Food, body weight, and health among adolescents in the digital age

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Food, body weight, and health among adolescents in the digital age

An explorative study from a health promotion perspective

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Abstract

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The overall aim of this thesis was to explore adolescents' relationship with food, body weight, and health communication in online digital media, as well as how adolescents experience participating in a health promotion intervention regarding food and physical activity habits. Health promotion as a research area served three purposes: to inform the research questions, to direct the data collection, and to identify implications from the research findings. The four included studies explored how adolescents portray food in a widely used image-sharing application, why and how adolescents in treatment for obesity engaged with online health-related information, and how these adolescents experienced presenting themselves on social media. The fourth study explored adolescents' experiences of participating in a health-promoting intervention, focusing on their experiences of using a social media group within the intervention. Overall, the findings suggest that food is a significant means of adolescents' online self-presentation practices. Food imagery was most often communicated in a positive way, associated with commercial elements, and often depicting high-calorie foods. Adolescents with obesity experienced this user-generated food content as challenging for their weight management. These findings also question the separation between media and information content as stated in the original definition of eHealth literacy. The findings also emphasize a need to explore the adolescents' own experiences of acceptability of using social media in health promotion practices, with regards to the type of social media and in what context it was or could be used.

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Abbreviations and definitions in short

Digital media: Media content, such as photos and videos, that is compressed into a machine-readable format

eHealth literacy: Capability to seek, find, understand, and appraise health information from electronic sources and apply it to or solve a health issue

F&V: Fruits and vegetables

HCLN: High-calorie foods low in micronutrients

Health promotion: The process of supporting individuals to increase control over their health

Instagram (always uppercase "I" and always singular): A social media application

instagram(s) (always lowercase "i" and sometimes plural): The media, images, and videos produced using Instagram

Online social networks: Services that permit individuals to construct a public or semi-public profile within a network, and specify other users with whom they share a connection

Self-presentation: The practice that attempts to convey some information about oneself or some image of oneself to others

Social media: Umbrella term for online platforms and applications that permit their users to generate and access online content, such as digital media

WHO: World Health Organization

Contents

Figures and Tables

Included publications and manuscripts

The two published articles of this thesis are reprinted with kind permission from the publishers.

I. Holmberg, C., Chaplin, J. E., Hillman, T., & Berg, C. (2016). Adolescents' presentation of food in social media: An explorative study. *Appetite*, 99, 121-129. doi: 10.1016/j.appet.2016.01.009.

II. Holmberg, C., Berg, C., Dahlgren, J., Lissner, L., & Chaplin, J. E. Health literacy in a complex digital media landscape: Pediatric obesity patients' experiences with online weight, food, and health information. *Health Informatics Journal.* Epub ahead of print. doi: 10.1177/1460458218759699.

III. Holmberg, C., Berg, C., Hillman, T., Lissner, L. & Chaplin, J. E. Self-presentation in digital media among adolescent patients with obesity: striving for integrity, risk-reduction, and social recognition. *Submitted for publication.*

IV. Holmberg, C., Larsson, C., Korp, P., Lindgren, E. C., Fröberg, A., Jonsson, L., Chaplin, J. E., & Berg, C. Adolescents experiences of an empowerment-based intervention focusing on healthy food and physical activity habits, based in a multicultural school setting in a low socioeconomic area in Sweden. *Submitted for publication.*

Introduction: Framing the issues

The research included in this thesis addresses several concepts and settings pertinent to adolescents' interaction with food, body weight, and health in the digital age. These research matters are defined depending on their practical as well as theoretical bases. This introduction, therefore, aims to frame the overlaying issues of which the included studies are examples. Framing is a way of describing and explaining the context of the overarching topics in order to acquire the most interest and understanding from the envisioned readers. This thesis is foremost intended to be read by researchers and academics in health sciences that are interested in issues pertinent to adolescence. It might also be of interest to practitioners working with youths, such as pediatric dietitians and nurses, in addition to practitioners working with adolescents in disciplines more broadly intersecting with a health perspective, for example, educators, such as home economics teachers.

