

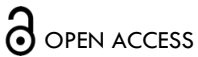


RESEARCH ARTICLE

# Co-production and the Commercial Determinants of Health: Producing a Video on Young People's Exposure to Unhealthy Food Marketing

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## ABSTRACT

In 2022, the World Health Organisation estimated that 39 million children globally were living with obesity, and it is estimated that by 2025, 167 million people (adults and children) will be susceptible to health problems associated with overweight or obesity. Marketing of unhealthy food products is designed to influence people to eat more of them, and some marketing materials are directed specifically at children and young people, resulting in changes to their eating habits that can contribute to overweight and obesity. Despite numerous calls for action to protect children and young people from the harmful impacts of food marketing, they continue to be exposed to sophisticated and persuasive marketing techniques. This study aimed to investigate young people's exposure to and perceptions of unhealthy food advertising to co-produce an advocacy video aimed at young people and policymakers. The research that contributed to the co-design of the videos was conducted with 33 young people aged between 12 and 16 living in the Central Belt of Scotland. The research comprised four stages: workshops, photo elicitation, focus groups and video development. Young people reported being exposed to unhealthy food adverts every day and in numerous locations, including on outdoor billboards and posters, in shops and on social media. Many of the physical food adverts that young people saw were located near the restaurant they were advertising, tempting people to visit. Our findings highlight that young people feel overly exposed to unhealthy food advertising and they identified aspects of these adverts (e.g., colours, logos and slogans) that they felt influenced food purchasing choices for themselves and their peers. Many participants also noted that they rarely, if ever, saw marketing for healthy foods. These concerns were also reflected in participants' contributions to the video production process. These findings suggest that young people support the need for stronger legislation in Scotland to reduce exposure to unhealthy food advertising, as well as the redesign of unhealthy food adverts, promotions, and packaging to be less eye-catching as this influences purchasing choices.

## Introduction

In 2022, the World Health Organisation (WHO) estimated that 39 million children globally were living with obesity and it is estimated that by 2025, 167 million people (adults and children) will be susceptible to health problems associated with overweight or obesity<sup>1</sup>. In 2018, after years of data demonstrating an increasing number of young people in Scotland that did not have a healthy weight, the Scottish Government set out an ambition to halve childhood obesity from 14% to 7% by the year 2030<sup>2</sup>. The most recent data available from the Scottish Health Survey 2022<sup>3</sup> show that 18% of children aged 2-15 are now at risk of developing obesity. Childhood obesity increases the risk of physical illnesses, including a range of serious non-communicable diseases (NCDs) and has negative impacts on quality of life. Children with obesity are at higher risk of low self-esteem, depression and anxiety, as well as bullying, poorer school performance and social withdrawal<sup>4,5</sup>.

The causes of obesity are multifaceted and complex, but experts agree that the food environment is a key determinant of population diets and excess weight gain. Swinburn et al<sup>6</sup> define the food environment as the “collective physical, economic, policy and sociocultural surroundings, opportunities and conditions that influence people's food and beverage choices and nutritional status”<sup>6, p.2</sup>. These elements influence food choice, access, acceptability, quality and safety<sup>7</sup>. The food industry influences our food environments through the ubiquitous marketing of unhealthy (high fat, sugar and salt (HFSS)) and ultra-processed foods and beverages. Marketing of unhealthy food products is designed to influence people to eat more of them, and some marketing materials are directed specifically at children and young people, resulting in changes to their eating habits that can contribute to overweight and obesity<sup>8</sup>. As global rates of overweight and obesity continue to rise, several countries, including the United Kingdom (UK), have implemented measures to regulate the marketing of certain foods and beverages<sup>9</sup>. The latest UK and Scottish Government obesity plans propose multiple measures to reduce consumer exposure to such products, including tackling price and location promotions and limiting children's exposure to marketing by restricting TV advertisements<sup>10</sup>. The overconsumption of HFSS products has been linked to numerous health problems, including overweight and obesity and the effects of the marketing of HFSS foods on children and young people are particularly well studied<sup>11</sup>. Children are recognised as particularly vulnerable to the messaging employed in marketing communications<sup>12-14</sup>, and there's widespread acknowledgment that exposure to unhealthy food marketing is a risk factor for childhood obesity<sup>12,15,16</sup>.

Given the political support for tackling overweight and obesity alongside the disproportionate impact of food marketing on young people, it is important to engage in research that could help shape future policy. Therefore, this research aimed investigate young people's exposure to and perceptions of food marketing to co-produce an advocacy video.

## Material and Methods

This section closely follows the methodological approach

detailed in Smith et al.<sup>17</sup>. This original multi-method research comprised four stages: workshops, photo elicitation, focus groups and video development. In this section, we will discuss the method of co-production and recruitment of participants before describing the four stages in more detail.

