

CONSUMPTION RESEARCH NORWAY (SIFO)

# Mapping the landscape of digital food marketing: Investigating exposure of digital food and drink advertisements to Norwegian children

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OSLO METROPOLITAN UNIVERSITY  
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<b>Summary</b> This report presents the results of a pilot mapping of the current digital marketing landscape of food and drinks directed at children between 3-17 years in Norway. The study follows the "Investigate Exposure"-step in the CLICK framework developed by the WHO European Office for Noncommunicable Diseases. Advertisement data were captured from 47 participating children's devices through a mobile application. The results show that a total of 5076 advertisements were captured during the data collection period. 1 in 10 advertisements promoted food and drink products, which were primarily captured from YouTube, and the children spent on average 13 seconds viewing them. These food and drink advertisements promoted a large variety of food categories outlined by the WHO's Nutrient Profile Model. According to WHO's guidelines, 8 in 10 food and drink advertisements were not permitted to be marketed to children. That is, a large majority of the marketing promoted unhealthy foods and drinks, high in fat, salt, and sugar. The top 10 food products identified in the sample were pizza, processed meat, beef burger, processed fish, ice cream, sweetened drinks without added sugar, milk chocolate, energy drinks, oatmeal, and sweetened drinks with added sugar. According to Norwegian guidelines, 1 in 10 food and drink advertisements were not acceptable marketing to children under the age of 13. That is, out of the total food and drink advertisements 9% were not acceptable according to Norwegian guidelines, compared to 82% according to WHO's guidelines. Thus, the findings highlight the differences between Norway and the World Health Organization, where the latter operate by stricter guidelines. The results may indicate that the current Norwegian self-regulation is not sufficiently protecting children, especially those above 13 years, against advertisements of unhealthy food and drinks. This report suggests that Norwegian guidelines ought to be better aligned with the WHO's guidelines, through actions such as re-defining and improve regulation of unacceptable food and drink advertisement to children, as well as re-considering the age concerns regarding food and drink marketing.		
<b>Keywords</b> Digital marketing, children, adolescents, unhealthy products, food marketing, obesity, World Health Organization, CLICK framework		
<b>Sammendrag</b> Denne rapporten presenterer resultatene fra en pilotstudie med mål om å kartlegge hvor mye barn mellom 3-17 år blir utsatt for digital markedsføring av mat og drikke i Norge. Studien følger trinnet «Undersøkelse av eksponering» i CLICK-rammeverket som er en metode utviklet av Verdens Helseorganisasjon (WHO) ved Europakontoret for ikke-smittsomme sykdommer. Data fra markedsføringen ble hentet via en app som var installert på 47 enheter som et barn var hovedbruker av. Resultatene viser at totalt 5076 annonser ble fanget opp i løpet av datainnsamlingsperioden. 1 av		

10 annonser reklamerte for mat- og drikkevarer, som primært ble hentet fra YouTube, og barna brukte i gjennomsnitt 13 sekunder på å se på annonsene. Disse reklamene for mat og drikke fremmet et stort utvalg av matkategorier som er representert i WHO sin næringsprofilmodell. Følger vi WHOs retningslinjer er 8 av 10 av mat- og drikkeannonsene som ble samlet inn ikke tillatt å markedsføre mot barn. Det vil si at et stort flertall av markedsføringen vi samlet inn i kategorien mat og drikke fremmet usunn mat og drikke med et høyt innhold av fett, salt og sukker. De 10 mest annonserte matvarene som ble identifisert var pizza, bearbeidet kjøtt, biffburger, bearbeidet fisk, iskrem, søte drikker uten tilsatt sukker, melkesjokolade, energidrikker, havregryn og søtet drikke med tilsatt sukker. Ifølge norske retningslinjer er kun 1 av 10 av disse mat- og drikkeannonser ikke akseptable å markedsføre mot barn under 13 år. Det vil si at av alle mat- og drikkeannonsene var 9% ikke akseptable i henhold til norske retningslinjer, sammenlignet med 82% i henhold til WHOs retningslinjer. Dermed fremhever funnene store forskjeller mellom Norge og Verdens helseorganisasjon, der sistnevnte opererer etter strengere retningslinjer for markedsføring av usunn mat og drikke mot barn. Resultatene kan indikere at dagens norske selvregulering ikke i tilstrekkelig grad beskytter barn, spesielt de over 13 år, mot reklame for usunn mat og drikke. Denne rapporten foreslår at norske retningslinjer i større grad tilpasses i henhold til WHOs retningslinjer. Dette kan gjøres gjennom tiltak som redefinerer og forbedrer reguleringen av uakseptabel annonsering av mat og drikke mot barn, samt å vurdere aldershensyn knyttet til markedsføring av mat og drikke.

**Stikkord**

Digital markedsføring, barn, ungdom, usunne produkter, matreklame, overvekt, Verdens helseorganisasjon, CLICK-rammeverket

# Preface

The purpose of this report is to provide insight into the digital marketing of foods and drinks directed at children in Norway. Digital marketing is highly complex and ever evolving, making it a challenging field of study. There are currently no ideal methods in place that is able to fully capture all digital exposure of marketing to children. However, the World Health Organization European Office for Noncommunicable Diseases has developed a CLICK framework, representing the best yet available method to monitor and assess digital marketing to children. This report employs the “Investigate Exposure”-step of the CLICK tool to conduct a pilot mapping of food and drink advertisements directed at children in social media platforms. The findings of this pilot project will hopefully provide insight into the current landscape of digital food and drink marketing towards children in Norway and may be useful in informing policies and actions directed at better protecting children from harmful digital marketing.

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Oslo, January 2021

Consumption Research Norway (SIFO)

OsloMet – Oslo Metropolitan University

# Executive summary

## Introduction

Obesity among children and adolescents are increasing worldwide, affecting both the physical and mental health of children. There is a proposed link between childhood obesity and marketing of unhealthy foods and drinks, as pointed out by WHO's Commission on Ending Childhood Obesity. Current available data demonstrate that marketing of unhealthy foods (i.e., high in saturated fats, salt, and/or sugars) is widespread and is actively directed at children and adolescents, which may influence their food preferences, purchase requests, and consumption patterns. In Norway, marketing of unhealthy foods and drinks to children below 13 years is self-regulated by the Norwegian food industry through *Matvarebransjens faglige utvalg* (MFU). Children have been spending more time online during the ongoing coronavirus pandemic (REF), and recent reports demonstrate that unhealthy foods and drinks have been promoted excessively during Covid-19 (REF). The ecosystem of digital advertising is highly complex and involves multiple processes and actors. Due to this complexity, it is currently not possible to measure individual consumers' complete exposure to digital advertisements, or to identify which of the targeted consumers are children. That is, monitoring and estimating the exposure of individual marketing in digital platforms is a challenging and comprehensive task. This report presents the results of a systematic mapping of food and drink advertisements directed at children in social media platforms by use of WHO's CLICK tool. The objectives of the study were to identify how many advertisements that were captured across the sample, what proportion of these that were identified as food/drink brands and products, what proportion of these that were not permitted to be marketed to children according to the WHO-Euro Nutrient Profile Model, what brands that were present and what advertising products that were not permitted to be marketed to children according to the WHO-Euro Nutrient Profile Model, and what proportion of food and drink advertisements that should not be directly marketed to children below 13 years according to Norwegian guidelines described in MFU.

## Method

The CLICK framework outlines how to systematically map the digital landscape of food and drink advertisements directed at children. This report is based on a pilot project in Norway coordinated by the World Health Organization Regional Office for Europe. The pilot employs the "investigate exposure"-step of the CLICK tool to conduct a systematic mapping of digital advertisement of food and beverages directed at children in Norway. Data were collected in two separate rounds; through a small-scale pilot study ( $N = 6$ ) and a full-scale study ( $N = 41$ ), resulting in a total of 47 participating children, aged between 3-17 years. Hence, the results in this report are based on a limited and non-representative sample of children, but may still provide interesting and informative patterns about the current digital landscape of food and drink marketing. Data about social media advertisements exposed to the children on their phones and/or tablets were captured between 2-4 weeks through a free-to-download application called RealityMeter. The data were descriptively analyzed in Excel according to a protocol outlined by WHO Europe.

## Results

A total of 5076 advertisements were captured from the 47 children during the data collection period. The advertisements were primarily captured from YouTube, followed by Instagram, Twitter, and Facebook. 1 in 10 advertisements promoted food and drink products. The food and drink advertisements were primarily captured from YouTube, and children spent on average 13 seconds viewing them. These food and drink advertisements promoted a large variety of food categories according to the WHO's Nutrient Profile Model, ranging from chocolate, ready-made meals, and energy drinks, to fresh fish, vegetables, yoghurt, and bread. According to WHO's guidelines, 8 in 10 food and drink advertisements were not permitted to be marketed to children. That is, a large majority of the marketing promoted unhealthy foods and drinks, high in fat, salt, and sugar. The top 10 food products identified in the sample were pizza, processed meat, beef burger, processed fish, ice cream, sweetened drinks without added sugar, milk chocolate, energy drinks, oatmeal, and sweetened drinks with added sugar. According to Norwegian guidelines, 1 in 10 food and drink advertisements were not acceptable marketing to children under the age of 13. That is, out of the total food and drink advertisements only 9% were not acceptable according to Norwegian guidelines, compared to 82% according to WHO's guidelines. Thus, the findings highlight the differing guidelines between Norway and the World Health Organization, where the latter operate by stricter guidelines and a more age-inclusive definition of children.

## Discussion

This study has mapped the current digital marketing landscape of food and drinks directed at children in Norway. The results show that children are exposed to much targeted advertisements when they use their personal phones and/or tablets. It is important to note that as the current study is a pilot and the results are based on a small sample size, the patterns presented here ought to be explored further in causal and larger-sample studies. Nevertheless, one of the challenges with mapping the digital marketing tailored to children is that the advertising is constantly evolving to be able to adapt to new preferences and changes. This makes it hard to keep track of and to be aware of potential harmful marketing that might contribute to childhood obesity. Out of all marketing captured in this study, 1 in 10 advertisements were food and drinks. 8 in 10 of these were considered as unhealthy according to WHO guidelines and were not acceptable to expose to children. However, only 1 in 10 of food and drinks advertisements were not accepted according to the Norwegian guidelines. The results may suggest a need for policies and regulations that better protect children in Norway against digital advertisement. The results indicate that the current Norwegian self-regulation is not sufficiently protecting children, especially those above 13 years, against advertisements of unhealthy food and drinks. This report suggests that Norwegian guidelines may benefit from better alignment with the WHO's guidelines, through actions such as re-defining and improving regulation of unacceptable food and drink advertisement to children, as well as re-considering the age concerns regarding food and drink marketing.

# Sammendrag

## Introduksjon

Tilfeller av overvekt blant barn og ungdom øker over hele verden, og påvirker både den fysiske og mentale helsen til barn. Det er en foreslått sammenheng mellom fedme hos barn og markedsføring av usunn mat og drikke, som påpekt av Verdens helseorganisasjons (WHO) Commission on Ending Childhood Obesity. Gjeldende tilgjengelige data viser at markedsføring av usunne matvarer (dvs. mat med høyt mettet fett, salt og/eller sukker) er mye utbredt og blir aktivt rettet mot barn og ungdom, noe som kan påvirke deres matpreferanser og forbruksmønstre. I Norge er markedsføring av usunn mat og drikke til barn under 13 år selvregulert av norsk matindustri gjennom Matvarebransjens faglige utvalg (MFU). Under den pågående Covid-19 pandemien har barn brukt mer tid på nettet og nylige rapporter viser at markedsføring av usunn mat har vært høy under pandemien. Landskapet for digital markedsføring er svært komplekst og involverer flere prosesser og aktører. På grunn av denne kompleksiteten er det for tiden ikke mulig å måle nøyaktig hvor mye forbrukere eksponeres for digitale annonser, eller identifisere i hvor stor grad annonsene er målrettet mot barn. Det vil si at overvåking og estimering av eksponeringen av individuell markedsføring i digitale plattformer er en utfordrende og omfattende oppgave. Denne rapporten presenterer resultatene av en systematisk kartlegging av mat- og drikkeannonser rettet mot barn på sosiale medier ved bruk av WHO's CLICK-rammeverk. Målet med studien var å identifisere mengden markedsføring, hvor stor andel av annonsene som var mat- og drikkemerker/produkter, hvor stor andel av disse som ikke var tillatt å markedsføre til barn ifølge WHO sin 'Euro Nutrient Profile Model', og hvor stor andel mat- og drikkeannonser som ikke bør markedsføres direkte til barn under 13 år i henhold til norske retningslinjer beskrevet i MFU.

## Metode

CLICK-rammeverket er en metode for å systematisk kartlegge det digitale landskapet for mat- og drikkeannonser rettet mot barn. Denne rapporten er basert på en pilotstudie i Norge koordinert av Verdens Helseorganisasjons Europakontor for ikke-smittsomme sykdommer. Piloten følger trinnet " Undersøkelse av eksponering " CLICK-rammeverket for å gjennomføre en systematisk kartlegging av digital reklame for mat og drikke rettet mot barn i Norge. Data ble samlet inn i to separate perioder; gjennom en småskala pilotstudie (N = 6) og en fullskala studie (N = 41), som resulterte i totalt 47 deltagende barn i alderen 3-17 år. Resultatene i denne rapporten er basert på et begrenset og ikke-representativt utvalg av barn, men kan fremdeles gi interessante og informative mønstre om det nåværende digitale landskapet innen markedsføring av mat og drikke. Markedsføringen som barna ble eksponert for via sosiale medier på sine telefoner og/eller nettbrett, ble fanget opp av en gratis app kalt RealityMeter i en periode på 2-4 uker. Dataene ble analysert i Excel i henhold til en protokoll skissert av WHO Europa.



