., Orighoye, O., Apekey, T. et al. (2023) Improving adult behavioural weight management services for diverse UK Black Caribbean and Black African ethnic groups: a qualitative study of insights from potential service users and service providers. *Frontiers in Public Health*, 11, 1239668. <https://doi.org/10.3389/fpubh.2023.1239668>
7. NHS Digital (2026). Health Survey for England 2024: Adults' overweight and obesity. Available at: <https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/2024/adults-overweight-and-obesity>, [Accessed: 25 November 2026]
8. Nutbeam, D., & Lloyd, J. E. (2021). Understanding and responding to health literacy as a social determinant of health. *Annual Review of Public Health*, 42, 159–173. <https://doi.org/10.1146/annurev-publhealth-090419-102529>
9. Office for Health Improvement and Disparities (2024). *Child and maternal health profiles, December 2024 update: statistical commentary*. GOV.UK. Available at: <https://www.gov.uk/government/statistics/child-and-maternal-health-profiles-december-2024-update/child-and-maternal-health-profiles-december-2024-update-statistical-commentary>, [Accessed: 04 December 2025]
10. Office for Health Improvement and Disparities (2025b). *Wider Determinants of Health | Fingertips | Public health profiles | Department of Health and Social Care*. Available at: <https://fingertips.phe.org.uk/profile/wider-determinants> [Accessed: 02 December 2026]
11. Office for Health Improvement and Disparities. (2025a). Obesity profile: short statistical commentary, May 2025. GOV.UK. Available at: <https://www.gov.uk/government/statistics/obesity-profile-may-2025-update/obesity-profile-short-statistical-commentary-may-2025>, [Accessed: 21 November 2026]
12. Office for Health Improvement and Disparities. (2025c). *Obesity profile: short statistical commentary, May 2025*. UK Department of Health and Social Care. Available at: <https://www.gov.uk/government/statistics/obesity-profile-may-2025-update/obesity-profile-short-statistical-commentary-may-2025> [Accessed: 01 December 2025]

13. Screti, C., Edwards, K., & Blissett, J. (2024). Understanding family food purchasing behaviour of low-income urban UK families: An analysis of parent capability, opportunity and motivation. *Appetite*, 195, 107183.
14. Whitehall, J.M., Cook, E.J., Vseteckova, J. *et al.* (2025) A systematic review of influences on engagement with remote health interventions targeting weight management for individuals living with excess weight. *Int J Obes* 49, 1427–1468 (2025). <https://doi.org/10.1038/s41366-025-01811-8>
15. World Health Organisation (2025b). Social Determinants of Health. World Health Organization. Available at: <https://www.who.int/health-topics/social-determinants-of-health> [Accessed: 09 October 2025]
16. World Health Organization. (2025a). Obesity and overweight: Key facts. Available at: <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>, [Accessed: 30 November 2026]
17. Young-Silva, Y., Berenguera, A., Juvinyà-Canal, D., Martí-Lluch, R., Arroyo-Uriarte, P., Tamayo-Morales, O., ... & Motrico, E. (2024). Exploring personal aptitudes and personality traits that, together with social determinants, shape health behaviors and conduct: a thematic analysis based on the Capability, Opportunity, Motivation and Behavior (COM-B) change system. *Frontiers in public health*, 12, 1387528.
18. Ziauddeen, N., Huang, J.Y., Taylor, E. *et al.* Interpregnancy weight gain and childhood obesity: analysis of a UK population-based cohort. *Int J Obes* 46, 211–219 (2022). <https://doi.org/10.1038/s41366-021-00979-z>