Co-production can be defined as a model in which ‘researchers, practitioners and the public work together, sharing power and responsibility from the start to the end of the project, including the generation of knowledge’<sup>18, p.4</sup>. Undertaking a co-production approach facilitates the generation of a deeper understanding of young people's exposure to food marketing and their views on how it could be changed.

### SAMPLING AND RECRUITMENT OF YOUNG PEOPLE

We used a purposive sampling approach to target young people aged 11-16 from the Central belt of Scotland. Participants were recruited by youth workers in local youth organisations or by contacting schools through the Schools Health and Wellbeing Improvement Research Network (SHINE) Newsletter which is distributed monthly to over 500 schools in Scotland. These gatekeepers distributed information sheets and liaised with researchers throughout the project. This recruitment strategy resulted in the inclusion of a range of participants from a mix of affluent and deprived backgrounds.

Those who agreed to participate were provided with a participant information sheet, privacy notice and consent form. Before the workshops, participants completed a short anonymous questionnaire about their age, sex, postcode, food and drink consumption and exposure to unhealthy food and drink marketing.

### STAGE 1: WORKSHOPS

The initial workshop aimed to introduce the research project and its objectives to participants, facilitate activities exploring their experiences with food and drink marketing, and encourage brainstorming for the video. Between March and April 2023, three workshops were held, each containing between 10 and 12 participants (totalling 33 participants). Activities focused on participants' views on food and marketing as well as initial thoughts on video development (Appendix A). Workshops were moderated by three researchers who posed questions and encouraged participants to explain their thoughts and opinions in more detail. Each workshop lasted approximately two hours and took place in person at the school or youth organisation's meeting venue. Although workshops were not recorded due to their dynamic nature, field notes were taken by the researchers, and workshop materials were retained for analysis. Each participant received a £20 shopping voucher as compensation.

### STAGE 2: PHOTO ELICITATION

Participant-generated photographs are a commonly used methodological tool within qualitative research<sup>20,21</sup>, including in studies exploring young people's experiences of social processes and settings (e.g., family, disability, food, refugee status)<sup>22-24</sup>.

During this project phase, participants were asked to capture five to ten photos or short videos depicting food

advertising they encounter in their daily lives, including on social media. Participants were instructed to refrain from taking photographs of themselves or others to respect privacy concerns, although advertisements featuring people were acceptable. The images captured by the participants served as prompts for the focus groups (Stage 3) and informed the video storyboard development. Photographs from 32 participants were uploaded to a secure file-sharing website hosted by the University of Glasgow. Upon receipt of the photos, participants were given a £20 voucher as compensation for their time. Rather than analysing the content of the photos or videos directly, we relied on the descriptions provided by the participants themselves during Stage 3 of the project.

### STAGE 3: FOCUS GROUPS

Between April and May 2022, six focus groups were convened, with each group comprising three to six participants, totalling 28 participants across the six groups. Discussions were semi-structured to allow an in-depth exploration of participants' views and experiences regarding the marketing of food and beverages. The smaller group sizes were chosen to facilitate in-depth insights and encourage active participant engagement. Each participant was given a £20 shopping voucher as compensation for their time.

Focus group discussions were organised around a topic guide and the photos the young people took in Stage 2 of the project. Discussions were led by one or two researchers, who posed questions, ensured all participants were able to participate, and encouraged participants to explain and discuss their responses. Four of the six groups were conducted online using Microsoft Teams and two were conducted face-to-face at the youth organisation, based on the preference and availability of each group. Groups lasted 48-75 minutes and were audio-recorded with consent verbally confirmed at the beginning of each session.

Transcripts were thematically analysed following Braun and Clarke's <sup>25</sup> six-phase framework for thematic analysis. A coding framework (Appendix B) was developed iteratively by two members of the research team, organised into themes aligned with the research questions, with additional themes formed inductively from the data. Each transcript was imported into NVivo V.12, coded independently, cross-checked and analysed by MJS and CV. Contradictory cases and group dynamics were discussed, making use of transcripts and field notes. Though there is inevitably a risk of introduction of bias through social dynamics, including those between peers in the workshops and focus groups as well as those between researchers and participants, we endeavoured not to

influence responses by agreeing or disagreeing with any statements made by participants at all stages of the project. Additionally, the use of thematic analysis to analyse focus group transcripts allowed the views of participants to remain at the forefront of input for the production of the video.

Quotations are incorporated throughout the results section to illustrate analysis points and demonstrate the breadth of participants' perspectives. Quotations are abbreviated when possible, to ensure conciseness without sacrificing meaning.