This thesis is written within the research area of Food and Nutrition, an interdisciplinary research area focusing on the intersection between individuals and food, in which a health promotion perspective is central (Faculty Board of Education, 2016). This thesis focuses on adolescents' experiences and communication around food and health issues online, not on their food habits as such. This communication might, nevertheless, influence consumption indirectly. For example, studies show that social norms and modeling behaviors regarding dietary habits might influence adolescents' food consumption (cf. Cruwys, Bevelander, & Hermans, 2015; Kümpel Nørgaard, Nørgaard Hansen, & Grunert, 2013). A key rationale for conducting the research presented in this thesis is, thus, that food and communication around food and health issues plays a central role in adolescents' health (cf. Marshall, Burrows, & Collins, 2014; O'neil et al., 2014).

Health and health promotion in the digital age

Just as food has both biological and social realities, so does health. Health and illness have significant organic and material realities, but they are also

constantly redefined social concepts. This results in constantly changing understandings of health and health promotion. Kickbusch (2007) argued that our shifting understanding of health stems from larger societal tendencies of late modernity. In late modernity, certain aspects of modernity are emphasized, such as globalization and individuals' responsibilities over their health. A key feature that has facilitated these aspects is the information revolution, which, in turn, has been enabled by rapid technological advances. In this digital age, 99% of Swedish 13- to 16-year-olds have access to their own cell phones, and most use them to go online (Swedish Media Council, 2017b).

The increased information and discussion about various health choices emphasizes a greater degree of participation for the individual and stresses an increased level of health literacy skills. In effect, as argued by Kickbusch (2007), there is a continuous and cyclic rise and demand for health information. In Sweden, 31% of adolescents aged 12-15 years and 61% of those between 16-19 years search for health-related information online (Findahl, 2014). This online health information retrieval and the online communication of health-related matters contributes to a quicker, wider, and more complex dissemination around information and norms regarding food, body weight, and health (Kickbusch, 2007).

Digital media and social media go under the larger umbrella term of information and communication technologies (ICT). They refer to applications (apps) and services that are commonly used by adolescents. The "digital" in digital media refers to the media having been encoded in a machine-readable (digital) format. The "social" in social media emphasizes the social components through which users can communicate with other users in various ways, such as by sharing various digital media (e.g., images and videos) (Murthy, 2012).

All the studies in this thesis address adolescents' communication on social media with regards to food and health issues. An illustrative observation on how these media have permeated today's society is provided by social media scholar and youth researcher, Danah Boyd:

> We live in a technologically mediated world. Being comfortable using technology is increasingly important for everyday activities. (…) Rather than

> assuming that youth have innate technical skills, parents, educators, and policymakers must collectively work to support those who come from different backgrounds and have different experiences. Educators have an important role to play in helping youth navigate networked publics and the information-rich environments that the Internet supports. Familiarity with the latest gadgets or services is often less important than possessing the critical knowledge to engage productively with networked situations, including the ability to control how personal information flows and how to look for and interpret accessible information (Boyd, 2014, p. 180).

In her book, "It's Complicated: The Social Lives of Networked Teens," one of Boyd's main points is that many adults might view adolescents as what Prensky (2001) labels 'digital natives' (e.g., as being familiar with digital media and tech-savvy), because they have grown up during the era of digital technology. However, Boyd argued that it is still important to explore adolescents' own online experiences and perceived competencies, as there is a large variation among adolescents. Potvin (2007) further emphasized this importance by arguing that individuals progressively become the focal decision makers on the issues regarding their health in late modernity. Therefore, access to health information becomes increasingly significant, not only in regard to availability, but more significantly, in terms of the individual's competence to understand and incorporate its meaning.

Digital media and adolescents' health

Adolescents' engagement with health-related digital media poses both opportunities and challenges (Goodyear, Armour, & Wood, 2018). Reported health-related benefits involve increased interaction and social support and more accessible and tailored food and health-related information (Larsen & Martey, 2011; Shaw, Mitchell, Welch, & Williamson, 2015). In addition, Patton et al. (2016) argued that social media might serve as an empowering and protective system for adolescents' health, as it might enable them to connect and mobilize around health issues that they view as relevant. Nevertheless, negative health-related issues concerning adolescents' use of social media have been reported, such as decreased physical and psychological health, due to sedentary lifestyles, and potential mental health issues, such as body dissatisfaction and cyberbullying (Shaw et al., 2015).

