Digital food marketing to young people: A substantial public health challenge

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Prevention of childhood obesity is an international public health priority, given the significant impact of excess weight on acute and chronic diseases, general health, development and well-being [1]. Given the limited effect of interventions at the individual level [2], more comprehensive measures are needed in a ‘joined-up, whole systems approach’ [3] that is in line with the EU Action Plan [4].

One area that has attracted considerable attention as a modifiable risk factor for unhealthy diets and weight gain is that of digital marketing. The proliferation of digital food and beverage marketing has led to concerns about the influence of this type of exposure the health and wellbeing of children [5], particularly given their cognitive and developmental vulnerabilities [6]. In recent years, there has been a substantial shift in children’s media practices, from the dominance of television viewing to increasing time being spent online, including social media and content-sharing platforms (e.g. YouTube), subscription video on demand services (e.g. Netflix) and games (e.g. Fortnite) [7, 8]. Globally, one third of internet users are children and they are online for an average of around 15 hours per week, typically via portable devices such as tablets, laptops or smartphones [7, 8]. While this ubiquitous connectivity clearly provides opportunity for widespread engagement with positive campaigns to fight obesity [9], there is a need to better understand where children spend their digital time and what messages they are receiving about food and eating when they are there. Despite many social media platforms (such as Facebook) setting minimum age requirements of 13 years, evidence shows that many people younger than this have profiles and are active on these sites with or without their parent’s knowledge and consent [8]. Where children have gone marketers have followed, and it is estimated that kids digital advertising spend will reach $1.7bn by 2021 [7]. The United States and China are the largest online advertising markets in the world, with the UK in third place as the largest in Europe [10, 11].

Digital marketing, defined as “promotional activity, delivered through a digital medium, that seeks to maximise impact through creative and/or analytical methods” [5, p11] takes place in a complex ecosystem involving multiple actors including advertising technology (‘adtech’) companies, publishers and brands/agencies [12]. Marketing is largely delivered ‘programmatically’ (i.e. automated buying and selling of targeted advertising impressions) [12]. It is driven by data analytics and powerful creative techniques, many of which are unique to the digital format (such as virtual environments and augmented realities) [5]. It has been estimated that by the age of 13 years, adtech companies have collected over 72 million data points on a child, equivalent to 12,000 pieces of data for each hour spent online [13]. Although almost certainly an underestimation given that this excludes the trackers used by Facebook, Twitter, and YouTube among others [13], this exemplifies the unique ability of digital marketing to be personalised and tailored to individuals, in a way that is likely to make the persuasive impact even greater than for generic campaigns [14].

In general, the role of screen time in driving obesity is well-known [15]. For television food advertising specifically, the extent of children’s likely exposure [16], the marketing techniques used [17], the impact on eating behaviour [18] and the evidence for a causal relationship with body weight [19] are relatively well characterised. For digital marketing, this is not yet the case. There are some fundamental ethical and legal barriers that make characterising digital marketing prevalence and effects challenging for researchers [20], while the platforms retain the answers in-house with little scrutiny [5]. Nevertheless, there is emerging evidence to suggest that food marketing is highly prevalent in digital spaces where young people gather. One study of 10 websites popular with adolescents (12-17 years) in Canada found 14.4 million food advertisements in a single year, with cakes, cookies, and ice cream the most frequently advertised products [21]. Another study examining YouTube videos popular with children reported that foods and beverages were advertised more frequently than any other product (38% of ads) and a majority (56.3%) promoted unhealthy foods [22]. One key feature of these studies is that they explore digital marketing to which children are likely to be exposed (by virtue of the popularity of the media with this age group) rather than what is ‘targeted’ to children. As the impact of marketing on behaviour is a function of both exposure and power [23], it is typically more useful for researchers to use this approach rather than seeking to guess who the brands and marketers were hoping to reach.

Traditional advertising has tended to take a branding approach [24] and digital advertising appears to follow the same pattern [25]. Brand messaging is often deeply immersed in digital games, with contemporary advertising techniques including pop-ups and ‘unlock to play’ advertisements evident [26, 27]. Brands can use digital media to cultivate more vibrant and interactive ‘brand personalities’ in a way that was not possible with traditional media [28]. Digital marketers use tactics of peer engagement, emotion and entertainment to persuade young people to respond [29]. This appears critical to the effect [30]. Young people create posts on social media that replicate major food marketing campaigns [31] and this ‘earned media’ can proliferate through social networks and across the digital sphere quickly and powerfully [28]. Similarly, brands are able to leverage the power of social media influencers to propagate their messages, and it appears to work. In a recent study, when children (9-11y) were exposed to influencer marketing of unhealthy foods via YouTube, they consumed significantly more of the marketed snack relative to the alternative brand [32], demonstrating a brand-specific effect that was not tempered by the presence of a disclosure informing children that they were viewing marketing content. When the exposure was to influencer marketing via Instagram, a non-specific effect on intake was found whereby children consumed almost 100kcal more than the control group at a subsequent snack opportunity where the marketed foods were not available [33]. This is consistent with the beyond-brand consumption effects seen for television food advertising [34, 35].