### STAGE 4: VIDEO PRODUCTION

The project's final phase involved collaborative video production by the research team, video production company (Media Co-op) and the young people. We utilised iterative co-creation to ensure the video captured the youth's ideas while leveraging the media company's expertise in creating visually engaging content with impactful messages. The media company developed materials to better understand the vision and preferences of the young people for the videos. Input on video styles was gathered from all participants, with a subgroup of four participants providing more detailed feedback on specific elements of video content and style. Regular feedback with the research team guided production, and final voiceovers were recorded by two young people to maintain inclusivity and appeal to the target audience.

Ethical approval for this study was granted by the College of Medical Veterinary and Life Sciences Research Ethics Committee at the University of Glasgow (reference 200220088).

## Results

The results are presented by project stage, beginning with the workshops, followed by photo elicitation and focus group discussions with illustrative quotations. Production of the advocacy video is detailed in Appendix C.

### STAGE 1: WORKSHOPS

Thirty-three youths aged 12-16 participated in this stage of the study (20 females (61%) and 13 males (39%)). Table 1 describes the workshop composition by deprivation. Deprivation refers to geographic areas with a lack of resources and opportunities across various domains such as health and education <sup>26</sup> Deprivation rank was assigned using the Scottish Index of Multiple Deprivation (SIMD) <sup>26</sup>. The area-level deprivation was grouped using a binary deprivation variable (least deprived/most deprived) in which the three most deprived quintiles were grouped into the most deprived category for the Central Belt of Scotland area.

Group	Area	Sex	Age
1	Most deprived (7) Least deprived (5)	Mixed: male (1)/ female (11)	12-16
2	Most deprived (1) Least deprived (10)	Mixed: male (6)/ female (5)	14-16
3	Most deprived (9) Least deprived (1)	Mixed: male (6)/ female (4)	14-15

**Table 1:** Workshop location, composition and participant details.

The workshop findings are categorised under four headings: exposure to food marketing; effectiveness of food marketing; alternative marketing strategies; and video styles. Illustrative quotations are presented in this section; however, due to the dynamic of the workshops, we are unable to attribute quotes to specific participants.

### **Perceptions of food and diet**

We encouraged participants to define 'healthy' and 'unhealthy' foods based on their own perspectives by prompting them to reflect on these terms and offer personal examples. When asked about 'healthy foods', participants commonly cited fruits and vegetables. Additionally, some mentioned 'protein' and emphasised foods with nutritional value, which they explained encompassed fruits, vegetables, and unprocessed foods. When asked about 'unhealthy' foods, participants often mentioned fast food and fast-food brands. Several participants defined 'unhealthy' foods as those with no or low nutritional value and foods that are high in salt and sugar. Whereas, one participant stated that they disagreed with the binary categorisation of food into these two categories, as well as the moralisation of certain foods or food groups.

*"I think kids shouldn't grow up thinking there are foods they should and shouldn't eat and that food is food."*

Many young people highlighted the negative impacts diet can have on health, such as obesity, heart problems, teeth problems, and eating disorders. Participants also spoke about the positive impacts of diet such as feeling energised, and improved mental health, and mood.

### **Exposure to food marketing**

Participants described seeing unhealthy food adverts daily, including on social media platforms, billboards, in shops, on television, at transport facilities (e.g., bus stops) and food-related apps, where users receive targeted offers and notifications.

*"Every single day walking to school, walking the street, EVERYWHERE!"*

When asked about the frequency and location of offers for healthy foods, participants indicated they "hardly ever" encountered such promotions. While some mentioned occasional offers for vegan and vegetarian options, other healthy foods were rarely on special offer. Several participants discussed seeing fruits and vegetables on offer during summer months, often associating fresh produce with warmer weather.

Participants also noted shifts in food advertising, particularly during holidays like Easter and Halloween. Chocolate and sweets were predominately seen at the front of supermarkets during these times.

### **Effectiveness of food marketing**

Marketing, including adverts and social media influencers, heavily impacted participants' food purchases, especially for sweets and chocolate, alongside the influence of friends or family members' buying habits.

*"If a food is popular online and people I know are buying it I want it more and want to buy it."*

While some participants mentioned the influence of social media influencers on their purchases, one noted that while influencers' endorsements would influence their purchases for products like clothing and beauty items, it didn't affect their food purchases.

Young people acknowledge the effectiveness of food marketing, recognising that companies create adverts to entice consumers to purchase their products. Additionally, several participants admitted to being tempted by promotions, such as sales and offers. One participant stated that they can be tempted by promotions but "manage to hold out to temptation."

Some participants indicated that they were not tempted by promotions, noting "[Companies] make you think you are saving money or getting a deal, when you are actually not," and other participants added that "taste and appeal of the food" outweighed price.

### **Alternative marketing strategies**

Participants generally advocated for requiring supermarkets, restaurants, and takeaways to offer promotions on healthy items. Participants went on to explain that there should be equal offers on healthy and unhealthy food, although some participants said there should be more offers on healthy food compared to unhealthy food.