## Resultater

Totalt ble det samlet inn 5076 annonser fra de 47 deltagende barna i løpet av datainnsamlingsperioden. De fleste annonsene ble samlet inn fra YouTube, etterfulgt av Instagram, Twitter og Facebook. 1 av 10 annonser promoterte mat- og drikkevarer. Mat- og drikkeannonsene ble primært hentet fra YouTube, og barn brukte i gjennomsnitt 13 sekunder på å se på annonsene. Disse reklamene for mat og drikke promoterte et stort utvalg av matkategorier representert i WHO sin næringsprofilmodell, og omfavner alt fra sjokolade, ferdige måltider og energidrikker til fersk fisk, grønnsaker, yoghurt og brød. Ifølge WHO sine retningslinjer er 8 av 10 av mat- og drikkeannonsene ikke tillatt å markedsføre for barn. Det vil si at et stort flertall av markedsføringen fremmet usunn mat og drikke med et høyt innhold av fett, salt og sukker. De 10 mest annonserte matvarene som ble identifisert var pizza, bearbeidet kjøtt, biffburger, bearbeidet fisk, is krem, søte drikker uten tilsatt sukker, melkesjokolade, energidrikker, havregryn og søte drikker med tilsatt sukker. Ifølge norske retningslinjer er kun 1 av 10 av disse mat- og drikkeannonser ikke akseptable å markedsføre mot barn under 13 år. Det vil si at av alle mat- og drikkeannonsene var 9% ikke akseptable i henhold til norske retningslinjer, sammenlignet med 82% i henhold til WHO's retningslinjer. Dermed fremhever funnene de forskjellige retningslinjene mellom Norge og WHO, der sistnevnte opererer etter strengere retningslinjer og hvor definisjonen av barn har et større aldersspenn.

## Diskusjon

Denne studien har kartlagt dagens digitale landskap for markedsføring av mat og drikke rettet mot barn i Norge. Resultatene viser at barn i stor grad blir eksponert for målrettede annonser når de bruker sine telefoner og/eller nettbrett. Det er viktig å bemerke at ettersom den nåværende studien er en pilot og resultatene er basert på et lite utvalg, bør mønstrene som presenteres studeres nærmere i årsaksstudier og studier med større utvalg. En av utfordringene ved å kartlegge digital markedsføring skreddersydd for barn er at annonsene hele tiden utvikler seg for å kunne tilpasse seg nye preferanser og endringer. Dette gjør det vanskelig å holde rede på og være klar over potensiell skadelig markedsføring som kan bidra til overvekt hos barn. 1 av 10 av all markedsføring som ble samlet inn i denne studien var annonser for mat og drikke. 8 av 10 av disse ble ansett som usunne i henhold til WHO's retningslinjer og er ikke akseptable å rette mot barn. Imidlertid er bare 1 av 10 av mat- og drikkeannonser ikke godtatt i henhold til de norske retningslinjene. Resultatene kan tyde på behov for reguleringer og forskrifter som bedre beskytter barn i Norge mot digital markedsføring. Resultatene indikerer at dagens norske selvregulering ikke i tilstrekkelig grad beskytter barn, spesielt de over 13 år, mot reklame for usunn mat og drikke. Denne rapporten antyder at norske retningslinjer kan ha nytte av en tilpasning som i større grad samsvarer med retningslinjene til WHO. Dette kan gjøres gjennom tiltak som redefinerer og forbedrer reguleringen av uakseptabel annonsering av mat- og drikke for barn, samt å vurdere aldershensyn knyttet til markedsføring av mat og drikke.

# Content

Preface .....	3
Executive summary .....	4
Sammendrag .....	6
Content .....	8
1. Introduction .....	10
1.1 Previous research on food and drink advertisement directed at children.....	11
1.2 The ecosystem of digital marketing.....	12
1.2.1. Digital marketing during the Covid-19 pandemic.....	13
1.3 Current regulations of food and drink marketing directed at children in Norway .....	14
1.4 Project objectives and research questions.....	15
2. Method.....	17
2.1 The CLICK framework .....	17
2.2 Sample and procedure .....	17
2.3 Data collection through the RealityMeter application.....	19
2.4 Data analysis.....	20
2.4.1. Analysis according to WHO-Euro Nutrient Profile Model.....	20
2.4.2. Analysis according to Norwegian guidelines/MFU .....	22
2.5 Methodological challenges.....	22
2.5.1 Limitations to the method.....	22
2.5.2. Recruitment and drop-out .....	23
2.5.3. Data collection and analysis .....	24
3. Results.....	25
3.1 How many advertisements were captured across the sample?.....	25
3.2 What proportion of advertisements are identifiable as advertising food and drink products? .....	26
3.3 What proportion of food and drink advertisements are not permitted to be marketed to children according to the WHO-Euro Nutrient Profile Model? .....	30
3.4 What brands are present, and which are advertising products not permitted to be marketed to children according to the WHO-Euro Nutrient Profile Model? .....	31
3.5 What proportion of food and drink advertisements are considered acceptable according to Norwegian guidelines? .....	34
4. Discussion.....	35
4.1 Summary of results.....	35
4.2 Policy implications .....	36
Conclusion.....	37

References .....	38
Appendices .....	42
Appendix A: Food categories of the WHO-Euro Nutrient Profile Model .....	42
Appendix B: Food product list of Norwegian guidelines/MFU .....	45

# 1. Introduction

Obesity among children and adolescents is increasing worldwide (Osei-Assibey et al., 2012). While the prevalence of overweight and obesity among *children* in Norway has seemingly stabilized during the last decade, the prevalence among *adolescents* have increased (Torheim et al., 2020). Approximately 25% of Norwegian adolescents are obese or overweight (FHI, 2018). According to recent national survey-, biological-, and clinical data among 8066 children aged between 13-19 years, weight among both boys and girls have increased in all age groups from 1986 to 2019 (Rangul & Kvaløy, 2020). Specifically, average weight for boys have increased by 3,9 kg and 3,4 kg for girls during these three decades. Obesity based on Body Mass Index/BMI also continue to increase for both genders (Rangul & Kvaløy, 2020). Moreover, the prevalence of obesity and overweight among both adults and children in Norway are higher compared to the other Nordic countries (World Obesity, 2020). Less than half of Norwegian children follow the national dietary guidelines and there are tendencies showing that this trend has increased in the past few years (Haug et al., 2020).

Obesity in early childhood and adolescence affect both the physical and mental health of children (Neef et al., 2013). Obesity in childhood tends to persist into adulthood, leading to increased risk for a range of health issues, such as cardiovascular death (Twig et al., 2016). Specifically, children who are overweight or obese have an increased risk of developing serious physical health issues, such as type 2 diabetes, high blood pressure, asthma, respiratory problems, sleep disorders, and liver diseases (Torheim et al., 2020; VicHealth, 2020). Additionally, they have a heightened risk of suffering from mental health issues, including depression, anxiety, social isolation, and low self-esteem (Braet, Mervielde, & Vandereycken, 1997; Wardle & Cooke, 2005). Additionally, children and adolescents with a low socioeconomic status have a heightened risk of having an unhealthy diet, having low physical activity, and of being overweight and obese (Haug et al., 2020; Torheim et al., 2020). Moreover, obesity in *childhood* increases the likelihood of overweight, obesity, noncommunicable diseases, premature death, cardiovascular death, disability, and mental health disorders in *adulthood* (Llewellyn, Simmonds, Owen, & Woolcott, 2016).

Possible obesity factors are many and complex and are typically the same for children as for adults. Research capable of inferring causality that has compared the effect of various factors on food behaviors and health, suggest that food marketing influences children and adults. Specifically, such studies find that parents, family, peers, socioeconomic background, and other lifestyle aspects all have a substantial effect on food behavior and health. Importantly, marketing of food and drinks are implied to have an equally substantial effect (Cairns, Angus, & Hastings, 2009). Thus, studies suggest that marketing of foods and drinks high in salt, sugars, and fats, contribute to poor dietary choices in children and subsequent health-related diseases later in life (Sadeghirad, Duhaney, Motaghipisheh, Campbell, & Johnston, 2016). Consumption of such products can result in a heightened risk of obesity, overweight, or several noncommunicable diseases (Torheim et al., 2020; WHO, 2018). There is indeed a clear link between childhood obesity and marketing of unhealthy foods and drinks, as pointed out by WHO's Commission on Ending Childhood Obesity (ECHO, 2016):

*“There is unequivocal evidence that the marketing of unhealthy foods and sugar-sweetened beverages is related to childhood obesity. Despite the increasing number of voluntary efforts by industry, exposure to the marketing of unhealthy foods remains a major issue demanding change that will protect all children equally. Any attempt to tackle childhood obesity should, therefore, include a reduction in exposure of children to, and the power of, marketing.”*

## 1.1 Previous research on food and drink advertisement directed at children

Marketing of unhealthy food and drink products in *traditional* media, such as TV, is associated with negative effects on children’s food consumption and childhood obesity (Brown et al., 2018; Cairns et al., 2009; Sonnevile et al., 2015). Previous studies suggest that equivalent marketing in *digital* media has similar effects on children (Boyland et al., 2016; Sadeghirad et al., 2016). However, knowledge about digital marketing of foods and drinks to children is lacking, and further research is needed (Cairns et al., 2009).

Most of the available international data on food and beverage marketing to children and adolescents shows that this phenomenon is prevalent, both in developed and developing countries (Boyland et al., 2016; Cairns et al., 2009; Sadeghirad et al., 2016). Research suggests that a considerable amount of this marketing promotes food and drink products high in fat, sugars, or salt. For example, a systematic review of 115 studies shows that most of the advertised food and drink products are energy dense, high in fat, sugar, and salt, and thus oppose both national and international dietary guidelines (Cairns et al., 2009). Soft drinks, fast food, confections, salty snacks, and sugary cereals are among the most common advertised product categories. However, unprocessed foods and drinks, such as fruit, vegetables, milk, and wholegrain, are hardly ever advertised according to Cairns and colleagues’ (2009) systematic review. Furthermore, this food marketing directed at children is pervasive across digital platforms and has a persuading character by appealing to children through various commercial strategies such as colorful packaging, gamification, fun and fantasy, and use of cartoon and other popular characters (Cairns et al., 2009; Lavriša & Pravst, 2019; Mehta et al., 2012; Ogle, Graham, Lucas-Thompson, & Roberto, 2017). Such child-directed marketing is positively received by children. Many types of food advertisements evoke engagement, interest, attention, and enjoyment in children (Cairns et al., 2009). Advertising exposure of unhealthy foods has also been found to increase brand preference for those unhealthy foods in children between 7 and 12 years (Smith et al., 2020). It is important to note that the food children consume are mostly bought and served by their parents. Hence, marketing of food and drinks to adults can indirectly affect children’s food and drink consumption. However, children, and especially adolescents, are increasingly being treated as consumers in their own right by commercial actors, as children often exert great influence on their parents’ purchasing behavior. In fact, parents often give in to their children’s preferences and purchase requests for foods and drinks, and find them hard to resist (Cairns et al., 2009).

There has also been conducted previous mappings of children's exposure to digital food and drink advertisements in Norway. Two previous reports by Consumption Research Norway (SIFO) suggest that children's exposure to unhealthy food marketing is relatively low in traditional marketing channels such as TV, as well as in digital marketing (Bugge, Rosenberg, & Tingstad, 2016; Bugge & Rysst, 2013). However, a series of recent reports by SIFO show that children and adolescents in Norway are increasingly involved as consumers through digital platforms, where they are faced with a massive and complex digital marketplace that employs sophisticated and partly hidden marketing strategies (Rosenberg, Steinnes, & Storm-Mathisen, 2019; Steinnes & Mainsah, 2019; Steinnes, Teigen, & Bugge, 2019). Further support of the increased marketing pressure on children comes from a recent report by the Norwegian Consumer Council that shows that advertising of unhealthy food and drinks is actively directed at children in social media. The Norwegian Consumer Council (2019) argue that the current Norwegian self-regulation is insufficient in protecting children against advertising of unhealthy food and drinks. They assert that the lack of protection of children older than 13 years is especially problematic as this age group is left particularly vulnerable to marketing on social media.

Influencer marketing, prevalent on social media, is a new form of digital marketing that appears to influence children's food consumption. An influencer may be defined as an online celebrity with a large (and typically young) fan-following, whose opinions and attitudes are highly influential to their followers (Coates et al., 2019a). Studies show that marketing of unhealthy foods using influencers have an effect on children's immediate consumption of the promoted unhealthy food product (Coates et al., 2019a; Coates et al., 2019b). Influencer marketing of healthy foods and drinks, however, has been shown to have no effect on children's immediate food intake (Coates et al., 2019b). That is, these results suggest that children are susceptible to influencer marketing of *unhealthy* foods, but not to influencer marketing of *healthy* foods. National reports find that children and adolescents in Norway are exposed to subtle and sophisticated influencer marketing (Rosenberg et al., 2019; Steinnes et al., 2019), including marketing of unhealthy food and drink products and brands (Norwegian Consumer Council, 2019).

Despite the recent empirical evidence mentioned so far, further mappings are necessary, as the phenomenon of digital marketing is constantly evolving and adapting to its young audience and is individually tailored to children's personal data (Cairns et al., 2009). Specifically, the knowledge about tailored digital marketing is lacking (Øvrebø & Helleve, 2020). Due to the global nature of the digital marketplace that children take part in, it is essential to conduct thoroughly systematic and comparable mappings across countries (WHO, 2019). Such empirical evidence is vital in order to facilitate international policy developments and form the basis of a more comprehensible global picture of the landscape of digital marketing towards children.

## 1.2 The ecosystem of digital marketing

Children across Europe have relatively easy access to internet and digital platforms (Eurostat, 2020). In Norway, almost all children between 9-18 years have their own phone or tablet, and approximately 90% get their own phone at age 9-10 (Norwegian

Media Authority, 2020a). Most Norwegian children between 9-18 years use social media platforms, and just below 70% spend at least three hours online every day (Bakken, 2020). Children and adolescents report being exposed to a great deal of advertisements on social media (Norwegian Media Authority, 2020b; Rosenberg et al., 2019; Steinnes et al., 2019). Hence, while online, children in Norway are exposed to a great deal of digital marketing tailored to fit their personal preferences and wants, based on their individual data (Rosenberg et al., 2019).

Digital advertisement is a global multibillion-dollar industry. The industry has seen an exponential growth during the last decade. In 2010 spending on global digital advertisement was estimated to be over 70 billion USD, accounting for about 15% of total advertisement (Statista, 2020c). In 2018, however, spending on global digital advertisement was estimated just above 280 billion USD, accounting for almost half (45%) of total advertisement expenditure (Statista, 2020c). To further illustrate the rate at which digital advertisement is growing, guesstimates for the global expenditure is 600 billion USD in 2025 and 1 trillion USD in 2030, accounting for respectively 60% and 80% of total advertisement expense (Statista, 2020c). Digital advertising is also rapidly increasing in Norway and makes up approximately 50 percent of total Norwegian media investments. That is, in 2019 the total media advertisement spending in Norway exceeded 21 billion NOK, with almost 12 billion NOK spent on internet advertisement (MedieNorge, 2019; Statista, 2020a). Spending on digital marketing in Norway is expected to reach roughly 14 billion NOK in 2020, including a slight decline due to the coronavirus outbreak (Statista, 2020b).