Despite the occurrence of both positive and negative outcomes, public discourse on adolescents and their use of social media tends to focus almost solely on the risks (Livingstone, Mascheroni, & Staksrud, 2017). Given these persistent risk narratives, many professionals in the field of health promotion may be unaware that there is also a potential for social media to function as significant tools in health promotion (Hausmann, Touloumtzis, White, Colbert, & Gooding, 2017). As adolescents are keen users of social media, researchers have suggested that incorporating these elements in health promoting practice and in the health care sector is appropriate (Balatsoukas, Kennedy, Buchan, Powell, & Ainsworth, 2015; Williams, Hamm, Shulhan, Vandermeer, & Hartling, 2014).

However, up to the present time, the understanding of adolescents and social media has been methodologically and conceptually limited in relation to health issues (Goodyear et al., 2018). Much of the research around adolescents' use of social media has viewed adolescents as passive and has often focused on their parents' perceptions or other adults in their surroundings (James, 2014; Mascheroni, Jorge, & Farrugia, 2014). Less research has focused on the adolescents' own perspectives and experiences (Hausmann et al., 2017). Exploring the health-related opportunities and issues of using social media from the perspective of adolescents is vital to understanding how to better consider social media and how to potentially use it in health promotion work (Hamm et al., 2014; Mascheroni et al., 2014; Third, Bellerose, Diniz De Oliveira, Lala, & Theakstone, 2017). This knowledge is important, as adolescents often have different understandings of social media as compared to adults (Frith, 2017; Third et al., 2017).

Given this background for how online digital media intersect with adolescents' health in different ways, this thesis will address and study this from different angles.

Aims

The overarching aim of this thesis is to *explore adolescents' relationship with food, body weight, and health communication in online digital media, as well as how adolescents experience participating in a health promotion intervention regarding food and physical activity habits.*

The focus will be on their presentation of food as well as their experiences of presenting themselves, their experiences of searching and engaging with health-related information, and their experiences of using social media in the intervention. Specifically, the four research articles that this thesis is centered around have the following aims:

Article I: to explore how adolescents portray food in a widely used image-sharing application.
Article II: to explore why and how adolescents in treatment for obesity search for and select online information regarding food, weight management, and health, and how they experience and evaluate this information.
Article III: to explore experiences of adolescents in treatment for obesity in terms of how they present themselves on social media, their rationale behind their presentations, and their feelings related to self-presentation.
Article IV: to describe adolescents' experiences of participating in a health-promoting school-based intervention regarding food and physical activity, with a focus on empowering aspects. A secondary aim for this thesis frame was to further explore the adolescents' experiences of using a social media group, a key component of the intervention.

To make the intention and focus clearer when exploring these complex phenomena, I will unpack the main concepts, explicate the theoretical assumptions, and clarify their relationships. This will be done by discussing the thesis's objects of study.

Objects of study and knowledge object

According to Fransson and Lundgren (2003), an object of study is *what* is studied, while the knowledge object is *how* the object is studied and conceptualized. The authors further illustrated that the knowledge object can

be considered as the 'map' with which a given object of study is explored. The map should be made up of theories and research methods that are consistent and coherent with the research area.

The terms interaction and communication are often used synonymously. Interaction can depict any process whereby a participant's action effects the action of another participant. Communication, however, is a particular form of interaction that involves an exchange of information content (Fleischer, Berg, Zimmermann, Wüste, & Behrens, 2009). All the studies in this thesis address adolescents' online communication and information in some form.

The study objects in study I are instagrams depicting food shared by adolescent users and, thus, represent a form of user-generated food communication. The study objects in studies II and III concern experiences of adolescents enrolled in an obesity clinic. The focus is on their experiences and perceptions related to online health information and their online self-presentation. The study objects in study IV are experiences of adolescent participants in a school-based health promotion intervention, which was triangulated using their teachers' observations. The focus for study IV in this thesis will be on how these adolescents experienced using a social media group within the intervention context.