*"Healthy food should be offered more because unhealthy foods have more of a chance of being bought."*

While some proposed equal offers on healthy and unhealthy foods, others suggested prioritising promotions for healthier options as this would be beneficial to population health.

*"Less advertising of unhealthy foods would help decrease temptation and obesity."*

Participants discussed how the current 'cost of living' crisis impacts food choices, noting that budget constraints often lead to the selection of unhealthy options when dining out or ordering takeout. They emphasised the importance of pricing between healthy and unhealthy foods to ensure equitable choices.

*"It's people's decision and one option shouldn't be more expensive than the other."*

Some participants suggested encouraging, rather than enforcing, supermarkets, restaurants, and takeaways to provide deals and promotions on healthy foods.

*"Yeah, they [supermarkets, restaurants and takeaways] should be encouraged to have offers on healthy food too but not forced."*

Many participants expressed a preference for buying healthier foods if they were offered special deals (e.g., 2-for-1 discounts). However, some admitted that they would "still go for the unhealthy foods" regardless of promotions. Interestingly, mood, taste, and enjoyment were cited as influential factors in food choices, suggesting that price doesn't always drive their decisions.

Additionally, participants proposed modifying the design of unhealthy food adverts, promotions, and packaging to be less visually appealing, as this influences purchasing decisions.

*“Make adverts and packaging less colourful so people aren’t tempted to buy them.”*

**STAGE 2: PHOTO ELICITATION**

Of the 33 participants involved in Stage 1, 32 submitted photos. The aim of this stage of the project was for participants to document food marketing they encounter

in their daily lives through photos and/or short videos. These visual materials were used as discussion prompts during the focus group sessions in Stage 3, without undergoing content analysis.

**STAGE 3: FOCUS GROUPS**

Of the 33 initial participants, 28 young people aged 12–16 (16 females (57%) and 12 males (43%)) participated in this stage of the study. The sample was slightly skewed towards 14–15-year-olds, with 14-year-olds being the largest subgroup (n=12). Table 2 outlines the composition of the focus groups.

Group	Area	Sex	Age
1A	Most deprived (2) Least deprived (2)	Female (4)	12-15
1B	Most deprived (1) Least deprived (2)	Female (3)	13-16
2A	Least deprived (5)	Mixed: male (3)/ female (2)	14-16
2B	Most deprived (5) Least deprived (1)	Mixed: male (3)/ female (3)	14-16
3A	Most deprived (5)	Mixed: male (4)/ female (1)	14-15
3B	Most deprived (4) Least deprived (1)	Mixed: male (2)/ female (3)	14-15

**Table 2:** Focus group location, composition and participant details.

**Exposure to unhealthy food advertising**

Young people discussed exposure to unhealthy food adverts frequently, in various locations, including billboards, shop posters, in stores, and on TV and radio.

*“[I see them] on billboards. On the TV sometimes and at bus stops.” (Male, 14)*



**Figure 1:** Photo of billboard advertising McDonalds.

Participants noted that the adverts they see are commonly located near the shop or restaurant they are advertising.

*“It’s [the advert] like right across the road from a Subway as well.” (Female, 15)*



**Figure 2:** Advert for Subway.

While few participants shared photos of social media adverts they encountered, many reported seeing such adverts, indicating their prevalence during focus group discussions.

*“I mean mostly it’s just what I see like walking about. But I do sometimes get like adverts on YouTube and stuff like that.” (Female, 16)*



**Figure 3:** Photo of McDonalds advert seen on YouTube.

One participant described seeing online adverts so quickly and frequently that they often didn’t think about what they were seeing.

*“You don’t tend to notice that you’re actually being shown all these adverts. You’re watching YouTube and quickly skip past it. We don’t even realise that you just got advertised to.” (Female, 14)*

Participants noted that influencer endorsements for a particular food brand increased their inclination to purchase, highlighting the influence of trust and loyalty in marketing. McDonald's frequently emerged in conversations as a representative example of fast food or 'unhealthy' brands, as noted by the youth.



**Figure 4:** Photo of an advert at a bus stop which depicts a celebrity drinking Coca Cola.

*"I feel like if an influencer said that McDonald's was really good, I'd probably start going to McDonald's more."* (Female, 16)

When discussing why food companies would want to use social media influencers to advertise their products, participants highlighted the popularity of social media and how this would increase the reach of the adverts.

*"If they've [influencers] got a lot of followers, they'll advertise too many people, so many people will go and buy it."* (Female, 15)

#### **Design of adverts**

Participants noted the strategic use of color and text size in advertisements, with red being deemed particularly attractive and commonly utilised in promotions and deals. The inclusion of low prices in eye-catching text further influenced participants' perceptions.