Initially, digital marketing was not directed at individuals. Rather, it was typically directed at a broad audience that consumed similar content. All consumers of this audience would be exposed to the same advertisements at the same time (WHO, 2018). Today, technical innovations provide the possibility to tailor digital marketing to individual consumers and target them based on their personal preferences and data (e.g., expose the advert to fit individual time and context) (VicHealth, 2020). Personal data has thus become a highly valuable currency in the ecosystem of digital marketing (Rosenberg, Storm-Mathisen, et al., 2019).

The system of digital advertising is highly complex and involves multiple processes and actors. Due to this complexity, it is currently not possible to measure individual consumers' complete exposure to digital advertisements (WHO, 2018). That is, no actor in the system can figure out who sees which adverts, and when, where, and on what device they see it. And, importantly, it is currently impossible to identify which of the targeted consumers are children. This means that, despite commercial actors wanting to restrict their advertising to children, no one in the current ecosystem has the capacity to completely control this process (WHO, 2018). Hence, children may still be exposed to all forms of digital advertising.

### **1.2.1. Digital marketing during the Covid-19 pandemic**

The spend on digital marketing is rapidly growing, consistent with an increase in online shopping, especially during the pandemic outbreak of Covid-19 (Slette-meås & Storm-Mathisen, 2020; Steinnes & Thorjussen, 2020). In fact, the global market of digital advertising is estimated to eclipse traditional media for the first time at the end of 2020.

While the pandemic has slowed the steady growth in marketing spending, many advertisers and brands are shifting their marketing spending from traditional media to digital media, and the corona pandemic is believed to accelerate this shift (Wieser, 2020). The main reason behind this heightened focus on digital marketing during the pandemic is believed to be utilizing the time people spend in lockdown (VicHealth, 2020). That is, several brands have increased their spend on digital marketing, as a result of the coronavirus pandemic, where people are spending much more time online than before the Covid-19 outbreak. Children in Norway (Mainsah & Steinnes, 2020; Slette-meås & Storm-Mathisen, 2020), and around the globe (e.g., VicHealth, 2020; Wong et al., 2020), have been spending more time online during and after the covid-19 outbreak.

A report from September 2020 by the NCD Alliance and SPECTRUM research consortium have examined the extent of unhealthy commodity industries during Covid-19. Through a mapping of almost 800 examples of unhealthy practices in more than 90 countries, they find that ultra-processed foods and beverages have been promoted extensively during the pandemic (Collin, Ralston, Hill, & Westerman, 2020). That is, companies have quickly adjusted their marketing to exploit health and social concerns related to the coronavirus pandemic. Typical strategies have been to associate products with infection prevention, such as promoting social distancing and including facemasks in advertisements (Collin et al., 2020). Similar findings are found in a recent report by Global Health (2020), demonstrating that unhealthy foods and drinks have been promoted excessively during the era of Covid-19.

### 1.3 Current regulations of food and drink marketing directed at children in Norway

There are little effective regulations set in place of unhealthy food marketing directed at children (WHO, 2018). In Norway, marketing is mainly regulated through the Marketing Control Act (Law data, 2009) and the Broadcasting Act (Law data, 1992). Regulations of marketing of foods in broadcast media is considered to be strong but will not apply to all the digital platforms of which many children are exposed to (Torheim et al. 2020). It is not directly illegal to advertise unhealthy foods and drinks towards children in Norway. However, according to the Marketing Control Act it is generally forbidden to directly encourage children to purchase any kinds of products, including unhealthy foods and drinks. The food industry in Norway introduced an internal self-regulatory system in 2013 based on voluntary guidelines related to the marketing of unhealthy foods and beverages, called *Matvarebransjens faglige utvalg* (MFU) (Øvrebø & Helleve, 2020). This scheme covers marketing directed at children under 13 years, including social media, gaming, websites, blogs, and digital forums (WHO, 2018). The scheme was originally based on a regulation proposal by the Norwegian government that included the protection of marketing to children up to 18 years. During several adjustments, the age limit of the scheme was reduced to children under 16 years, and eventually resulted in a scheme protecting children under 13 years (Boyland, Garde, Jewell, & Tatlow-Golden, 2018). Taken together, the MFU guidelines are meant to contribute to a more ethical and responsible marketing practice of foods towards children below 13 years. Children above 13 years are not protected by these



guidelines, although the guidelines specify that marketers ought to exercise caution when targeting older children.

According to WHO (2018), self-regulation schemes and industry pledges to protect children from unhealthy products, have not been successful in preventing actual exposure to children. During fall 2019, the internal guidelines of MFU's self-regulatory scheme were evaluated by The Norwegian Institute of Public Health (FHI) commissioned by The Norwegian Ministry of Health and Care Services (HOD). In their thorough evaluation, Øvrebø and Helleve (2020), point out the need for further knowledge about the extent of digital marketing of unhealthy foods and drinks to children. They also highlight that the self-regulation scheme is relatively unknown among parents with children under 16 years, and that it is criticized for having a low age limit. The latter critique is shared by the Norwegian Consumer Council (2019), which suggest further and better protection of all children, including adolescents. Policies aimed at reducing or restricting marketing of foods and drinks to children are encouraged by evidence from clinical trials, interventions, and expert meetings (Magnus, Haby, Carter, & Swinburn, 2009; Osei-Assibey et al., 2012; Sonnevile et al., 2015; Torheim et al., 2020). Norwegian children and adolescents themselves call for better protection from harmful marketing and suggest more transparent labelling and stricter regulations of marketing content directed at children (Norwegian Media Authority, 2020c; Steinnes et al., 2019). In their review of existing policies and regulations surrounding food in Norway, Torheim et al. (2020), do in fact suggest that regulations of marketing of unhealthy foods and beverages to children are implemented in Norway. As a minimum, they propose that the guidelines in the self-regulatory scheme of MFU is extended to cover packaging, logo, and promoted content, in line with recommendations from the World Health Organization.

In sum, monitoring and estimating the exposure of individual marketing in digital platforms is a challenging and comprehensive task. The knowledge about digital marketing of food and drinks to children is currently lacking. Thus, this project aims to address this important knowledge gap through a systematic mapping of food and drink advertisements directed at children in digital platforms by use of WHO's CLICK tool (see section 2.1 for a description). The current project aims to provide useful empirical-based insights related to future evaluations of MFU, and policies aimed at protecting children from harmful digital advertising.

## 1.4 Project objectives and research questions

The main objective of this project is to map the current digital marketing landscape of food and drinks directed at children in Norway. A further purpose is to provide empirical guidance and insight into policies and other initiatives aimed at protecting children against harmful digital advertisement, at a national-, European-, and global level. Specifically, the project sets out to address the following research questions, as outlined in part by the CLICK framework:

1. To what extent are children exposed to digital marketing on social media?
  - a. What proportion of total marketing to children are viewed across different social media platforms?

2. What proportion of total marketing to children are food and drink advertisements?
  - a. What proportion of food and drink marketing to children are viewed across different social media platforms?
  - b. How much time do children spend looking at food and drink advertisements?
3. What proportion of food and drink advertisements are not permitted to be marketed to children according to the WHO-Euro Nutrient Profile Model?
4. What food and drink brands are present and which products are not permitted to be marketed to children?
5. What proportion of food and drink advertisements should not be directly marketed to children below 13 years according to Norwegian guidelines/MFU?

## 2. Method

### 2.1 The CLICK framework

As stated in the introduction, the complexity of the digital marketing ecosystem makes it highly challenging to measure the extent of children's exposure to digital advertising. However, The World Health Organization Regional Office for Europe has developed CLICK – a tool for monitoring children's exposure to marketing of unhealthy products online. This report is based on a pilot project in Norway coordinated by the WHO Regional Office for Europe. The pilot employs the CLICK tool to conduct a systematic mapping of digital advertisement of food and beverages directed at children in Norway. The overarching purpose of CLICK is to facilitate effective and cross-country monitoring of digital advertising to children, providing empirical insight that may be used to inform policies aimed at (better) protecting all children, and not just those below current age thresholds (WHO, 2019).

CLICK stands for *Comprehend the digital ecosystem, Landscape of campaigns, Investigate exposure, Capture on-screen, and Knowledge sharing* (WHO, 2018). "Comprehending the digital ecosystem" involves mapping the global, regional, and national digital marketing ecosystem and children's website/app usage, as well as their awareness of marketing techniques and campaigns. "Landscape of campaigns" relates to assessing campaigns run by national brands through data collection from advertising agencies and social media sampling, in order to identify what content is viewed by various age groups. "Investigating exposure" attempts to map exposure to paid-for digital advertising experienced by a panel of children using an installed smartphone app that (with consent) monitors and aggregates data on children's interaction with adverts on social media. "Capture on-screen" involves the use of real-time screen capture software on a representative sample of children to find out what children actually see online on their devices. "Knowledge sharing" entails the production of user-friendly materials based on the empirical data from the other steps, and partnership with young people, parents, policy makers, and civil society, to raise awareness, advocate change, and influence policy.

CLICK is a framework under ongoing development. The current project has solely implemented the "investigate exposure"-step. Hence, the project aims to reveal the reach and frequency of the marketing message, as digital marketing of food and drinks towards children has an impact on their food preferences, purchase requests, and consumption patterns (WHO, 2019).

### 2.2 Sample and procedure

This project follows the CLICK-methodology developed by the World Health Organization, as outlined in the preceding section. Data were collected in two separate rounds; through a small-scale pilot study ( $N = 6$ ) and a full-scale study ( $N = 41$ ), resulting in a total of 47 participating children. The main purpose of the pilot was to test the methodology in a smaller sample, particularly the technical aspect of data collection through the RealityMeter application. The project applied for and received ethical approval from the Norwegian Centre for Research Data.

The sample for the pilot was recruited in early August 2020 through the recruitment agency Norstat. They recruited 11 children based on the following recruitment criteria: aged between 3 and 17 years, main user of an Android or iOS device (i.e., phone or tablet). Three participants dropped out prior to starting the study, and one participant did not manage to keep the app installed, resulting in a total of 6 children. The sample for the full-scale study was recruited from early November until late November 2020 through the recruitment agency Norstat. They recruited 130 parents with a total of 200 children based on the following recruitment criteria: aged between 3 and 17 years, main user of an Android or iOS device (i.e., phone or tablet). Recruitment stopped when signed informed consent had been obtained from the parents of 200 children. Many of the 200 participants had issues with downloading the app and having the app installed during the data collection period (see more details on this in section 2.5. below). Due to these issues, advertisement data were only able to be collected from 47 children. The total sample from both studies ( $N = 47$ ) had a mean age of 11 years, included twice as many boys as girls (66% boys and 34% girls), and were spread across Norway's regions where a predominance lived in Eastern-Norway (see table 2-1 and 2-2). Upon providing informed consent, the participants were invited to download the RealityMeter application through an individual link (see section 2.3 for more details). Upon completion of the data collection period, they were asked to de-install the application in order to conclude the study. All participants were rewarded a universal gift card as compensation for their participation.

**Table 2-1. Overview of the sample in the full-scale study, showing age and gender distribution.**

		Mean age	SD	Frequency	Percentage
<b>Gender</b>	Boys	11.29	3.81	31	66 %
	Girls	10.68	2.62	16	34 %
<b>Age range</b>	3-9 years	6.85	1.91	14	30 %
	10-12 years	11.12	0.88	16	34 %
	13-17 years	14.52	1.41	17	36 %
	Total	11.08	3.43	47	100 %

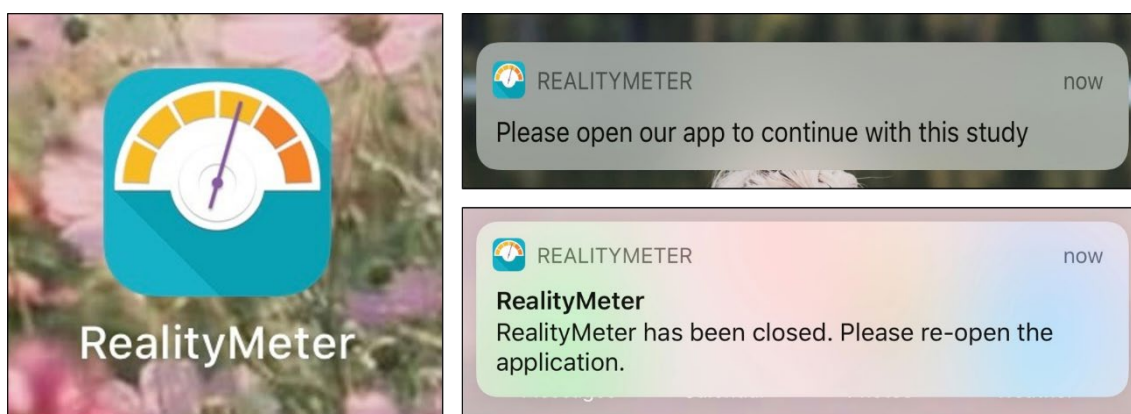
**Table 2-2. Overview of the sample in the full-scale study, showing distribution by region.**

<b>N = 47</b>		Frequency	Percentage
<b>Region</b>	Mid-Norway	7	15 %
	Western-Norway	10	21 %
	Eastern-Norway	15	32 %
	Northern-Norway	6	13 %
	Southern-Norway	5	11 %
	Oslo	4	8 %

## 2.3 Data collection through the RealityMeter application

All participants in both steps of the data collection were invited to download an application called RealityMeter (see figure 2-1), developed by RealityMine. The participating children and their parents received a setup guide for how to install, and later deinstall, the app and were able to contact the research- and app team with any issues.

Recruiting the parents who then explained and ‘recruited’ their children was valuable, as it seemed the children were more likely to understand the app compared to their parents. In most cases it was the children who installed the app and were able to understand the setup guide, while many parents expressed a lack of understanding. Thus, the successful setup of the app depended on either the child or parent having some level of digital competence required to install a mobile application with an associated VPN.