To understand communication and particularly self-presentation, this thesis draws on Goffman's (1959) dramaturgy in studies I and III. The concept of eHealth literacy, as defined by Norman and Skinner (2006b), is used to understand and conceptualize online health information seeking in study II. In study IV, empowerment, understood as both a goal and means of health promotion work, is used to understand the adolescents' experiences in relation to the abilities that they need to gain control over their health (Tengland, 2007).

A rationale and expected contribution of this research is how the findings can be understood in relation to health promotion practices targeting adolescents. While it can be argued that theories should establish the parameters for a scientific discipline, rather than for a field of activity, such as health promotion, McQueen (2007) maintained that theory is critical for understanding health as a practice. In this thesis, health promotion as a

research area serves three significant purposes: to inform the research questions, to direct the data collection, and to identify implications from the research findings.

It might not be immediately clear whether it is useful to differentiate between online and offline settings. Using an example provided by Kozinets (2010), certain interactions might have a stronger focus on the online aspects, for example, international online groups or forums. However, a majority of Swedish adolescents are online for several hours per day, and the transition or boundary between 'online' and 'offline' status is increasingly blurred (Swedish Media Council, 2017b). This is also reflected in the chronology of Internet research. While pioneering studies focused on differences between offline and online, more recent studies view the difference between online and offline as a continuum rather than as opposites (Robinson & Schulz, 2009). However, the research focus between online and offline might be a product of the research methodology. It can, thus, be useful to clarify that while the first study in the thesis is 'online-based' with the intention to capture manifest food communication, the other three studies focus on how the 'online reality' is experienced and perceived by the adolescents. Social media interaction here becomes an 'object' or practice that the researchers explore by listening to the adolescents' stories. However, an assumption is that online interaction influences the adolescents' health and aspects that are 'offline,' such as their food behavior. Further, Chen et al. (2011) argued that it is crucial to explore adolescents' subjective interpretations of reality, as they affect the formation of their reality.

On a more general note, it is important to clarify that knowledge objects are never fully understood or defined. Our understanding and interpretation of them changes over time due to researchers' systematic studies. They are also in constant change as new technologies and modalities emerge, shaping new practices and norms. Giddens (1990) emphasized that knowledge gained by researchers about the world is constantly being reintroduced in society through, for example, media, which contributes to the latter's increasing complexity. Similarly, Schatzki, Knorr-Cetina, and Von Savigny (2001) argued that, because epistemic objects are in this continuous process of being materially defined, they constantly take on new characteristics and features. The study objects in this thesis are based in social sciences and are, therefore,

transformed by the relationships they form, namely, by the fact that they are studied. Hacking (2000) argued that study objects in social sciences are interactive to a higher degree than in more natural sciences. Social objects relate to other social objects. The different interactive variables that constitute a social phenomenon are so numerous and complex that it is difficult to isolate them in the way that is achieved in more positivist research traditions.

This relates to this thesis's methodological and analytical underpinnings, which rest on the descriptive-interpretivist research tradition (Elliott & Timulak, 2005; Graneheim, Lindgren, & Lundman, 2017). In my capacity as a PhD candidate, I have attempted to describe and interpret how adolescents' experience aspects related to their social world to understand the meanings and rationale for their practices. This type of research and data can be seen as co-created by the researcher and participants together (Patton, 2002). However, children are dependent on adults' epistemological perspectives in a research context (Thulin & Jonsson, 2014). Heuristically, this relates to the Cartesian dualism of subject and object (Grego, 2007) in which the researcher, the adult, is viewed as the subject, and the adolescents and their experiences and perceptions as the objects of study. In the method section, I have outlined how this has been handled, such as considering both the "children's perspective" and the "child perspective" (Thulin & Jonsson, 2014).

As this thesis is based on an interpretivist research tradition, the knowledge claims generated from this research should not be regarded as certain or universal. However, if the claims from the research emerge out of methods that are considered as reasonable and relevant, they can be viewed as guidance for other researchers about reality (Chen et al., 2011). Ultimately, this goes in line with the reasoning posed by Schatzki et al. (2001), that knowledge objects should be viewed as processes rather than definite things, and that research studies identify them by expanding, rather than decreasing, their complexity.