*"I think it's the red colour that they use for the special offers and special deals. Yeah, because red is a very strong and powerful colour."* (Male, 14)

*"It's got like a deal in big letters, like big numbers. You can see that and you could just go in and get it on your walk home from school."* (Female, 15)



**Figure 5:** Photo of KFC advert with large red writing.

The vibrant colours not only grabbed attention but also motivated visits to the advertised shops, takeaways, or restaurants.

*"I wasn't planning on getting a McDonald's, but when I walked past it [the advert], there was a McDonald's round the corner, and I thought, let's go and get a McDonald's."* (Female, 14)

Participants recognised that some adverts for fast food restaurants seem to be targeted specifically at people their age or younger.

*"I've gone to McDonald's sometimes, counting up 20 pences, so I could get a bag of chips or something. I always spend the last penny when I'm trying to get it. If I see an advert like that, I'll always try and get one after it."* (Female, 14)

In contrast, some young people felt that adverts for restaurants were targeted at adults.

*"I feel as though the Steakhouse one [reference to restaurant in photo below], it's more for adults."* (Female, 14)



**Figure 6:** Photo of an advert for breakfast outside a restaurant.

#### **Food promotions**

All participants agreed that promotions aim to increase purchases, which can effectively sway people's buying decisions, including their own.

*"Promotions make you feel like you're getting a good deal if you buy that thing."* (Female, 14)

Several participants highlighted that marketing has the power to persuade people to purchase products they had not initially planned to buy.

*"If you go into a shop or something and they have something on promotion and it's £5 today, you might say I wasn't gonna get it, but now I want to get it because it's cheaper than usual."* (Female, 14)

Interestingly, several participants noted that promotions could lead people to spend more money instead of less, despite feeling like they've saved money due to the promotion.

*"If you were planning on going in to get two chocolate bars, then you've saved money. But if you were only planning on getting one, you've technically lost money, because you don't want that second chocolate bar. But you don't tell yourself that when you're buying it."* (Female, 14)

Participants discussed seeing promotions in specific locations in shops, restaurants and supermarkets, where they are most likely to influence people.

*“You see them [promotions] and the end of the aisles and at the tills.” (Female, 16)*

*“They also like, put stuff right before you like pay. So, when you’re going there and you see, something that you might want, you could just buy that as well.” (Female, 14)*



**Figure 7:** Photo of promotion for chocolate.

One participant noted that the strategic placement of advertisements and promotions is so subtle that he hadn’t thought about it before taking part in this project.

*“The way they market and promote foods and actually placing it the front to entice you to want to buy it and that’s something I never really noticed until I started this.” (Male, 15)*

Participants highlighted that while there are promotions all year round, they notice a higher volume of marketing and promotions during specific holidays such as Easter, Halloween and Christmas.

*“Yeah, like with the Easter eggs, they have them at buy two for £5 or something and the mini-eggs can be discounted.” (Female, 15)*

### **Food branding**

All participants readily named multiple food brands when prompted, primarily focusing on fast-food chains like McDonald’s, Burger King, and KFC. Notably, many mentioned recognising food brands by their colours and logos.

*“It’s just like, their brand colour. If I saw yellow and red, I would definitely pick McDonald’s.” (Female, 13)*

Additionally, they discussed the effectiveness of catchphrases and slogans, stating that certain phrases immediately connect them to the associated brand.

*“If it had a slogan or something, like that whistle at McDonald’s. If I saw that I would go in and be like, oh I want to try that. Also, if I saw a KFC, Finger Licking Good.” (Female, 12)*

Participants stated that when making food choices, they regularly show brand loyalty and are influenced by associations with certain brands.

*“I normally get Pepsi if it was like me choosing, but I prefer Coke, but it’s just ‘cause I’ll see Pepsi and it’s like brighter colours and it’s a more interesting logo so I’m more likely to pick that.” (Female, 15)*

When discussing the rationale behind food companies investing in branding, participants mentioned that it helps people recognise and remember the brand, influences purchasing decisions, and boosts the brand’s popularity, sometimes removing the need for language to convey the advertisement’s message.

*“I feel if you use a good logo, people will think about it and talk about it. If you see something that sticks out then it’ll become more popular.” (Female, 16)*

### **Perceptions of how food marketing could be changed**

Participants tended to agree that restrictions on the advertising of unhealthy food and drinks are needed.

*“I think less promotions and advertising of unhealthy stuff would make people not go and buy them as much because they’re not seeing them.” (Male, 14)*

Participants held diverse opinions on food advertising and suggested changes. Some advocated for equal promotion of healthy and unhealthy foods to promote healthier choices.

*“It’s always unhealthy fast food that you see. If I’d seen an advertisement saying, this is the new healthy burger, a healthier way of living, I would want to try it more than a McDonald’s” (Female, 14)*

One participant discussed amending the design of adverts to restrict the types of colours and pictures used to be less attention-grabbing.