Although still in relative infancy, there is sufficient evidence emerging to suggest that concern about the public health implications of young people’s exposure to digital marketing for unhealthy foods and beverages is justified [36]. Where do researchers and policymakers go from here? Novel methodologies such as screen capture are showing promise for characterising marketing exposure through social media apps [37] and automated tools are under development that may support more widespread monitoring activity to generate evidence to inform policy developments in this area [12]. While effective regulation of the digital world is challenging and has yet to be achieved in any country [38], progress is being made to explore potential avenues for leverage [5] and provide a ‘best practice checklist’ to inform government approaches [39]. There is progress shown by the introduction of the General Data Protection Regulations (GDPR) across the EU in 2018, and there are calls to update the Children’s Online Privacy Protection Act in the US [40]. However, more must be done, and quickly, to ensure that young people can participate freely in the digital world, benefitting from the information age to the maximum degree, without their dietary health being adversely affected as they do.

***Recommendations for research and further action***

We call for:

* Research to explore the impact of digital food and beverage marketing on normalisation of eating behaviours and longer-term effects on health outcomes in children (across childhood, from pre-schoolers to adolescents)
* Efforts to raise awareness of this issue among stakeholders including consumers (young people, parents), health campaigners and experts, and policymakers to encourage parental intervention and political will for action
* All relevant scientific societies dedicated to child health to work together to achieve meaningful policy progress to restrict children’s exposure to marketing for unhealthy foods and beverages online.

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EB conceptualized the work, and led interpretation of literature and preparation of drafts. DT, AM, SRD, MLF and DW made substantial contributions to the conception of the work and revised drafts critically for important intellectual content.

All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

References

1. World Health Organization (2016). Report of the Commission on Ending Childhood Obesity. WHO: Geneva, Switzerland. Available from <https://www.who.int/end-childhood-obesity/publications/echo-report/en/>.

2. Brown, T., et al., Interventions for preventing obesity in children*.* Cochrane Database of Systematic Reviews, 2019(7).

3. UK Government (2019). Government response to the House of Commons Health and Social Care Select Committee report on Childhood obesity: Time for action, Eighth Report of Session 2017-19. Available from <https://www.parliament.uk/documents/commons-committees/Health/Correspondence/2017-19/Childhood-obesity-Government-Response-to-eighth-report-17-19.pdf>.

4. European Union (2014). EU Action Plan on Childhood Obesity 2014-2020. Available from <http://publichealthwell.ie/node/748993>.

5. WHO Regional Office for Europe (2016). Tackling food marketing to children in a digital world: trans-disciplinary perspectives. Available from: <http://www.euro.who.int/en/health-topics/disease-prevention/nutrition/publications/2016/tackling-food-marketing-to-children-in-a-digital-world-trans-disciplinary-perspectives-2016>.

6. Michel, M., et al., Opportunities and challenges for a maturing science of consciousness*.* Nat Hum Behav, 2019. **3**(2): p. 104-107.

7. PwC (2019). Kids digital media report 2019. Commissioned by Superawesome. Available from <https://content.superawesome.com/pwc-kids-digital-advertising-report-2019>*.*

8. Ofcom (2019). Children and parents: Media use and attitudes report 2018. Available from <https://www.ofcom.org.uk/research-and-data/media-literacy-research/childrens/children-and-parents-media-use-and-attitudes-report-2018>.

9. Evans, D.W., et al., Social Marketing as a Childhood Obesity Prevention Strategy*.* Obesity, 2010. **18**(S1): p. S23-S26.

10. UK Advertising Association (2019). Advertising pays 7: UK advertising's digital revolution. Available from <https://www.adassoc.org.uk/resource/uk-advertisings-digital-revolution/>.

11. House of Lords (2018). UK advertising in a digital age. Select Committee on Communications, 1st Report of Session 2017-19. Available from <https://publications.parliament.uk/pa/ld201719/ldselect/ldcomuni/116/116.pdf>.

12. WHO Regional Office for Europe (2019). Monitoring and restricting digital marketing of unhealthy products to children and adolescents. Available from <http://www.euro.who.int/en/health-topics/disease-prevention/nutrition/publications/2019/monitoring-and-restricting-digital-marketing-of-unhealthy-products-to-children-and-adolescents-2019>.

13. Superawesome (2017). Blog: How much data do adtech companies collect on kids before they turn 13. Available from <https://blog.superawesome.tv/2017/12/13/how-much-data-do-adtech-companies-collect-on-kids-before-they-turn-13/>*.*

14. Matz, S.C., et al., Psychological targeting as an effective approach to digital mass persuasion*.* Proceedings of the National Academy of Sciences, 2017. **114**(48): p. 12714-12719.

15. Robinson, T.N., et al., Screen Media Exposure and Obesity in Children and Adolescents*.* Pediatrics, 2017. **140**(Supplement 2): p. S97-S101.