Outline

This thesis is structured in the following way. I will first detail the theoretical and conceptual underpinnings. Then, in the background section, I will outline previous empirical and theoretical research studies. I will also provide definitions of central concepts and explain how these relate to applicable

research areas. In the methods and data analyses, I will present the designs of the included studies, together with a short explanation of each study's data collection and analysis. In the results, I will briefly present each study's results, together with some previously unpublished findings. In the discussion, I will synthesize the results to identify broader themes that intersect with the studies and understand the studies in relation to previous research as well as the theoretical and research perspectives. I will also discuss the methodological considerations. In the conclusions, I present the concluding remarks together with research and practical implications.

Theoretical and conceptual underpinnings

In this chapter, the theories and concepts that are used in this thesis will be presented and defined. As previously mentioned, this thesis is written within the research area of Food and Nutrition, which concerns the intersection between people and food, in which a health perspective is central (Faculty Board of Education, 2016). Health, and health promotion, which is described by the WHO (2009c) as the process of enabling people to increase control over their health, are, thus, important concepts that will be further discussed. As social media permits the sharing and distribution of food and health communication, health literacy, and, in particular, eHealth literacy are other related concepts that will be utilized. Norman and Skinner (2006b) defined eHealth literacy as the capability to seek, find, and understand health information from electronic sources and apply this information to address a health problem or concern. These concepts will also be further defined. Lastly, after presenting the theoretical concepts, the research perspective used in this thesis will be outlined and explained, including how it relates to these concepts.

The concepts of health and health promotion

As an idea to increase the health of individuals, health promotion is not a novel idea. As a termed practice, however, health promotion is more recent. Laverack (2004) contended that the practice in health areas started rising after the 1974 publication, A New Perspective on the Health of Canadians – also called the Lalonde Report (Lalonde, 1974). This is considered one of the first significant government reports to propose that health care services were not the most imperative elements of health, and that the main advances in health would primarily result from developments in environment and lifestyles (Hancock, 1986). A lot has happened with the definition and conceptual distinctions regarding health promotion since the Lalonde Report, but many researchers still claim that health promotion as a term remains indistinct and

disputed (Dawson & Grill, 2012). This will be further discussed, but as health promotion is about improving people's lives and their health, health as a concept first needs to be explained in relation to this thesis.

There are numerous ways to delineate health, each one suggesting different health promotion approaches and strategies (Laverack, 2004). One of the most referenced and influential definitions of health is proposed by the World Health Organization. The WHO (1946) defined health as a "state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." This definition of health places an emphasis on physical, social, and mental well-being alike, forming a holistic approach to health. It is, therefore, important for this thesis, as it emphasizes a holistic approach to factors of importance to adolescents' health. However, this definition of health has been critiqued, and commonly voiced critiques include the definition's lack of precision and confusion of health with overall welfare (Dawson & Grill, 2012), as well as the opinion that the definition is idealistic, uncompromising, and naïve (Huber et al., 2011). Although the WHO definition of health can be considered (too) broad and (too) encompassing, it emphasizes an important distinction from health as the mere absence of objective signs of disease by also considering other determinants of health, such as psychosocial components. It, thus, provides a significant conceptual notion in that disease and infirmity, when isolated from individual (subjective) experience, are insufficient to qualify health. The definition can be seen to provide a framework and vision for what health promotion activities should aim to achieve.

To bring the notions of objective and subjective views on health together and contrast these dimensions, Brülde and Tengland (2003) offered a three-way approach in how this can be considered. Firstly, health can be seen in regard to the clinical status of the person. Being of good health is defined as being free from disease. When viewed in this way, health must be elaborated upon in relation to the diagnostic criteria of "disease" to understand what constitutes a disease, and where the line is drawn between what is normal versus abnormal or pathological. However, this biomedical view and definition of health is insufficient; it is unable to tell us how sick or ill a person is, as pure biomedical information does not entail how well the person can function, or how he or she is feeling. Thus, other dimensions of health need