*“Bright colours or eye-catching colours are always used, none are dark colours. Or smaller pictures, it’s always big, massive pictures.” (Female 15)*

Despite widely shared views that the advertising landscape should change, participants also acknowledged the difficulty in implementing regulations on the advertising of unhealthy food and drinks, stating that fast food places would still sell the food.

While participants commonly agreed that the advertising environment should evolve, they recognised the challenges in regulating unhealthy food and drink advertising, noting that fast food establishments would continue to sell such items regardless.

*“If it did happen [restricting advertising on unhealthy foods] fast food locations would start advertising and serving small portions of healthy food so they could get around the advert regulations. They would just cover it up with some good food and when people go check the menu, they find fast foods and then they’ll still make business.” (Male, 14)*

The video was launched on 21st November 2023 in a webinar and can be accessed at <https://www.youtube.com/watch?v=uXgV4T8X7DQ>.

## **Discussion**

This study employed co-production techniques to investigate how young people (aged 11-16) in Scotland engage with and perceive food marketing. By analysing

three workshops, photos from 32 participants, and conducting six focus groups, the study thoroughly explored young people in Scotland's exposure to, interaction with, and opinions on food marketing. It also examined alternative marketing strategies proposed by the participants. Young people observed extensive marketing of unhealthy foods in their daily lives through various mediums including TV, social media, and billboards, often strategically placed near relevant outlets. They were influenced by marketing tactics such as social media influencers, attractive advertisements, and promotions like 2-for-1 deals, especially by fast-food adverts targeting their age group. They found food advertisements enticing, particularly those that used vibrant colours and large text. The proximity of such adverts to fast-food outlets sometimes prompted visits to the restaurants being advertised. The data suggested a dichotomy in how young people perceive marketing, with some viewing it critically and others more passively accepting its messages.

While some young people were swayed by sales and offers, others prioritised taste over price. Brand loyalty, particularly to fast-food brands, was noted, with young people commenting on recognisable colours, logos, and slogans. Participants often supported restrictions on unhealthy food advertising and proposed policies like increasing advertising for healthy foods, modifying advert design, and requiring promotions for healthy items in stores. They linked promotions to budget constraints, suggesting that making healthy foods more affordable could positively impact food choices.

The co-production methodology employed in this study was crucial in capturing the authentic perspectives of young people. Involving participants directly in the research process, from data collection through photo elicitation to analysis and video production, ensured that the insights gathered were deeply reflective of the lived experiences of young people. Using photo elicitation allowed the study to capture vivid, real-life examples of food marketing in environments familiar to the participants, adding a layer of authenticity to the data. This approach not only enhanced the richness of the data but also empowered the participants, giving them a voice in the discourse around food marketing and its impacts. The collaborative nature of the research fostered a sense of ownership among participants, potentially increasing the impact of the study's findings on policy recommendations.

Numerous studies<sup>8,16,27-31</sup> have assessed the relationship between different aspects of food marketing and its effect on children. Carins et al.<sup>16</sup> concluded that there is strong evidence that food marketing impacts children's food purchases encompassing both food categories and specific brands. Furthermore, there was some indication that it also influences their understanding of food, preferences, and choices, as well as their consumption habits and diet-related health<sup>16</sup>. Although our study did not analyse the association between diet-related health and food marketing, young people did state that food marketing influenced their food preferences, choices and consumption habits. Previous research<sup>32-34</sup> demonstrates that young people are exposed to food marketing throughout the day, including on digital platforms (such

as social media, food brand websites and children's websites) and when out and about. Young people in our study confirmed the above findings and discussed being exposed to unhealthy food adverts daily via various mediums (including on social media and food-related apps).

The study offered a nuanced understanding young people have of marketing strategies, indicating a keen awareness of how these tactics aim to influence their behaviour. Our study found that young people are consistently exposed to marketing of unhealthy food and drinks, which often influences their food choices. The participants in our study felt that this influence generally encourages young people to consume more foods that they considered to be 'unhealthy'. This points to an opportunity for further policy action to curb unhealthy food marketing considering that the Government's goal of reducing childhood overweight and obesity has been met instead with an increase in these rates<sup>2,3</sup>. Policy interventions to restrict such advertisements across various platforms, including TV, online, and outdoor settings, are crucial. Research by Chung et al.<sup>35</sup> discussed various jurisdictions that have adopted policies to restrict unhealthy food advertising in outdoor spaces or on publicly owned assets. While restricting unhealthy food advertising on publicly owned transport (as was the case in London and the Australian Capital Territory) has a broad reach, it does not capture other government-owned assets, such as sports stadiums and billboards. Policies focused narrowly on marketing that is "directed to children" (as in Chile, Quebec, and Finland) can be difficult to enforce due to varying interpretations of the intended audience<sup>36</sup>. Furthermore, these policies fail to protect children from being exposed to unhealthy advertising that is targeted towards older audiences. Chung et al.<sup>35</sup> also examined voluntary versus mandatory regulation. Mandatory regulation creates a level playing field for businesses, where compliance is not left to the voluntary commitment of industry. Australian research found that the frequency of food advertising and children's exposure to unhealthy food marketing on television remained unchanged despite industry self-regulatory pledges<sup>37</sup>. Chung et al.<sup>35</sup> noted that several policies included exemptions. For example, in London brand marketing is permitted if the advertisement promotes healthy products<sup>38</sup>. However, brand marketing primarily associated with unhealthy products can increase their consumption by stimulating brain reward pathways<sup>39,40</sup>. To date, none of the policies identified by Chung et al.<sup>35</sup> study have been evaluated to assess their impact on exposure to, or consumption of, unhealthy foods. In light on the results from our study, we recommend the prompt implementation of the planned UK-wide 9pm TV watershed ban and in the event of any further delays, the Scottish Government should commit to exploring opportunities to implement it in Scotland<sup>41</sup>. Additionally, efforts to restrict online digital marketing should be closely monitored for effectiveness in reducing young people's exposure.