**Figure 2-1. Screenshots of the Reality Meter app icon (left) and app notifications (right).**

The setup guide and app instructions were translated from English to Norwegian for the purpose of the current study (see figure 2-2). Advertisements were captured through this app. For the small-scale pilot study, advertisements were captured over the course of 14 days, from 8<sup>th</sup> – 21<sup>st</sup> of August 2020. For the full-scale study, advertisements were captured over the course of 29 days, from November 11<sup>th</sup> – December 9<sup>th</sup> 2020. Not all 200 participants had the app installed during the full period due to two reasons: 1) The recruitment was still ongoing to reach 200 participants until the last two weeks before end of data collection, and 2) several participants had issues with keeping the app installed due to app issues or they were unable to install the app (see section 2.5. for more details).

To remind participants to keep the app installed and running throughout the data collection period, the app would send notifications if these were allowed and turned on by the participant (see figure 2-1). Details and information about advertisements were collected from various social media platforms. Specifically, advertisements from YouTube, Facebook, Instagram, and Twitter were collected. The application only recorded information about the advertisements on these media platforms when the children used them, and thus, were exposed to the social media advertisements. In addition to capturing advertisements in English through trigger words like “sponsored”, the application was also able to capture local commercials by adding the Norwegian



trigger word “*sponset*” to the app’s processing algorithm. The application collected information about the advertisement’s title, content description, total duration (if video ad), actual consuming time (i.e., time the child spent viewing the individual ad), which social media platform it was captured from, and local time of the ad exposure (i.e., the time of day the child viewed the advertisement). For data collection during the full-scale study, a digital advert dashboard was developed by RealityMine that would ease the process of data analysis. The dashboard allowed the researchers to monitor new adverts being captured throughout the data collection period and refreshed daily with the data collected on the previous day. It displayed all data associated with the advertisements, including the frequency of exposure of each one.

**Figure 2-2. Screenshot of the steps in the setup-guide of the Reality Meter application.**

## 2.4 Data analysis

### 2.4.1. Analysis according to WHO-Euro Nutrient Profile Model

Data from the pilot and full-scale study were combined for analysis purposes. All data analyses were performed according to the WHO-Europe’s protocol for data analysis of the output from the Reality Meter data capture (Boyland & Tatlow-Golden, 2020). The protocol described a step-by-step analysis guide in Excel, applying the WHO-NPM to each advertised food/drink product. The overall aim of the analysis was to provide an overview of what the data could tell us about the food/drink brands and products that were advertised through social media content watched by children.

Prior to analysis, the protocol outlined several preparatory steps. First, copies were retained of the original, unedited data files captured from all participants every day during the data collection period. Second, all media ID’s of each advertisement was assessed. As media ID’s degrade over time, this step was done immediately, due to the importance to capture all content made available via such ID’s. The content of each media ID was assessed to identify which advertisements was – or could be – promoting a food or drink brand/product. In accordance with previous research (Boyland et al., 2011; Kelly et al., 2010), where the advertisement featured a brand or

retailer that offers multiple products beyond food and beverages then this decision was based on the primary commercial category of that brand/retailer. For example, a supermarket advertisement would be considered a food/drink ad even if the ad itself referred to non-food items (such as clothes also sold in the same supermarket). This is because the primary commercial category of supermarkets is food and drink retail. A food delivery service would also be considered a food ad, as their primary commercial imperative is the sale of food. A cinema/movie theatre chain ad in which the availability of popcorn is mentioned would not be considered a food/drink ad because the primary commercial category is for entertainment products (i.e., movies). All ads that were identified as a food/drink advertisement were thoroughly assessed through their media IDs. This was done by copying and pasting the (a) advertisements link, (b) description, or (c) title into a web browser. All identifiable URLs and screenshots of advertisements were recorded. Then, each advertisement was viewed, and its main food/drink product was determined. If more than one food product was shown in the ad, the most dominant one was selected for coding. Researcher judgement was used in these circumstances. For example, it was considered whether one product appeared on screen as a larger image or for longer, or was verbally mentioned during the ad. If equal attention was given to several products, then the first product shown was selected for coding. In cases where the ad advertised a brand but did not show any product(s), a suitable product was identified to be reflected in the remainder of the coding (e.g. to be the product the WHO NPM was applied to). For example, in some cases the brand website was used to identify the main or first product visible. Researcher judgement was used in these circumstances to ensure the chosen item could be justified as a reasonable “representation” of the brand.

The first step of the analysis was to code the ‘exposure’ components. The following codes were used to indicate the type of product being advertised: 1 = food/drink, 2 = alcohol, 3 = tobacco or novel tobacco product, 4 = other (an identifiable brand/product that did not fit into any of the first 3 categories), 5 = not classified (non-identifiable). For every ad coded as “Type of advertised product = 1 (food/drink)”, the following information was coded: food/drink brand, food/drink product name, food/drink product description, WHO-Euro NPM food category code, nutritional information (i.e., total fat (g/100g), saturated fat (g/100g), total sugars (g/100g), added sugars (g/100g), non-sugar sweeteners (g/100g), salt (g/100g), energy (kcal/100g)), and whether or not marketing of the ad towards children was permitted according to WHO-Euro NPM. Table 2-1 provides an example of these coding categories.

**Table 2-3. Coding example of each food/drink advertisement.**

<b>Coding label</b>	<b>Data description example</b>
Food/drink brand	Müller
Food/drink product name	Fruit Corner yoghurt
Food/drink product description	Vanilla yoghurt with raspberry purée
WHO-Euro NPM food category code	7
Nutritional information (one column for each of the 7 categories: total fat, saturated fat, total sugars, added sugars, non-sugar sweeteners, salt, energy)	e.g. 12 g of total sugars per 100 g of product
Marketing permitted according to WHO-Euro NPM?	0 (meaning “no”, as total sugars exceed the threshold of 10 g/100 g)

The food or drink identified for each advertisement was given a food category code in accordance with the WHO-Europe NPM (e.g. 1 for chocolate and sugar confectionery; 4c for beverages – energy drinks; 8 for cheese etc). See appendix A for the full list. The code pertaining to the advertised product was entered in the relevant column (shaded in light red in Table 2-2 above). The WHO-Europe NPM (appendix A) outlines the rules for each food category code. This was used to determine whether each advertisement was permitted to be marketed to children or not. For several categories (e.g. chocolate and sugar confectionery; cakes, sweet biscuits and pastries; edible ices), *no products* that fell into these categories are permitted to be marketed to children, so these were immediately coded as 0 for “not permitted”. For others (e.g. fresh and frozen fruit; fresh and frozen meat), *all products* that fell into these categories are permitted to be marketed to children, so these were immediately coded as 1 for “permitted”. The remaining categories have specific rules for each category. Thus, for these categories the required nutritional information for each product was obtained and checked against the specified thresholds.

#### **2.4.2. Analysis according to Norwegian guidelines/MFU**

The definition of “unhealthy” food and drink products varies across countries. This is largely due to countries using different nutrient profiling methods and due to occasional changes in national nutrient guidelines to keep up with updated dietary recommendations (WHO, 2018). As Norway adheres to different guidelines related to the marketing of unhealthy foods and drinks than those outlined by the World Health Organization, there were performed additional analyses adjusted to Norwegian guidelines. According to MFU, the marketing of a given list of products should not be directly marketed to children below 13 years. This list includes chocolate and sugar-sweetened products, snacks, take-away meals, ice cream, and yoghurts (see appendix B for the full list). Direct marketing of the same products to children above 13 years should be done with caution. Hence, analyses according to Norwegian guidelines only included advertisements to children below the age of 13. These advertisements were first selected from the full dataset and were then subjected to a nutrient profile analysis according to MFU’s product list to determine which advertisements that adhered to Norwegian guidelines. For example, an advertised yoghurt product seen by a 6-year old would be identified as not adhering to Norwegian guidelines if it contained more than 3,3g fats/100g or more than 11g sugars/100g, as outlined by MFU’s product list.

## **2.5 Methodological challenges**

### **2.5.1. Limitations to the method**

The method used in this study has some limitations. The purpose behind the RealityMeter application of the *investigate exposure*-step of the CLICK framework was to investigate children’s exposure to digital marketing and map individual advertisements. However, the method is limited as it is not able to provide a complete mapping of advertisement exposure. Not all ads children are exposed is noticed by the app algorithm, and especially ads “hidden” in the content of influencers on Instagram. Furthermore, many children in Norway use TikTok and Snapchat, and neither of these apps were included in the data collection due to the piloting nature of both the study and the RealityMeter application. Even though the app was not able to capture the full



exposure of apps, the method is still among the best available tools to capture some of the tailored ads that the children are exposed to.

### **2.5.2. Recruitment and drop-out**

Out of the 211 children recruited in both rounds, only 47 managed to keep the RealityMeter app installed during the full data collection period. However, the participants who were unable to deliver data have still provided valuable knowledge on various complications with installing the app and keeping it in use. It is also possible that some of the children did not see any ads during the data collection, which might partly explain the low number of participants who delivered data. The following section elaborates in detail on some essential methodological challenges relating to recruitment, which we hope will give important insights for future studies employing the CLICK framework.

The Covid-19 pandemic and lockdown caused challenges for participants who wanted to join the project but were not able to sign the consent form due to not having access to a printer, scanner or similar equipment. Most people would normally have access to a printer at their job, but few had access to this at home as many Norwegians in this recruitment phase worked from home due to coronavirus restrictions. This was partly solved by some of the participants signing through digital means, but organizing this was highly time consuming for the researchers. It also made the recruitment process longer. For future studies it would be preferable to have access to an efficient digital signing scheme, in order to ease the administrative work.

After consent was received and the participants were provided the link for downloading RealityMeter, about 50-60 participants had issues with downloading the app and having it installed during the data collection period. It is possible that this number was higher, but that the issues was not reported to the researchers. Form of communication between the researchers and parents was mainly by email, but also by phone in some cases. The following list gives an overview of the different challenges experienced by the participants:

- The first participants who had iOS iPads were not able to use the link in the beginning. This was solved quickly by the RealityMeter support team at RealityMine who inserted an extra page in the setup for those with iPads and the problem did not occur again.
- Over half of the participants with an iOS iPad or iPhone had issues with their internet connection and with using other apps on their device, especially TikTok. This led to many frustrated children who used TikTok frequently on a daily basis and many of them de-installed the app while waiting for a solution to the problem. Unfortunately, the problem appeared multiple times, leading to high drop-out. 13 days before ending the data collection, Reality Mine provided a solution for the TikTok problem with a helpful video instruction, but at that point many of the participants was tired of the process and did not respond to emails. An estimation of around 20 participants with this issue did not re-install the app.
- Around 20-25 participants with Android phones or tablets had issues with getting past the VPN step during installation. The issue was solved after a few

days, but may have impacted some of the data collected from YouTube. This could also have affected the number of data gathered from participants, as some children only used YouTube during the data collection period. The solution for the VPN step also impacted new recruited participants, thus affecting many participants.

- About five participants using an Android Huawei device received the error message “this app is not available in the current region” when they tried to install. The RealityMine support team provided a solution after some time, but the issue was not solved for all participants and these did not respond further to the emails.

In addition to these specified problems, there were also participants with other problems related to downloading the app properly, but in many cases more details were lacking as the parents did not respond further to the emails. For example, some participants thought they only needed to download the app and did not actually install it. Even though they were provided the setup guide along with the app link, several did not read the set-up guide. The administrative work and emails to solve all the issues with the participants was highly time consuming and it also affected how the participants engaged in the study. It was clear that many had a case of respondent fatigue and did not reply to emails when solutions were finally made available.

### **2.5.3. Data collection and analysis**

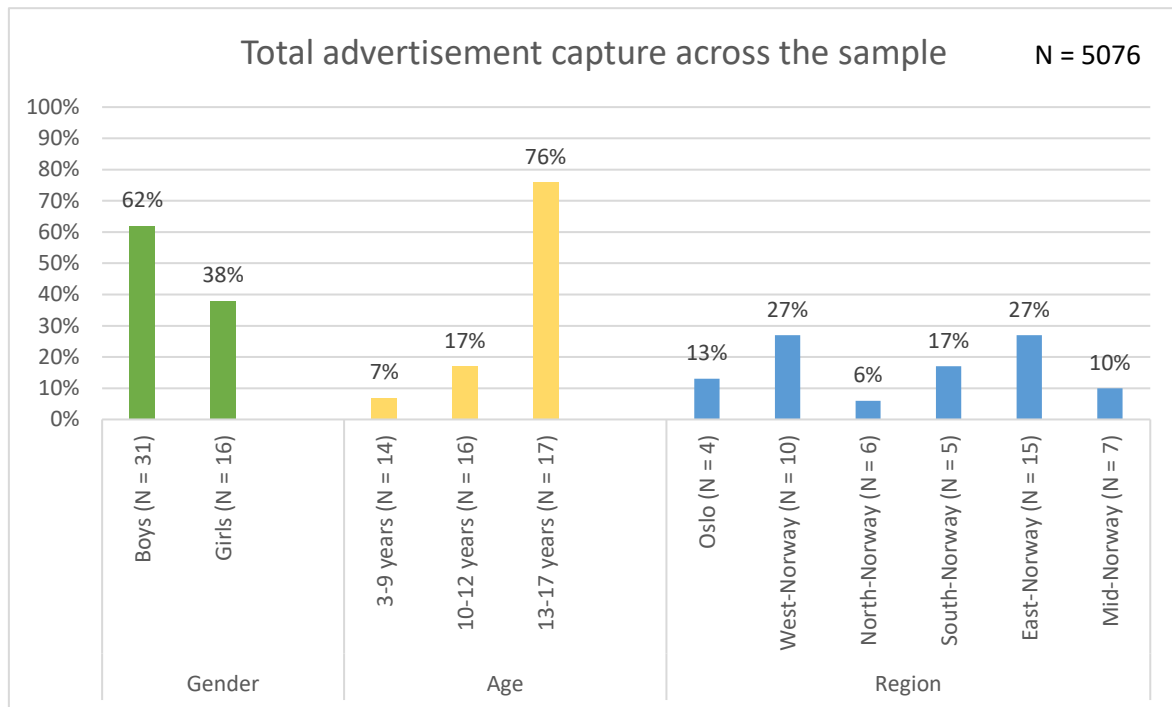
When it comes to issues with data collection and data analysis, this was mostly experienced during the pilot study and was substantially improved prior to the implementation of the full-scale study. These issues related mostly to difficulties in analyzing some of the advertisements (i.e., 24% of the advertisements in the pilot-study) due to lack of information in the data from the ad capture through the RealityMeter app. This also led to few media ID's being able to be recorded due to the lack of data. However, these issues were communicated to the RealityMine team behind the RealityMeter application and were largely eliminated during the full-scale study.