to be considered, dimensions that take into account one's dynamic with the surrounding environment. A second dimension is health as the ability to function optimally. Functional health represents how well a person functions in regards to his or her physical self, mental state, and in a social context: the degree to which he or she is able to satisfactorily perform in given settings and contexts, and to what extent said individual is able to attain and fulfill his or her needs and wishes in this regard. When it comes to functional health, it is important to note that an individual's general capability to function is not only dependent on one's aptitudes in a strict sense, but also his or her level of motivation, dispositions (e.g., personality), perceptions, and attitudes. The third dimension of health concerns how one is experiencing his or her situation, namely health as well-being. Here, it is significant to differentiate between well-being in general terms and well-being related to health. For instance, to be happy after one has just received a pay raise does not mean an increase in general health (nor general health-related well-being), and to mourn over the death of a loved one is still compatible with full health. All these dimensions of health can be present in contrast to each other. A person can, for example, be classified as sick, such as being diagnosed with obesity, but still experience well-being. And vice versa, a person can medically be classified as healthy, but not feel well. Health as a concept, thus, contains several dimensions that need to be considered, which is why it is important to approach health activities holistically. The view of health proposed by Brülde and Tengland (2003) also stresses the perspective that researchers need to approach how individuals experience and perceive matters about their own health, which is why the views of health-related matters of participants and patients become important.

When viewing health as a multi-dimensional concept, there are several factors and determinants of an individual's health that need to be explored. A health determinant is usually seen as a force or element that affects health either positively or negatively. These consist of both individual factors, such as genetics (e.g., hereditary disposition increasing the likelihood of developing certain illnesses), as well as social determinants of health. The Commission on Social Determinants of Health (Csdh, 2008) under the WHO argued that social factors are circumstances that are shaped by families and communities, and by the distribution of money, power, and resources on a structural level. However, many lifestyle factors, such as health behavior (e.g., dietary habits)

are shaped both by individual elements (e.g., preferences for certain tastes), as well as social factors (e.g., peer networks and commercials) (Fletcher, Bonell, & Sorhaindo, 2011; Institute of Medicine, 2006). Some determinants of health are not modifiable, such as genetic endowment, and health promotion as a practice is foremost concerned with activities addressing the potentially modifiable determinants of health, such as lifestyles (Nutbeam, 1998).

According to the Ottawa Charter for Health Promotion (1986), which is based on the WHO definition of health, health should be viewed as a positive concept emphasizing social and personal resources as well as physical capacities. This approach to health promotion has been stressed in the subsequent proclamation to the Ottawa Charter, namely the Jakarta Declaration on Leading Health Promotion into the 21st Century (World Health Organization, 1997). Health promotion as a practice could then support individual and social progress through activities such as providing information, health education, and improving life skills. When conducting these activities, it increases the opportunities available to individuals to employ more control over their own health and their situations, and to make choices favorable to health (World Health Organization, 2009a). Similarly, the approach on how to conduct health promotion usually follows the logic on how health is defined, as well as how health should be measured or achieved. Thompson (2014) stated that medically centered health promotion usually has a top-down approach, in which health care professionals serve as experts and instruct patients, while other approaches are more bottom-up and within the control of the individual, such as approaches that focus more on guiding and empowering individuals to better identify their own abilities and resources to promote their health.

As health is generated in everyday life, effectively intervening on health necessitates an understanding regarding how adolescents make decisions that influence their health in their everyday lives. This also affects the role of the experts, as their expertise and competencies must become pertinent in the managing of everyday life events and situations. Potvin and Balbo (2007) argued that these new demands regarding the role of experts can be illustrated with the readjustment of the knowledge base for health promotion. The authors noted that there has been a greater inclusion of knowledge from a broader range of the social sciences. This also means that research questions

and study designs have evolved towards becoming more interdisciplinary. Furthermore, the authors argued that lay knowledge is progressively respected as a legitimate source of knowledge, which ought to supplement scientific knowledge, in the generation of evidence to support or assess practice. Ultimately, this move towards valuing lay knowledge also means an increased focus on the participants' subjective experiences and how they perceive their reality.