As with all research, our study has some limitations. Consistent with the qualitative design, the sample does not aim to be representative of UK youth, as our study focused on Scottish young people. However, purposive sampling ensured diversity in age, sex, and



socioeconomic background. The data were collected in different formats (online and face-to-face), and it is possible that this may have influenced participants' responses. Two in-person workshops and two of the online focus groups were conducted in a classroom or youth group centre with a teacher or youth worker present. It is possible that the presence of a teacher/youth worker may have influenced some participants' willingness to answer questions or the responses they gave. The group dynamics in workshops and discussion groups may have influenced participants' honesty when answering questions and their responses. Some young people may not have wanted to disagree with their peers, and thus responded in a similar way to the rest of the group. Despite these limitations, the study provides valuable insights and a starting point for addressing challenges in the food marketing landscape from the perspective of young people.

The results from this study point to various avenues for future research, including an assessment of the effectiveness of policy interventions targeting unhealthy food advertising, such as legislative measures and industry initiatives, and their impact on young people's dietary habits. Additionally, exploring the role of digital marketing and social media influencers in shaping young people's food choices is needed to understand the impact these modern advertising channels have on dietary behaviours. Digital platforms and influencers have a wide reach and can subtly promote unhealthy food choices, often bypassing traditional advertising regulations. By studying this influence, effective strategies can be developed to counteract negative impacts and promote healthier eating habits among young people.

## Conclusion

Obesity in childhood is associated with an increased risk of obesity in adulthood, highlighting the need for early

intervention with the aim of preventing childhood overweight and obesity. More needs to be done to protect young people from ill-health now and later in their adult lives, including improving nutrition in early life, and changing the environment to enable people to make healthy food and physical activity choices throughout the life course. As illustrated by our research, the current obesogenic environment makes it difficult for people of all ages to make healthy choices. Urgent action is needed to change the food environment and to reduce children's exposure to unhealthy food marketing.

## Declarations

**COMPETING INTERESTS:** The authors declare that they have no competing interests.

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**AUTHORS' CONTRIBUTIONS:**

**Marissa J. Smith:** Conceptualisation, Data Curation, Formal analysis, Investigation, Methodology, Validation, Visualisation, Writing- Original draft preparation and Writing -Review & Editing.

**Caroline Vaczy:** Conceptualisation, Data Curation, Investigation, Methodology, Validation, Visualisation, Writing - Review & Editing

**Shona Hilton:** Conceptualisation, Funding acquisition, Methodology, Validation, Writing - Review & Editing.

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## Appendix A: Workshop activities and questions

Workshops were structured around a series of activities in which participants wrote short responses to questions relating to food advertising and video development on sticky notes which they placed in different categories. Questions were developed by the research team based on the research questions and information requested by the video production company.

### Board 1- What have you seen?

- Q1. What does the term 'healthy foods' mean to you?  
 Q2. What does the term 'unhealthy foods' mean to you?  
 Q3. Where do you see unhealthy food adverts and how often?  
 Q4. Where do you see special offers on unhealthy foods?  
 Q5. Where and how often do you see offers for healthy foods?

### Board 2- Do they work?

- Q1. How much do marketing techniques (e.g., adverts, influencers) change your purchases?  
 Q2. How tempted are you by promotions (e.g. sales, offers) to buy certain foods?  
 Q3. What kinds of health impacts do you think diet can have?

### Board 3- What should change?

- Q1. If healthier foods were on special offer (e.g. 2 for 1, discounts), would you buy them more? Why or why not?  
 Q2. Do you think supermarkets, restaurants and take aways should be required to offer deals on healthy items instead of unhealthy items? Why or why not?  
 Q3. If you were a politician/decision-maker, what other rules or steps could be taken to change the food marketing and promotions you see?