### 3. Results

The objectives of the analysis were to identify (1) how many advertisements that were captured across the sample, (2) what proportion of these that were identified as food/drink brands and products, (3) what proportion of these that were not permitted to be marketed to children according to the WHO-Euro Nutrient Profile Model, (4) what brands that were present and what advertising products that were not permitted to be marketed to children according to the WHO-Euro NPM, and lastly (5) what proportion of food and drink advertisements that should not be directly marketed to children below 13 years according to Norwegian guidelines/MFU.

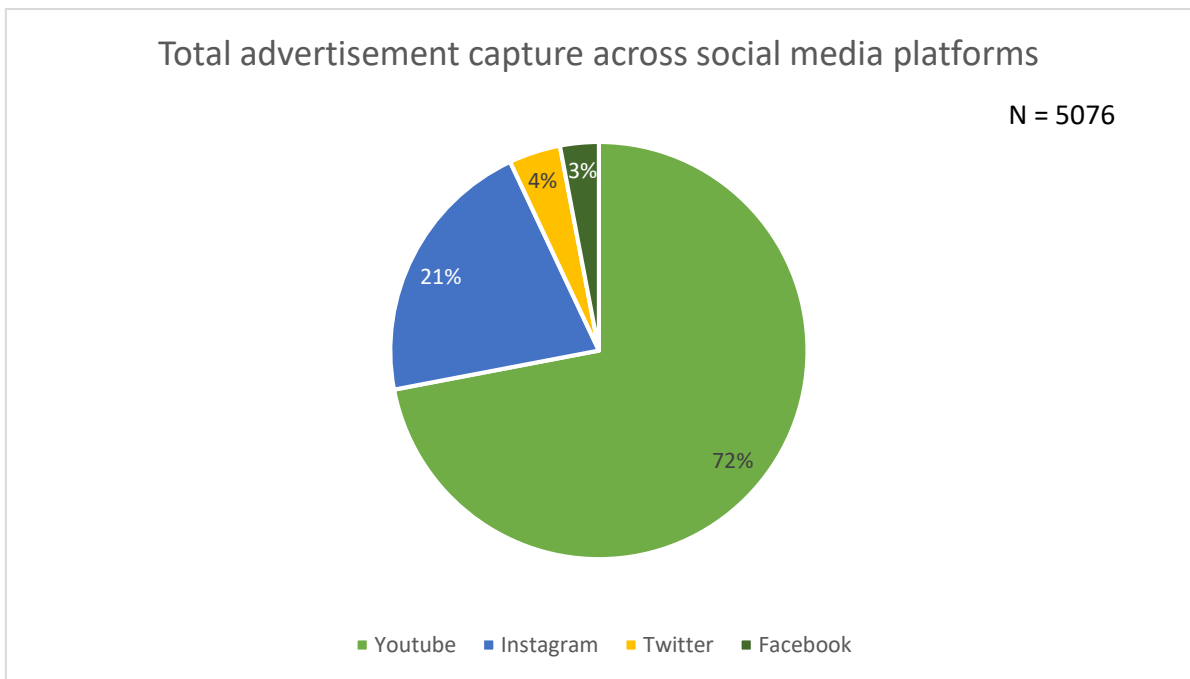
#### 3.1 How many advertisements were captured across the sample?

A total of 284 advertisements were captured during the pre-pilot, and a total of 4792 advertisements were captured during the full-scale study. In total, 5076 advertisements were captured across the devices of the 47 participating children. Figure 3-1 gives an overview of the share of advertisements that were captured from the children’s devices by gender, age, and region of residence. The results suggest a trend where older children are exposed to more advertisements than younger children. However, as this is a pilot study and the results are based on a small sample size of less than 50 children this pattern ought to be explored further in larger-sample studies.



**Figure 3-1. Overview of the share of advertisements ( $N_{advertisements} = 5076$ ) that were captured across the sample ( $N_{children} = 47$ ) by age, gender, and region of residence.**

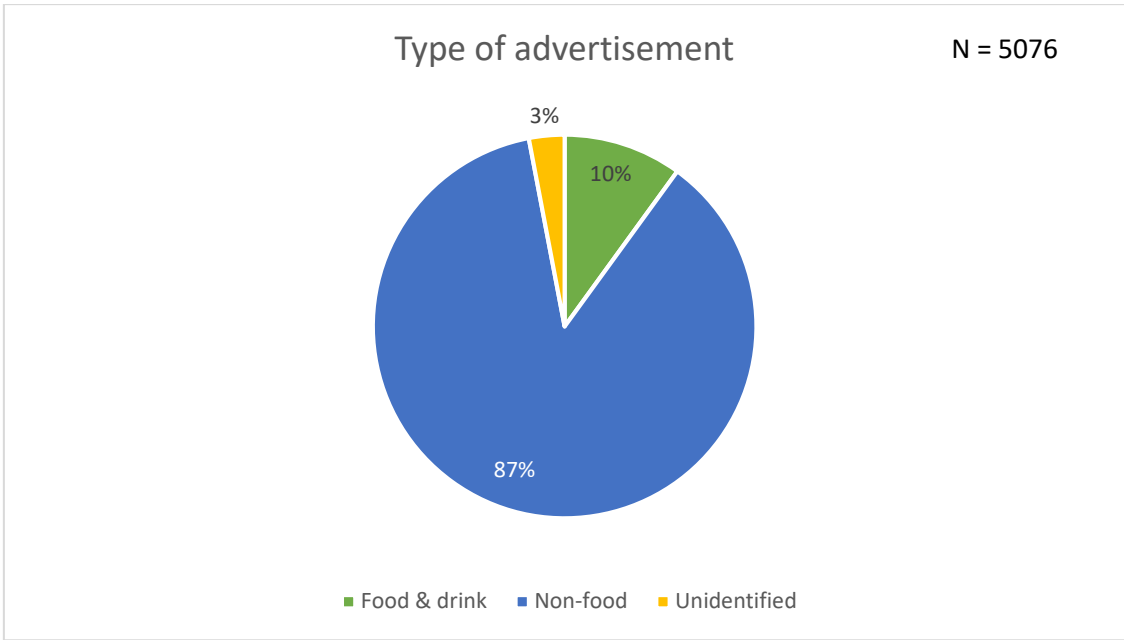
The 5076 advertisements were primarily captured from YouTube, followed by Instagram, Twitter, and Facebook (see figure 3-2). As outlined in the method-section, the RealityMeter app is able to capture advertisement data from the following social media platforms: YouTube, Facebook, Instagram, and Twitter. In our data set, relatively few advertisements were captured from Facebook and Twitter. After cross-referencing this lack of advertisement capture from the app usage reports from Facebook and Twitter, we found that these apps were relatively rarely used by the children in the sample. On the other hand, YouTube was used heavily by the sample, as 72% of the captured advertisements came from this social media platform. However, this finding might also suggest that children are exposed to larger amounts of advertising on YouTube relative to Instagram, Facebook and Twitter.



**Figure 3-2. Overview of the total number of advertisements (N = 5076) that were captured across different social media platforms (i.e., YouTube, Instagram, Facebook, and Twitter).**

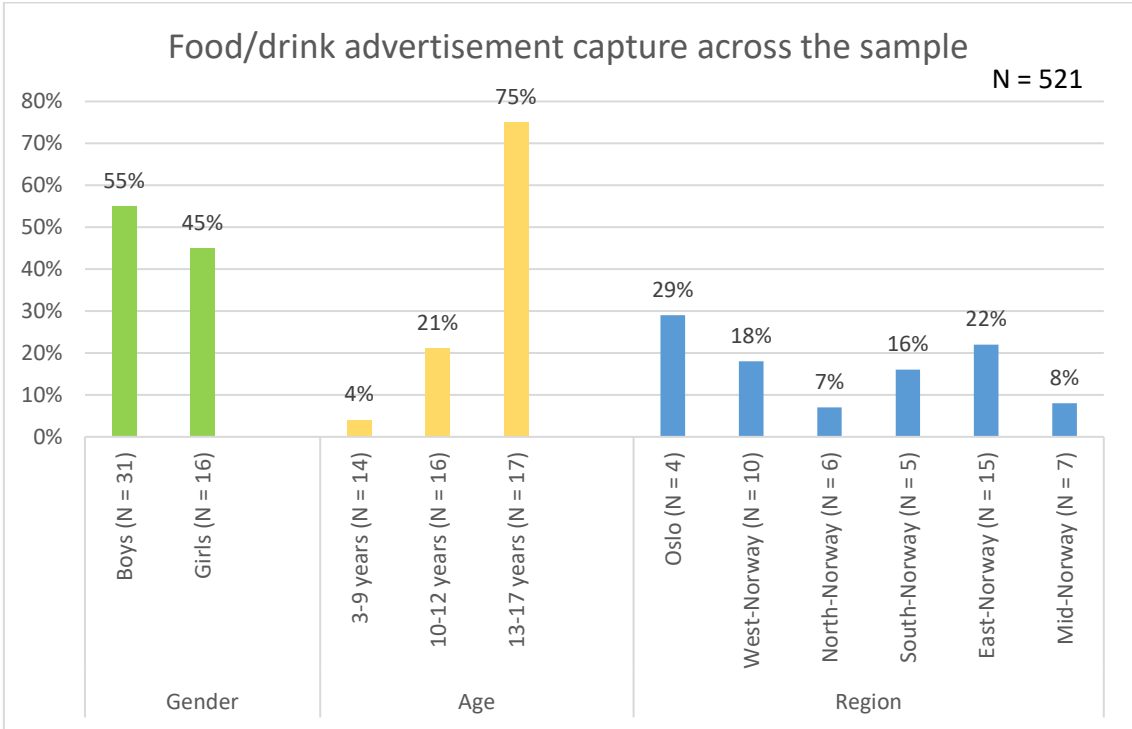
### 3.2 What proportion of advertisements are identifiable as advertising food and drink products?

From the 5076 advertisements, 4372 were identified as non-food, 183 were left unidentified due to missing data, and 521 were identified as food and/or drink advertisements (see figure 3-3). That is, 1 of 10 advertisements were identified as promoting food and drink brands and products across the sample.



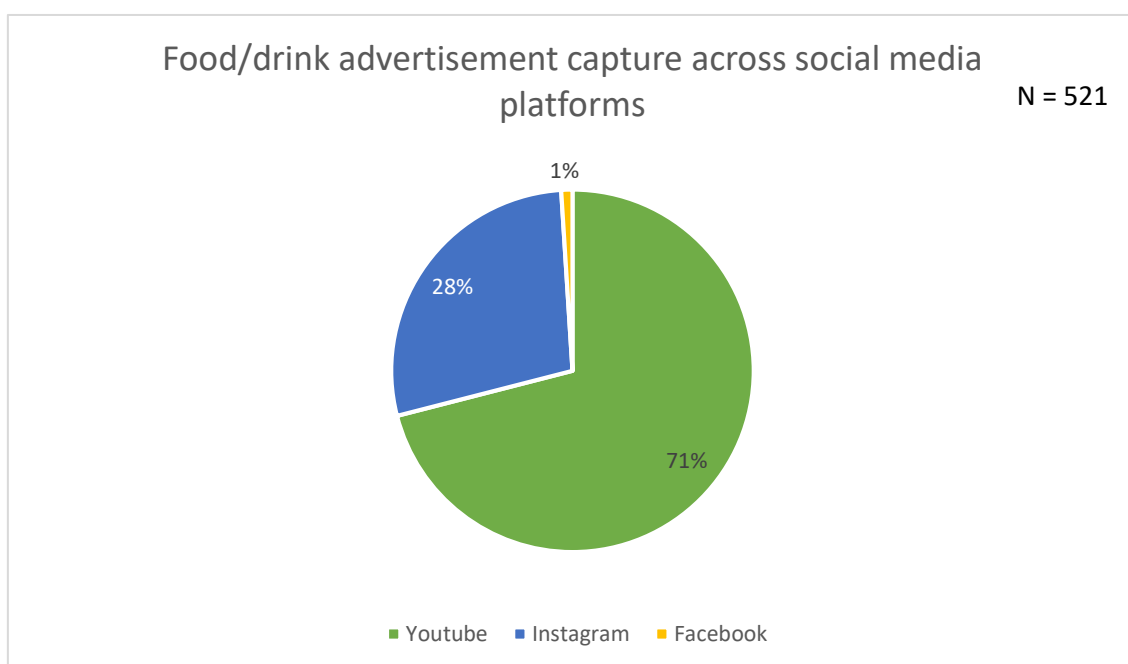
**Figure 3-3. Overview of type of advertisement of the total number of advertisements ( $N_{advertisements} = 5076$ ) that were identified across the sample ( $N_{children} = 47$ ).**

Figure 3-4 presents the percentage of food and drink advertisements that were captured from the children’s devices by gender, age, and region. Similar to the results reported in figure 3-1, the findings suggest a trend where older children are exposed to more food and drink advertisements than younger children, a trend that also need to be verified by larger scale studies.