As health promotion often involves seeking to preclude harm to health, not just responding to cases of illness, it may result in unsought activities or interventions not demanded by individuals, as many proposed interventions are originated by health care suppliers or researchers rather than by the patients/participants themselves (Dawson & Grill, 2012). Health promotion interventions can involve a wide range of types of intervention components, stretching from information delivery, encouragement, construction of new norms, the shaping of existing norms, the manipulation of preferences, and even pressure or coercion (Dawson & Grill, 2012). This raises the issue of suitable methods that might be used in seeking to promote health. Suitable here might refer only to the most effective means to reach the desired (health-related) ends, but it may also mean the ethically tolerable means to reach those ends.

This thesis follows an approach that aims to helps individuals acquire better control over the determinants of their health (Tengland, 2011), as it embraces an orientation towards empowering strategies when conducting health promotion, such as identifying new aspects of importance for adolescents' eHealth literacy skills. Health promotion research using an empowerment approach is based around identifying resources and capabilities, instead of logging risk factors, and on exploring environmental influences on health issues rather than attributing victims. Empowerment-oriented interventions focus on improving well-being, which provide opportunities for participants to develop understanding and skills (Bergsma, 2004). Following the WHO definition, focusing on how health promotion practices are approached and conducted, rather than on achieving a particular health goal, is fundamental. As such, it also means viewing empowerment as both a means and a goal of health promotion work (Tengland, 2007).

Health literacy and eHealth literacy

A concept often related to health promotion and empowerment is health literacy. Health literacy is a concept termed in the 1970s that focuses on the capacities of people to understand the multifaceted demands of health in modern-day society. To be health literate means placing one's own health into context, comprehending which factors are influencing it, and understanding how to address them (Sorensen et al., 2012). Health literacy needs to be distinguished from literacy in general. Referring to the United Nation Education, Science and Culture Organization (Unesco, 2005), during its usage in English, "literate" mainly meant to be well educated or 'learned.' While sustaining its wider meaning of being well informed or educated in a certain area, it has also come to include the capabilities to read and write text. Recently, four aspects of literacy have been outlined from the debate of the notion: 1) literacy as an independent set of skills; 2) literacy as applied, situated, and practiced; 3) literacy as a learning process; and 4) literacy as text (Sorensen et al., 2012). This definition is synchronized with one well-known and often referred definition of health literacy made by Nutbeam (2000), which has been adopted by the WHO. Health literacy can be defined as "the cognitive and social skills which determine the motivation and ability of individuals to gain access to understand and use information in ways which promote and maintain good health. Health literacy means more than being able to read pamphlets and successfully make appointments. By improving people's access to health information and their capacity to use it effectively, health literacy is critical to empowerment" (Nutbeam, 1998, p. 357; World Health Organization, 2009b). Health literacy includes the situation and environment in which health literacy demands are necessary (e.g., when facing health-related information online, within a health care setting) and the abilities and competencies that people possess in that particular situation.

Similar to the concept of health promotion, the definition of health shapes and outlines how individuals view and approach health literacy. As this thesis follows an integrated understanding of health, this is also reflected in the understanding of health literacy. Health literacy is seen as a resource among individuals that functions in their everyday environments. It can then be developed and enhanced to facilitate greater empowerment in decision-making processes (Ringsberg, Olander, & Tillgren, 2014). The concept

focuses more on than how individuals approach and apprehend health information, as it also considers the social determinants of health (Nutbeam, Harris, & Wise, 2010). When working with health literacy, one is also interested in knowing about factors contributing to unequal distribution of health while trying to understand the elements which can contribute to increasing individuals' or populations' health literacy.

Sorensen et al (2012) proposed a set of competences associated with health literacy, namely accessing, understanding, appraising, and applying. Accessing refers to not only the ability to seek, and obtain health information, but also to update oneself on health issues. Understanding health information refers to the ability to comprehend the health information accessed and derive meaning. Appraising refers to the abilities to interpret and evaluate the information while applying corresponds to the ability to communicate and use the information to make a decision to maintain and improve health. Each of these competences represents a significant dimension of health literacy, and they also involve certain cognitive qualities and, of course, depend on the quality of the information provided. Another distinction is made by Nutbeam (2000), who further elaborated on the notion of health literacy by suggesting different levels within the concept. The first level is functional health literacy, which entails the ability to function in everyday situations using elementary skills in reading and writing. Level two is interactive health literacy, during which communication skills are used to extract and derive information to act autonomously on that knowledge. The last stage of the model is critical health literacy, whereby individuals acquire the ability to critically analyze health-related information in order to exercise control over the determinants of their health. As advancement between each level takes place, so does greater autonomy and empowerment.