16. Kelly, B., et al., Global benchmarking of children's exposure to television advertising of unhealthy foods and beverages across 22 countries*.* Obesity Reviews; <https://doi.org/10.1111/obr.12840>; part of the upcoming supplement ‘Future Directions on Obesity Prevention’ by the Lancet Commission on Obesity, 2019.

17. Jenkin, G., et al., A systematic review of persuasive marketing techniques to promote food to children on television*.* Obes Rev, 2014. **15**(4): p. 281-93.

18. Boyland, E.J., et al., Advertising as a cue to consume: a systematic review and meta-analysis of the effects of acute exposure to unhealthy food and nonalcoholic beverage advertising on intake in children and adults*.* The American Journal of Clinical Nutrition, 2016. **103**: p. 519-533.

19. Norman, J.A., et al., The impact of marketing and advertising on food behaviours: Evaluating the evidence for a causal relationship*.* Current Nutrition Reports, 2016. **5**(3): p. 139-149.

20. Tatlow-Golden, M., et al., A safe glimpse within the "black box"? Ethical and legal principles when assessing digital marketing of food and drink to children*.* WHO Public Health Panorama, 2017. **3**(4): p. 613-621.

21. Potvin Kent, M. and E. Pauzé, The Frequency and Healthfulness of Food and Beverages Advertised on Adolescents' Preferred Web Sites in Canada*.* Journal of Adolescent Health, 2018. **63**(1): p. 102-107.

22. Tan, L.A., et al., What's on YouTube? A Case Study on Food and Beverage Advertising in Videos Targeted at Children on Social Media*.* Childhood Obesity, 2018. **14**(5): p. 280-290.

23. WHO, Set of recommendations on the marketing of food and non-alcoholic beverages to children. 2010: WHO Geneva. p. 4-5.

24. Connor, S.M., Food-related advertising on preschool television: Building brand recognition in young viewers*.* Pediatrics, 2006. **118**: p. 1478-1485.

25. Vassallo, A.J., et al., Junk Food Marketing on Instagram: Content Analysis*.* JMIR Public Health Surveill, 2018. **4**(2): p. e54.

26. Smith, R., et al., Food Marketing Influences Children's Attitudes, Preferences and Consumption: A Systematic Critical Review. Nutrients, 2019. **11**: p. 875.

27. Meyer, M., et al., Advertising in Young Children's Apps: A Content Analysis*.* Journal of Developmental & Behavioral Pediatrics, 2019. **40**(1): p. 32-39.

28. Coolr (2019). Burger King win at PRCA Digital Awards <https://www.wearecoolr.com/coolr-and-burger-king-win-at-prca-digital-awards/>.

29. Boyland, E. and M. Tatlow-Golden, Exposure, Power and Impact of Food Marketing on Children: Evidence Supports Strong Restrictions*.* European Journal of Risk Regulation, 2017. **8**(2): p. 224-236.

30. Baldwin, H.J., B. Freeman, and B. Kelly, Like and share: associations between social media engagement and dietary choices in children*.* Public Health Nutrition, 2018. **21**(17): p. 3210-3215.

31. Holmberg, C., et al., Adolescents' presentation of food in social media: An explorative study*.* Appetite, 2016. **99**: p. 121-129.

32. Coates, A.E., et al., The effect of influencer marketing of food and a “protective” advertising disclosure on children's food intake*.* Pediatric Obesity, 2019. **0**(0): p. e12540.

33. Coates, A.E., et al., Social Media Influencer Marketing and Children's Food Intake: A Randomized Trial*.* Pediatrics, 2019. **143**(4).

34. Halford, J.C.G., et al., Beyond-brand effect of television food advertisements on food choice in children: the effects of weight status*.* Public health nutrition, 2008. **11**(09): p. 897-904.

35. Cairns, G., et al., Systematic reviews of the evidence on the nature, extent and effects of food marketing to children. A retrospective summary*.* Appetite, 2013. **62**(Supplement C): p. 209-215.

36. Buchanan, L., et al., The Effects of Digital Marketing of Unhealthy Commodities on Young People: A Systematic Review*.* Nutrients, 2018. **10**: p. 148.

37. Potvin Kent, M., et al., Children and adolescents' exposure to food and beverage marketing in social media apps*.* Pediatric Obesity, 2019. **14**(6): p. e12508.

38. World Health Organization. Evaluating implementation of the WHO Set of Recommendations on the marketing of foods and non-alcoholic beverages to children: Progress, challenges and guidance for next steps in the WHO European Region. Available from: <http://www.euro.who.int/__data/assets/pdf_file/0003/384015/food-marketing-kids-eng.pdf>. WHO Europe: Copenhagen, Denmark, 2018.

39. Critchlow, N., et al., Digital Feast: Navigating a digital marketing mix, and the impact on children and young people's dietary attitudes and behaviours. Available from <https://www.cancerresearchuk.org/sites/default/files/cancer-stats/digital_feast_june_2019_-_full_report/digital_feast_june_2019_-_full_report.pdf>. 2019.

40. Chester, J. (2019). Time to legislate COPPA 2.0. Available from <https://www.democraticmedia.org/article/time-legislate-coppa-20>.