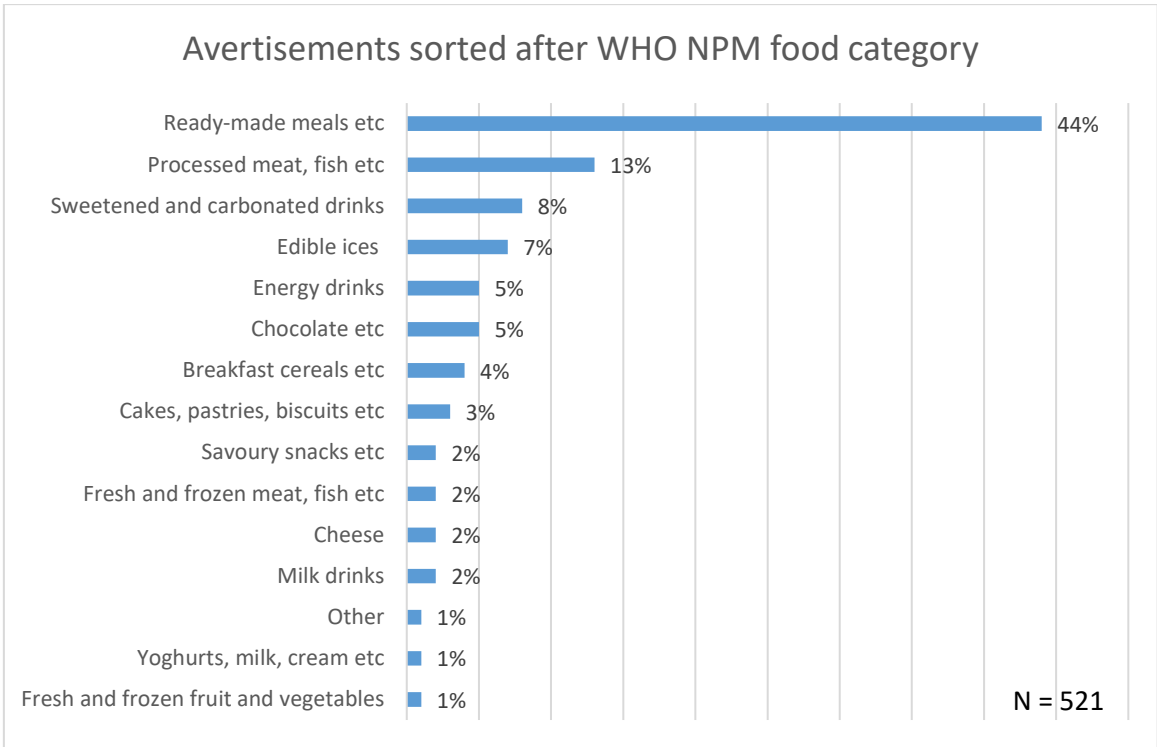
**Figure 3-4. Proportion of the advertisements identified as food/drink products ( $N_{advertisements} = 521$ ) that were captured across the sample ( $N_{children} = 47$ ).**

The 521 advertisements were primarily captured from YouTube, followed by Instagram, and Facebook (see figure 3-2). No food and drink advertisements were captured from Twitter. The findings might be interpreted as suggesting that children are exposed to large amounts of food and drink advertisements on YouTube compared to Instagram and Facebook. An alternative interpretation might be that children in this sample use YouTube to a larger degree than the other social media platforms and were consequently exposed to more advertisements on this platform. Yet another possible partial explanation might be that YouTube to a lesser extent than other social media platforms, offer the user to “skip advertisements” as the advertisement often cover the entire screen and interrupt the ongoing video content.



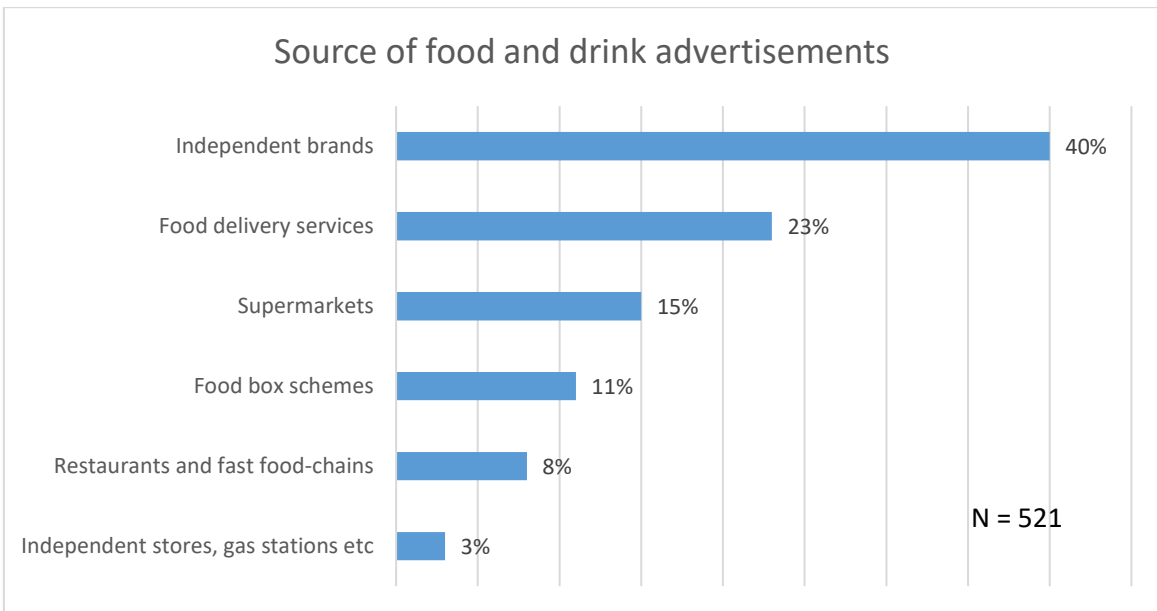
**Figure 3-5. Overview of food and drink advertisements (N = 521) that were captured across different social media platforms (i.e., YouTube, Instagram, and Facebook).**

The food and drink advertisements in the sample were sorted after food category according to the WHO-Europe NPM. Figure 3-6 shows the food categories that were identified in the data. The largest number of advertisements featured ready-made meals and convenience food ( $N = 227$ ), followed by processed meat, fish and similar ( $N = 66$ ), sweetened and carbonated beverages ( $N = 41$ ), ice cream and similar products ( $N = 38$ ), energy drinks ( $N = 25$ ) and chocolate and similar products ( $N = 25$ ). In the figure, the following four food categories were combined to an “other”-category due to small numbers: “Butter, fats, and oils”, “bread products”, “processed fruit and vegetables”, and “sauces, dips and dressings”. 15 of all 17 food categories outlined by WHO’s Nutrient Profile Model (see appendix A) were found in the data. However, no advertisements featured any products or brands related to the two product categories “Juices, smoothies and similar products” and “Fresh or dried pasta, rice and similar products”.



**Figure 3-6. Proportion of the advertisements identified as food/drink products (N = 521) sorted after food category according to the WHO Europe Nutrient Profile Model.**

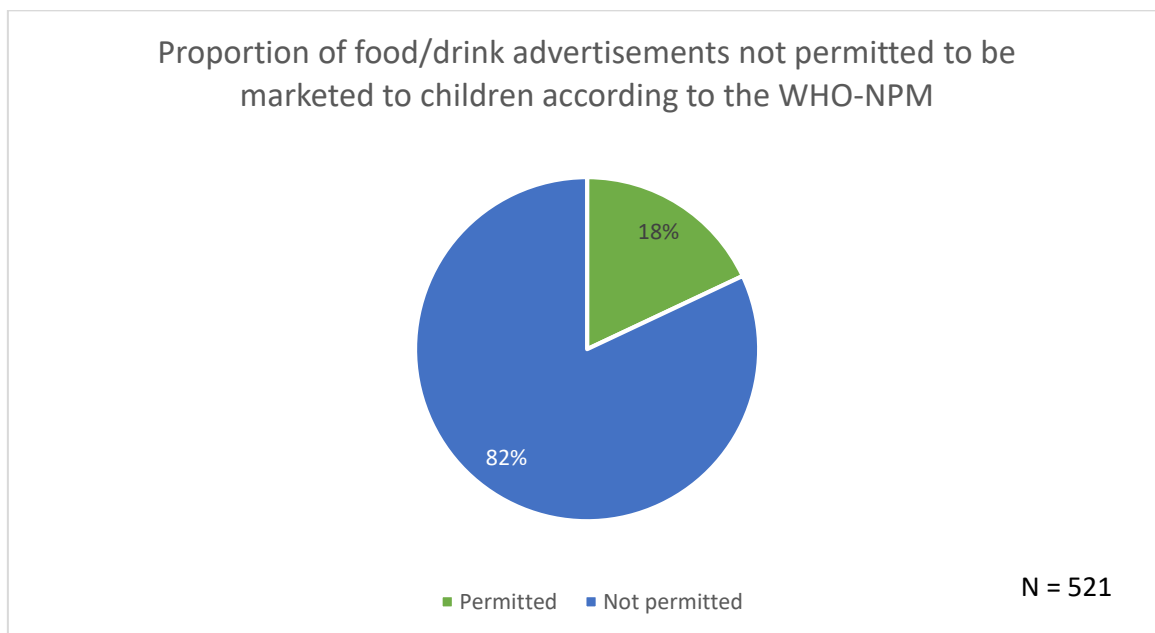
Figure 3-10 shows the source of the food and drink advertisements. 4 in 10 advertisers were identified as independent brands. Almost the same proportion (38 %) were identified as either food delivery services or supermarkets.



**Figure 3-7. Proportion of different advertisers of food and beverages identified in the advertisements (N = 521).**

### 3.3 What proportion of food and drink advertisements are not permitted to be marketed to children according to the WHO-Euro Nutrient Profile Model?

A majority of the food and drink advertisements (425 of 521 ads) identified in the sample were not permitted to be marketed to children according to the WHO-Europe NPM (see figure 3-5). 96 of the 521 advertisements were permitted to be marketed to children. These results are based on nutritional information of each of the advertised products (see section 2.4.1 for more details).



**Figure 3-8. Proportion of the advertisements identified as food/drink products (N = 521) that were not permitted to be marketed to children according to the WHO-Nutrient Profile Model.**

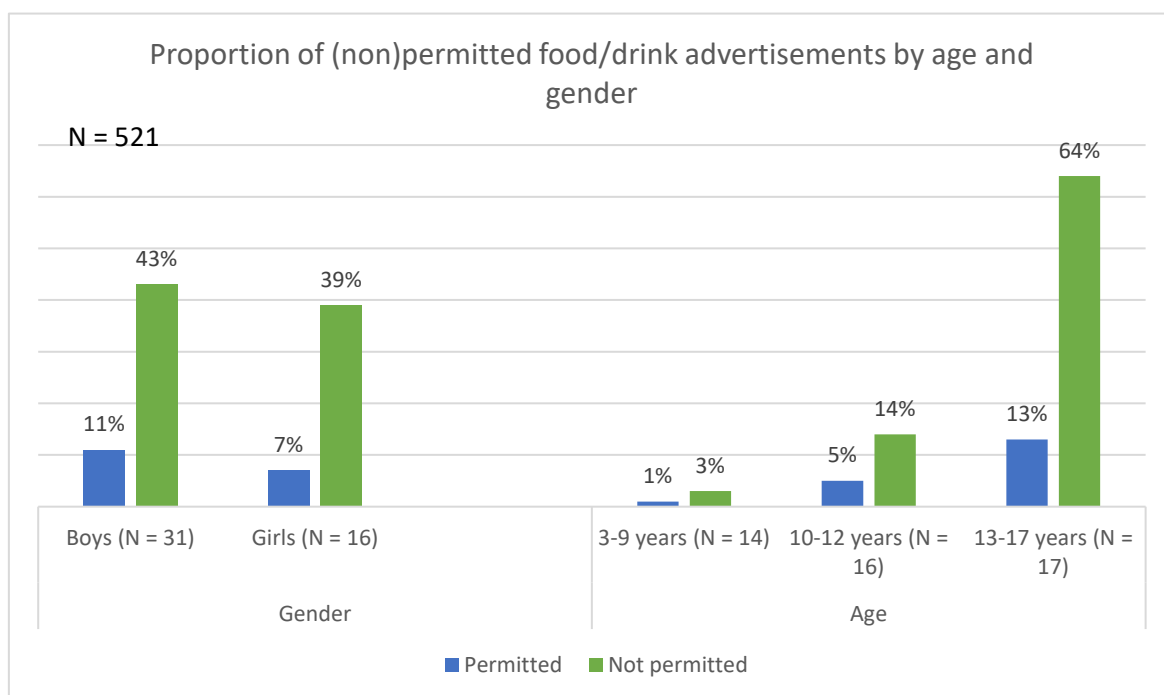
On average, the children in the sample spent roughly 13 seconds viewing the food and drink advertisements, ranging from 1-59 seconds for the individual ads. The children spent more time viewing advertisements that were not permitted to be marketed to them according to the WHO-NPM, although this effect may be a result of the superior number of these ads compared to those that were permitted to be marketed to children. Table 3-2 shows that average time spent looking at food and drink advertisements that were not permitted was 14,9 seconds compared to 9,6 seconds for permitted advertisements.

**Table 3-1. Descriptive statistics of actual time spent looking at the food and drink advertisements**

Time spent viewing food and drink advertisements			
Food/drink advertisements	Mean	SD	Range
Not permitted (N = 425)	14,93 seconds	9.45	1-59 seconds
Permitted (N = 96)	9,62 seconds	4.51	1-22 seconds
Combined/total (N = 521)	13,29 seconds	8.96	1-59 seconds



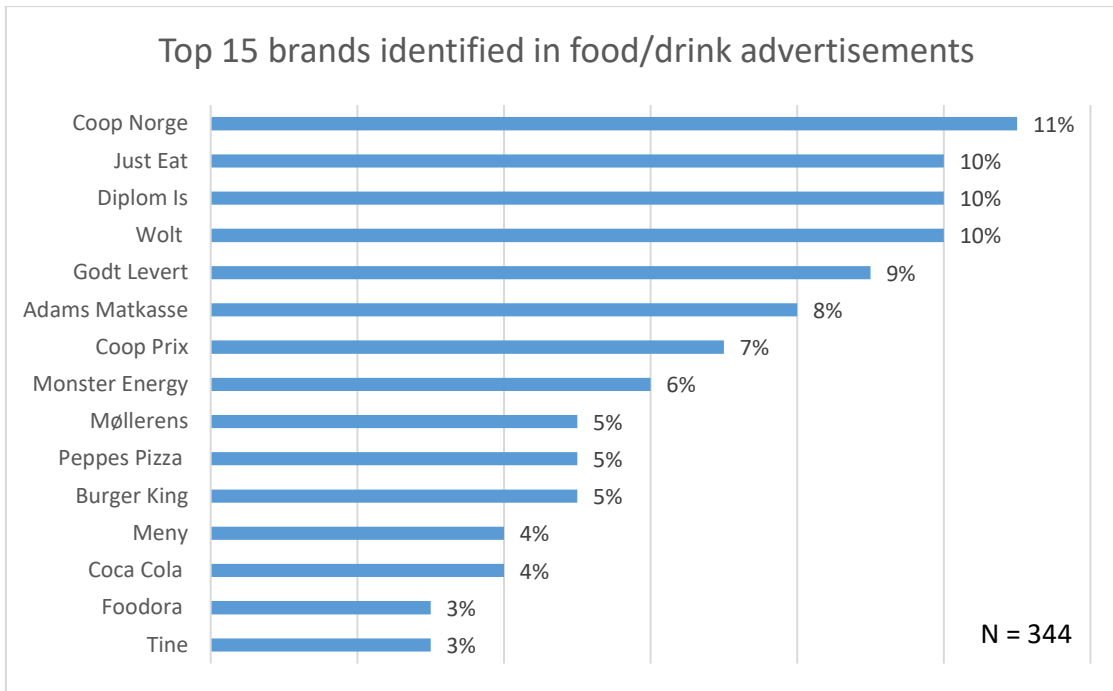
Figure 3-9 gives an overview of what percentage of permitted and non-permitted food and drink advertisements that were captured by gender and age.