## Appendix B: Focus group coding framework

Themes	Subthemes	Description
Celebrities and influencers advertising food	Celebrities and influencers advertising food	Discussions about why celebrities and influencers would want to advertise food products
	Companies using celebrities and influencers	Discussions about why companies use celebrities/influencers to advertise their products
	Inclined to purchase a product	Discussions of whether a product was being advertised/promoted by a celebrity/influencer would influence purchase choices
Food advertising	Design of advert	Discussions of the design of adverts (including colour and text)
	Frequency and location of food adverts	Discussions of where and how often young people see food adverts
	How should food be advertised	Discussions of how food should be advertised
	Influence choice	Discussions of food adverts influencing choices
	Recognition of advertising	Do you think these images are advertising a product
	Recognition of what is being advertised	Discussions of young people being able to recognise advertising
	Social media and food apps	Discussions about food adverts on social media and on food apps
	Successful in selling a product	Discussions of the success of adverts in selling a product
	Target audience	Discussion of who young people think adverts are targeted at
Types of food advertised	Discussions on the types of food advertised	
Food branding	Advertising vs branding	Discussion of advertising and branding
	Influence choice	Discussions of branding influencing choices
	Investment in branding	Discussions of why companies invest time and money on branding
	Purchase of brands	Discussions of loyalty to specific brands
	Recognition of brands	Discussions of how food brands are recognised
Food promotions	Influence choice	Discussions about promotions influencing choices
	Location of promotions	Discussions about where youths see promotions
	Purpose of promotions	Discussion of what the purpose of food promotions is
	Successful in selling a product	Discussion about success of promotions
	Timing of promotions	Discussions about the timing (e.g., time of year) of promotions
Other food related thoughts		Any other food related thoughts

## Appendix C: Video production results

In the workshops held in Stage 1, in addition to asking the 33 young people about their experiences with and views on the marketing of food marketing, the researchers collected their thoughts and opinions on the appearance and content of advocacy videos similar to the one we planned to produce. Some questions had unanimous or near-unanimous agreement while others resulted in a more even split of opinions. Views also varied widely between workshop groups. In each of the sessions on video production, conversations centred on video styles, colours, characters, and content, each of which will be further described in this section. Any quotes are taken from the first workshop activity in which participants wrote down their reactions to each video. The second workshop on styles was not recorded and opinions of the participants were noted down by a member of the research team.

### Styles

Some video styles were preferred by those with an interest or connection to them. For example, one video that took on the appearance of a video game was polarising, with young people who enjoy video games voting in favour and those who do not voting against.

*"It's different and unique, relatable to some"*

*"Don't like the idea of lives"*

While there was no consensus around specific stylistic preferences, the young people did tend to prefer videos that were clear and simple without being childish.

*"The animation was simplistic and [...]--- in a non-childish way"*

*"NO! It looked bad, too much changing, very confusing, missed the message"*

Participants expressed concern as to whether the video would be taken seriously, and wanted to choose a video style that would reflect the seriousness of the topic.

*"Animation was funny looking and wouldn't be taken seriously"*

The young people also tended to prefer videos that would grab and keep people's attention, engaging them in the video. They did not like videos that seemed 'boring'.

*"A boring art style"*

*"The animation style created visual interest which made me pay more attention to the video itself"*

### Colours

As with animation styles, the young people showed an overall preference for attention-grabbing colours that did not seem too childish. Consequently, they generally did not enjoy muted, dark or pastel colours.

*"Yes, they were eye-catching. When things were bad it was duller. You could tell what was good and bad. There was contrast"*

*"Quite dull, made the teachers look like mean people by using dull colours"*

The young people were interested in a colour palette that would help communicate the message and tone of the video, and appreciated the example videos that achieved this.

*"The colours were very representative of the tone of the video"*

*"The colours were simple and didn't take away from the seriousness of the topic"*

### Content

The content of the video was based on the young people's thoughts and experiences around unhealthy food and drink marketing, which is discussed in the sections above. In regards to the video style as it relates to the content, the participants expressed a preference for clarity and storytelling to convey the emotions and experiences of the characters.

*"Not sure about topic"*

*"It helped represent the struggles those with asthma experience by showing her day-to-day routine"*

### Final storyboard workshops

After conducting the workshops, photo elicitation, and focus group discussions, the research team worked closely with the media production company to translate the young people's ideas and photos into a script and video storyboard. An additional workshop was then held with four participants from Group 2 with the aim of collecting their feedback and deciding on a final vision for the video. As in the Stage 1 workshops, this session was not recorded but participants' contributions were collected in notes by the research team.

The media company produced the final video, which was reviewed by the research team and edited based on their feedback. The video was launched on 21st November 2023 in a webinar and can be accessed here:

<https://www.youtube.com/watch?v=uXgV4T8X7DQ>