**Figure 3-9. Proportion of permitted and non-permitted food and drink advertisements according to WHO-Euro NPM, by gender and age (N = 521).**

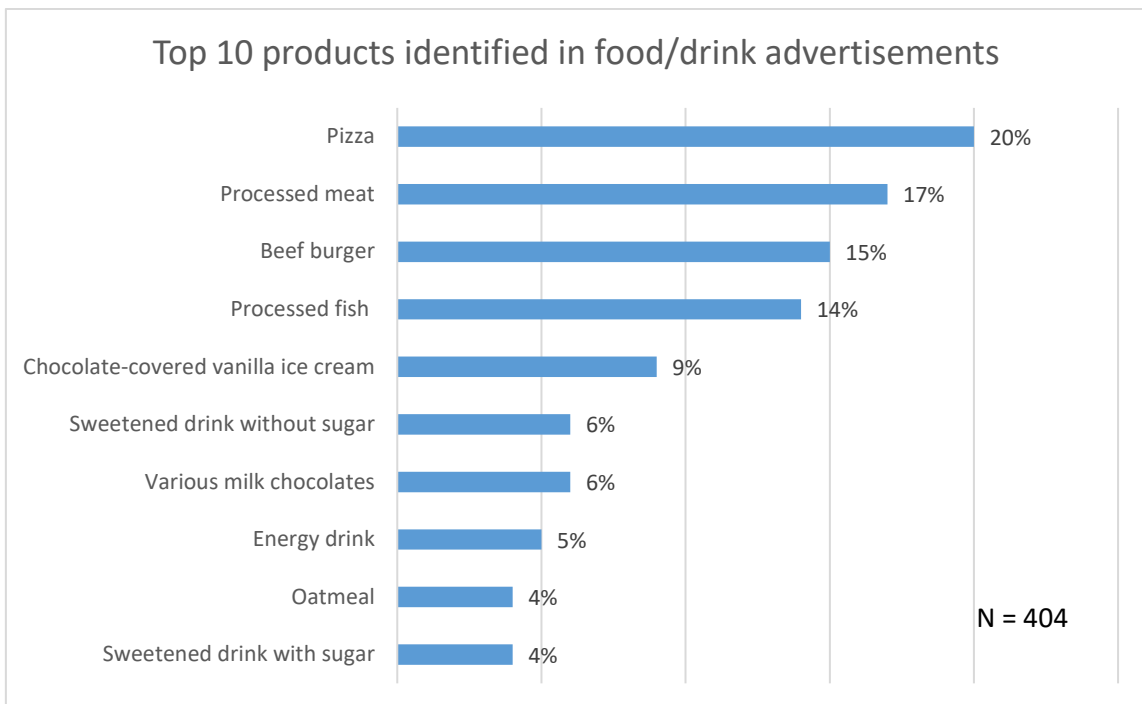
### 3.4 What brands are present, and which are advertising products not permitted to be marketed to children according to the WHO-Euro Nutrient Profile Model?

Figure 3-8 shows the top 15 brands that were present in the data material. Together, these brands accounted for 66% of all food and drink advertisements. Other brands that were present in the data were Fjordland, Den Stolte Hane, Pepsi Max, Freia, Nidar, McDonald's, Salma, Findus, Mövenpick, Maarud, Kims, Synnøve Finden, Subway, Snickers, Sørlandschips, Dominos, Grandiosa, Heinz, Gilde, Max Hamburger, Pizzabakeren, Toro, Q-meieriene, BAMA, Magnum, Kiwi, and Rema 1000.



**Figure 3-10. Proportion of the top 15 brands identified in the food/drink advertisements (N = 344).**

Figure 3-9 shows the top 10 products that were present in the data material. Together, these products accounted for 78% of all food and drink advertisements. Other products that were present in the data were black coffee, butter, jelly candy, vegan burger, oat-based drink, soft and hard cheeses, chocolate milk, cream-filled chocolate cookies, salty rice and corn crackers, fresh carrots and lettuce, barley groats with blueberries, and organic chicken breast.



**Figure 3-11. Proportion of the top 10 products identified in the food/drink advertisements (N = 404).**

Some examples of the food and drink brands and products that were permitted to be marketed to children can be seen in figure 3-12. Examples of food and drink brands that were not permitted to be marketed to children can be seen in figures 3-13 and 3-14.

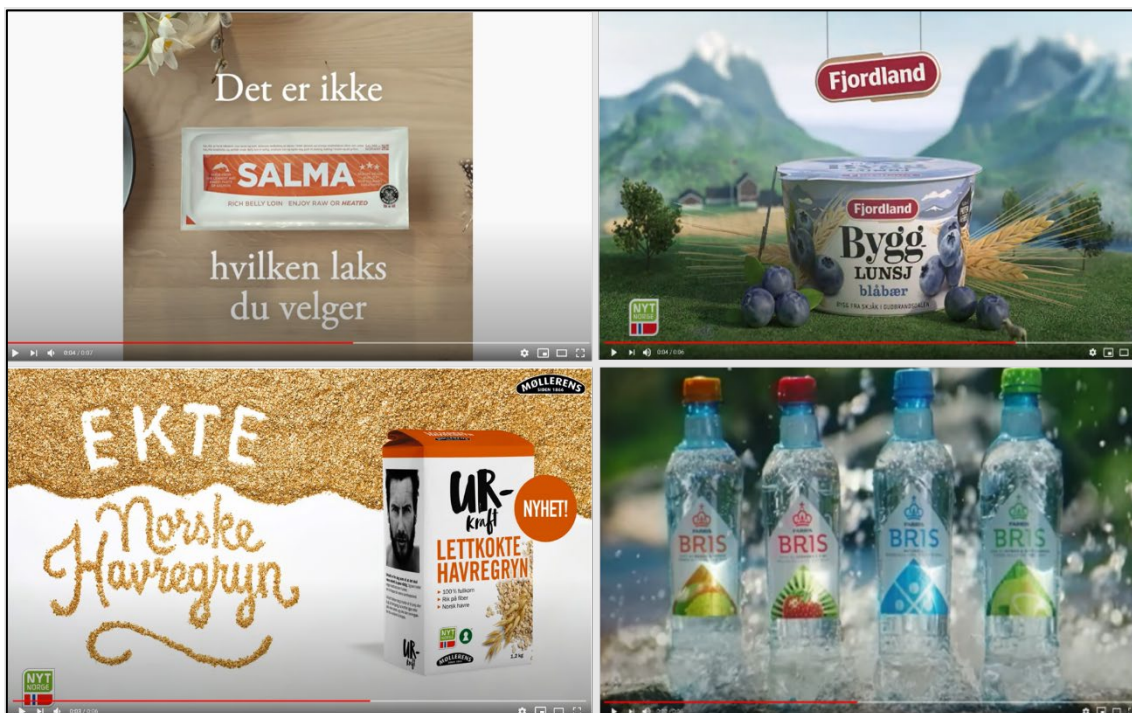


Figure 3-12. Examples of YouTube advertisements that were permitted to be marketed to children according to the WHO-Euro NPM. The advertised products from left to right: Raw salmon filet from Salma, barley groats with blueberries from Fjordland, oatmeal from Møllere's, and carbonated flavored water from Farris Bris Mineralvann.

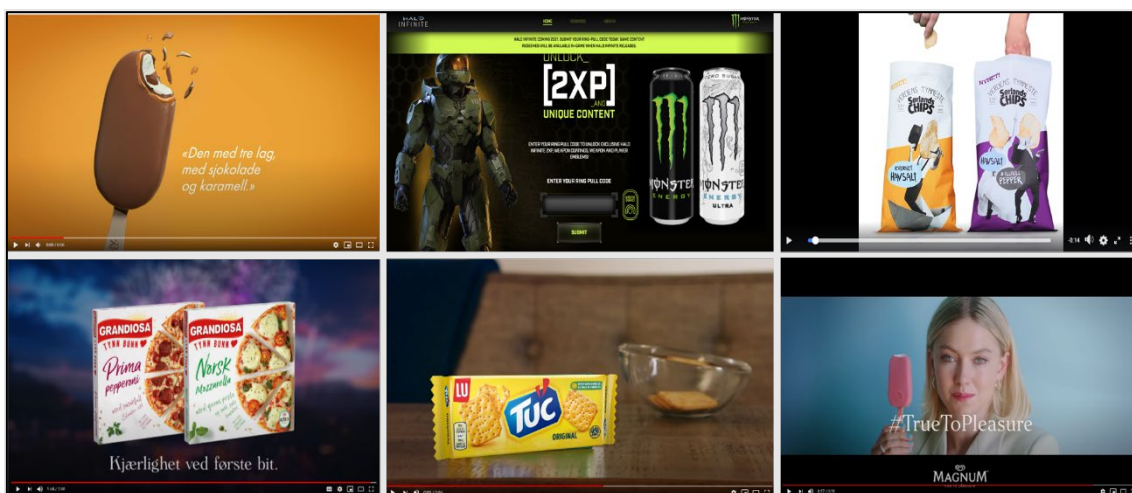


Figure 3-13. Examples of YouTube advertisements that were not permitted to be marketed to children according to the WHO-Euro NPM. The advertised products from left to right: Caramel ice cream from Royal Diplomis, energydrink from Monster Energy, potato chips from Sørlandschips, pizza from Grandiosa, salty crackers from TUC, and raspberry and vanilla ice cream from Magnum.



Figure 3-14. Examples of Facebook and Instagram advertisements that were not permitted to be marketed to children according to the WHO-Euro NPM. The advertised products from left to right: Pizza from Pizzabakeren, chocolate-covered corn-snacks from Cloetta, soft cream cheese from Philadelphia, and cream from Tine.

### 3.5 What proportion of food and drink advertisements are considered acceptable according to Norwegian guidelines?

Of the 521 food and drink advertisements, 118 were marketed to children below 13 years and were thus subjected to an analysis adjusted to Norwegian guidelines. Figure 3-15 shows that 42% of the 118 advertisements should not be directly marketed to children under the age of 13. A slight majority however (58%), was acceptable food and drink advertising to children below 13 according to Norwegian guidelines. Out of the total food and drink advertisements only 9% were not acceptable according to Norwegian guidelines, compared to 82% according to WHO’s guidelines. Thus, the findings highlight the differing guidelines between Norway and the World Health Organization, where the latter operate by stricter guidelines.

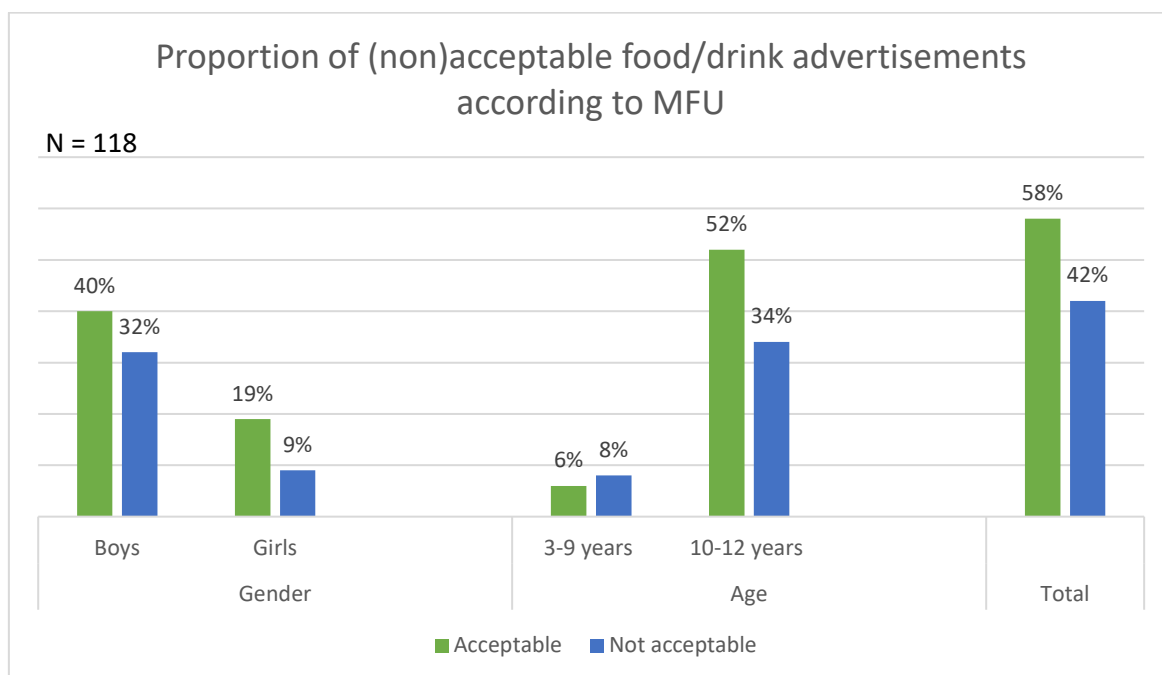


Figure 3-15. Proportion of acceptable and non-acceptable food and drink advertisements according to Norwegian guidelines (MFU), by gender and age (N = 118).

## 4. Discussion

Children's (and adults') personal data are subject to privacy concerns and are used by marketing actors to individually target advertisements according to preferences, time, context, and so on. During and after the Covid-19 outbreak, Norwegian children and adolescents have spent more time online than before. At the same time, digital advertising of unhealthy food and drink products have been intensified. Children in Norway are exposed to digital marketing that typically employ subtle, partly hidden, and sophisticated techniques. When exposed to unhealthy food and drink advertisements, children tend to be influenced through their consumption patterns, food brand preferences, and purchase requests. A diet of energy-dense, high-fat, -salt, and -sugar foods give a heightened risk of obesity and overweight and increase the likelihood of a range of physical and psychological disorders. According to the World Health Organization, children up to 18 years ought to be protected from harmful digital marketing. The purpose of the current project has been to map the current landscape of children's exposure to digital marketing of food and drink products. Below is a summary of the main findings.

### 4.1 Summary of results

A total of 5076 advertisements were captured from the 47 children during the data collection period. The advertisements were primarily captured from YouTube, followed by Instagram, Twitter, and Facebook. That is, the results show that Norwegian children are exposed to large amounts of digital advertisements, where 1 in 10 advertisements promoted food and drink products. The food and drink advertisements were primarily captured from YouTube, and children spent on average 13 seconds viewing them. These food and drink advertisements promoted a large variety of food categories according to the WHO's Nutrient Profile Model, ranging from chocolate, ready-made meals, and energy drinks, to fresh fish, vegetables, yoghurt, and bread. According to WHO's guidelines, 8 in 10 food and drink advertisements were not permitted to be marketed to children. That is, a large majority of the marketing promoted unhealthy foods and drinks, high in fat, salt, and sugar. The top 10 food products identified in the sample were pizza, processed meat, beef burger, processed fish, ice cream, sweetened drinks without added sugar, milk chocolate, energy drink, oatmeal, and sweetened drink with added sugar. According to Norwegian guidelines, 1 in 10 food and drink advertisements were not acceptable marketing to children under the age of 13. The results also suggested a trend where older children were exposed to more advertisements (both in general terms, but also in terms of foods and drinks) than younger children. However, analyses are purely descriptive and results are merely patterns. As the current study is a pilot and the results are based on a small sample size, the patterns presented here ought to be explored further in causal and larger-sample studies.

## 4.2 Policy implications

As the prior section outlined, the participants were exposed to large amounts of marketing in general during the study period. While it was out of the scope of this report to analyze the advertisements that did not include food and drinks, the study highlights that children are exposed to large amounts of targeted advertisements, not just related to food and beverages. This is made especially salient considering that this study was not able to capture *all* of the marketing the children in the sample were exposed to during the time of data collection. A large proportion of the captured food and drinks advertisements were categorized as unhealthy according to the WHO's Nutrient Profile Model. This aligns with previous research on children and digital marketing of foods, in that most of the food and drinks that are marketed to children are high in fat, sugar, and salt. Food and drink marketing also tend to use commercial strategies that appeal particularly to children. One example from the current study was an ice cream advertisement from YouTube of a pink ice cream, fronted by a young Norwegian singer and celebrity whose fan base mostly consist of children and adolescents.

The results indicate that there are significant differences between Norwegian guidelines and WHO's guidelines in terms of what type of food and drinks are acceptable to advertise to children. Most of the food and drink marketing captured in this study violate the WHO guidelines, but not the Norwegian guidelines. Hence, this report suggests that actions may be implemented to better align European and Norwegian guidelines and regulations of marketing of unhealthy food and drinks to children. Such actions ought to consider age concerns, such as adolescents being particularly exposed to marketing. Individuals up to 18 years are defined as children, according to both the World Health Organization and the Convention on the Rights of the Child. Importantly, they are in need of additional protection from harmful marketing (WHO, 2019). Norwegian guidelines, however, merely protect children below 13 years from unhealthy food and drink marketing, which may be especially problematic as it appears to be the children above 13 years that are exposed to the largest amounts of food and drink marketing.

Policies and regulations might also consider how and when children are defined as consumers. Digital marketing treats all children as consumers, and may therefore show caution and acknowledge that children should not be perceived as consumers in the same way as adults, and especially because they may not have the same competences to reflect on how they might be influenced by marketing. This is particularly relevant in terms of advertisements from influencers. In the age of digital marketing, it is important to acknowledge that children who have never experienced digital platforms before targeted marketing and before influencers, will perhaps perceive the marketing differently. It might also be helpful to revisit a discussion surrounding age limits and marketing of unhealthy food and beverages, and keep in mind the guidelines from WHO, which argue that *all* children should be equally protected from harmful digital marketing.

## Conclusion

This study has mapped the current digital marketing landscape of food and drinks directed at children in Norway. The results suggest that children are exposed to much targeted advertisements when they use their personal phones and/or tablets. One of the challenges with mapping the digital marketing tailored to children is that the advertising is constantly evolving to be able to adapt to new preferences and changes. This makes it hard to keep track of and to be aware of potential harmful marketing that might contribute to childhood obesity. This study, however, has attempted to map the current digital landscape of food and drink marketing to children in Norway using WHO's CLICK framework. Out of all marketing captured in this study, 1 in 10 advertisements promoted food and drink brand and products. 8 in 10 of these were considered as unhealthy according to WHO guidelines and were not acceptable to expose to children. However, only 1 in 10 of food and drinks advertisements were not accepted according to the Norwegian guidelines. Thus, the results may indicate a need for policies and regulations that better protect children in Norway against digital advertisement. In accordance with a report from the Norwegian Consumer Council (2019), this report's findings suggest that the current Norwegian self-regulation is not sufficiently protecting children, especially those above 13 years, against advertisements of unhealthy food and drinks. It might be considered to better align the Norwegian guidelines with the WHO's guidelines, through actions such as re-defining and improving regulation of unacceptable food and drink advertisement to children, as well as re-considering the age concerns regarding food and drink marketing.

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# Appendices

## Appendix A: Food categories of the WHO-Euro Nutrient Profile Model

The table below gives an overview of the 17 WHO-Euro Nutrient Profile Model food category codes used to categorize each food and drink advertisement in the study according to WHO guidelines.

<b>Code number</b>	<b>Food category code description</b>	<b>Permitted or not?</b>
1	Chocolate and sugar confectionery, energy bars, sweet toppings and desserts (Includes chocolate and other products containing cocoa; white chocolate; jelly, sweets, boiled sweets; chewing gum and bubble gum; caramels; liquorice sweets; spreadable chocolate and other sweet sandwich toppings; nut spreads including peanut butter; cereal, granola and muesli bars; marzipan. Does not include chocolate flavoured breakfast cereals; cakes and pastries; biscuits and other bakes goods covered in chocolate)	Not permitted to be marketed to children.
2	Cakes, sweet biscuits and pastries; other sweet bakery wares, and dry mixes for making such (Includes pastries; croissants; cookies/biscuits; sponge cakes; wafers; fruit pies; sweet buns; chocolate-covered biscuits; cake mixes and batters. Does not include bread and bread products).	Not permitted to be marketed to children
3	Savoury snacks (Includes popcorn and maize corn; seeds; nuts and mixed nuts; savoury biscuits and pretzels; other snacks made from rice, maize, dough or potato).	Marketing to children not permitted if added sugars exceeds 0g/100g or if salt exceeds 0.1g per 100g.
4a	Beverages - Juices (Includes 100% fruit and vegetable juices; juices reconstituted from concentrate, and smoothies).	Not permitted to be marketed to children.
4b	Beverages - Milk drinks (Includes milks and sweetened milks; almond, soya, rice and oat milks. Does not include cream).	Marketing to children not permitted if total fat exceeds 2.5g/100g or if added sugars/non-sugar sweeteners exceeds 0g/100g.
4c	Beverages - Energy drinks (There is no agreement on a definition of energy drinks. However, such a category of drinks includes a variety of non-alcoholic beverages. While caffeine is considered the main ingredient, a number of other substances are often present. The most common of these include guarana, taurine, glucuronolactone and vitamins. A common feature is that these beverages are marketed for their actual or perceived effects as stimulants, energizers and performance enhancers).	Not permitted to be marketed to children.

4d	Beverages - Other (Includes cola, lemonade, orangeade; sweetened beverages, mineral and/or flavoured waters (including aerated) with added sugars or sweetener. Does not include 100% fruit and vegetable juices; milk drinks).	Marketing to children not permitted if added sugars/non-sugar sweeteners exceeds 0g/100g.
5	Edible ices (Includes ice cream, frozen yoghurt, iced lollies and sorbets).	Not permitted to be marketed to children.
6	Breakfast cereals (Includes oatmeal; cornflakes; chocolate breakfast cereals; mueslis).	Marketing to children not permitted if total fat exceeds 10g/100g, or if total sugars exceeds 15g/100g or if salt exceeds 1.6g/100g.
7	Yoghurts, sour milk, cream and other similar foods (Includes yoghurt; kefir; buttermilk; flavoured sour; fermented milk and drinking yoghurt; fromage frais; cheese-based and other yoghurt substitutes; yoghurt products containing additional ingredients (such as fruit; muesli); cream. Does not include milks and sweetened milks; almond, rice and oat milks).	Marketing to children not permitted if total fat exceeds 2.5g/100g, or if saturated fat exceeds 2.0g/100g, or if total sugars exceeds 10g/100g or if salt exceeds 0.2g/100g.
8	Cheese (Includes medium-hard and hard cheeses; soft cheeses; fresh cheese (such as ricotta, mozzarella); grated or powdered cheese; cottage cheese; processed cheese spreads).	Marketing to children not permitted if total fat exceeds 20g/100g, or if salt exceeds 1.3g/100g.
9	Ready-made and convenience foods and composite dishes (Includes pizzas; lasagne and other pasta dishes with sauces; quiches; ready meals; ready-made sandwiches; filled pastas; soups and stews (packaged or tinned); mixes and dough).	Marketing to children not permitted if total fat exceeds 10g/100g, or if saturated fat exceeds 4g/100g, or if total sugars exceeds 10g/100g or if salt exceeds 1g/100g or if energy exceeds 225kcal/100g.
10	Butter and other fats and oils (Includes butter; vegetable oils; margarines and spreads).	Marketing to children not permitted if saturated fat exceeds 20g/100g, or if salt exceeds 1.3g/100g.
11	Bread, bread products and crisp breads (Includes ordinary bread (containing cereal, leavens and salt); gluten-free bread; unleavened bread; crisp breads; rusks and toasted breads. Does not include sweet biscuits; pastries; cakes).	Marketing to children not permitted if total fat exceeds 10g/100g, or if total sugars exceeds 10g/100g, or if salt exceeds 1.2g/100g.
12	Fresh or dried pasta, rice and grains (Does not include filled pasta and pasta in sauce).	Marketing to children not permitted if total fat exceeds 10g/100g, or if total sugars exceeds 10g/100g, or if salt exceeds 1.2g/100g.

13	Fresh and frozen meat, poultry, fish and similar (Includes eggs).	Permitted to be marketed to children.
14	Processed meat, poultry, fish and similar (Includes sausage, ham, bacon; chicken nuggets; smoked and pickled fish; tinned fish in brine or oils; fish fingers and breaded/battered fish. Does not include pepperoni pizza).	Marketing to children not permitted if total fat exceeds 20g/100g, or if salt exceeds 1.7g/100g.
15	Fresh and frozen fruit, vegetables, or legumes (Includes fruit and vegetables; legumes; starchy vegetables, roots and tubers. Does not include tinned fruits, vegetables and legumes; fruit in syrup; dried fruit; frozen fruit with added sugar).	Permitted to be marketed to children.
16	Processed fruit, vegetables and legumes (Includes tinned fruit, vegetables and legumes; dried fruit; dried vegetables and legumes; marmalade; jams; pickled vegetables and fruit; stewed fruits; fruit peel; frozen French fries' frozen fruit with added sugar. Does not include fruit juice).	Marketing to children not permitted if total fat exceeds 5g/100g, or if total sugars exceeds 10g/100g, or if added sugars exceeds 0g/100g, or if salt exceeds 1g/100g.
17	Sauces, dips and dressings (Includes salad dressings; tomato ketchup; mayonnaise; ready-to-use dips; soya sauce; mustard and mustard flour).	Marketing to children not permitted if total fat exceeds 10g/100g, or if added sugars exceeds 0g/100g or if salt exceeds 1g/100g.

## Appendix B: Food product list of Norwegian guidelines/MFU

The table below gives an overview of the food product groups used to categorize each food and drink advertisement in the study according to Norwegian guidelines.

<b>Food product group: Energy-dense, nutrient-poor, high-salt, and high-sugar foods and drinks</b>	<b>Acceptable to market to children below 13 years?</b>
Chocolate- and sugar-sweetened products (including white chocolate, products without cocoa, chocolate and other foods with cocoa), sweet spreads, and desserts	Not acceptable
Snacks, including popcorn and corn, salty nuts and dried fruit and nut mixes, salty crackers, pretzels and bars, and other snacks (including rice or corn snacks, snacks made of dough, potato snacks, and energy bars)	Not acceptable
Beverages (i.e., non-alcoholic beverages with added sugar or artificial sweetener)	Not acceptable
Served- and take away-meals	Not acceptable if per 100g edible product contains: <ul style="list-style-type: none"> <li>- Above 950 kJ (225 kcal) in energy</li> <li>- Above 4 g in saturated fat</li> <li>- Above 1 g in salt (0,4 g sodium)</li> </ul>
Ice cream, including ice cream with cocoa	Not acceptable
Breakfast cereals	Not acceptable if per 100g edible product contains: <ul style="list-style-type: none"> <li>- Above 20 g sugars</li> </ul>
Cakes, cookies, and other sweet baked goods	Not acceptable
Yoghurt and similar foods (including yoghurt, soured flavored milk, and drinking yoghurt, cheese-based yoghurt imitations, and other yoghurt imitations)	Not acceptable if per 100g edible product contains: <ul style="list-style-type: none"> <li>- Above 3,3 g fat</li> <li>- Above 11 g total sugars</li> </ul>

Consumption Research Norway (SIFO) is a non-profit, transdisciplinary research institute at OsloMet – Oslo Metropolitan University. SIFOs research aims to understand the role of consumption and consumers in society and to provide the knowledge basis for public consumer policy in Norway.

SIFOs core research areas are:

- Sustainable consumption
- Digitalization of everyday life
- Market based welfare
- Clothing and food