The interest in health literacy among researchers has accelerated during the last decade. Ormshaw et al. (2013) argued for two main reasons: the function of health literacy as a recognizable public health goal via the commonly recounted relationship of health literacy with behaviors and detectable health parameters (Sanders, Shaw, Guez, Baur, & Rudd, 2009), and the depiction of health literacy as a result of health promotion activities (Leger, 2001). As information and education provide the informed base for making choices, they should be viewed as necessary, core components of health promotion,

aiming at increasing knowledge and disseminating information related to health. Nutbeam (1998) argued that health literacy is a key outcome of educational activities, which should be placed in the broader concept of health promotion and for which people working in health promotion should be responsible. Health education should include the public's awareness and experiences of health and how it might be sought, and mass media and information technologies are important in this regard (World Health Organization, 2009d).

Much of the research concerning health literacy focuses on the clinical context. However, when placing a greater emphasis on health literacy outside of health care settings, the potential to impact preventive health and reduce pressures on health systems increases (Sorensen et al., 2012). When considering health literacy outside the clinical setting, it is important to consider the contextual factors that mediate health information and the environmental factors that influence health. Health literacy needs to be considered in relation to the medium by which health information is manifested (Norman & Skinner, 2006b). The focus in this thesis is the online setting, and the rapid expansion of the Internet and social media has created more accessible sources of health and dietary information, in addition to traditional health care structures (Hesse, Nelson, Kreps, & et al., 2005; Ishikawa & Kiuchi, 2010).

For adolescents to take advantage of health information online, they must have a core set of capabilities. Put together, these necessary capabilities have been identified as eHealth literacy. eHealth literacy refers to the health literacy used and conducted in the online setting (Norman & Skinner, 2006b). Norman and Skinner (2006a, 2006b) argued that eHealth literacy consists of six key literacies: traditional literacy, health literacy, information literacy, scientific literacy, media literacy, and computer literacy. They further organized these literacies into two main types: analytical (traditional, media, and information) and context-specific (computer, scientific, and health). The analytic aspect includes competencies and skills that are valid to a wide range of information sources regardless of the subject or context, whereas the context-specific component depends on more situation-specific skills. Norman and Skinner (2006a, 2006b) further argued that eHealth literacy is

influenced by an individual's health status, educational background and cognitive abilities, motivation, and the technologies he or she uses.

It is also important to note that adolescents can engage both in intentional behaviors and unintentional behaviors related to health. In an online setting, adolescents can be exposed to dietary and health-related contents inadvertently, which could influence perceptions, preferences, and feelings. In this case, the aim with eHealth literacy initiatives is to make the adolescents aware of these health-related messages online and stimulate critical reflection. However, adolescents can also be more direct and active in their health behaviors and, for example, actively seek out information and recommendations regarding their health in order to improve health status. The aim of interventions focusing on eHealth literacy, in this aspect, is then to inform, stimulate, and determine where this type of information can be found and how it can be accessed. Norman and Skinner (2006b) noted that, as this is a dynamic process, like other literacies, eHealth literacy it is a process-oriented skill that adapts over time as new technologies are introduced and the individual, social, and environmental settings change. Over the last decade, researchers have paid increasing attention to eHealth literacy from a range of fields such as medicine, nursing, health informatics, and communication (Mackert, Champlin, Holton, Muñoz, & Damásio, 2014), largely because of its critical role in health education and promotion, and as a means for improving health outcomes and reduce health disparities (World Health Organization, 2013). In regards to dietary health promotion, it is considered important to enable adolescents to critically analyze sociocultural influences, such as media and commercials, on food selection in order to better manage negative social pressures, and develop social support for healthy eating (Hove, Hye-Jiin, & Isaacson, 2011).

Online messages can have different senders, which lead to different implications. Previous studies on the credibility of online information have identified multiple drivers aside from eHealth literacy of the receiver, namely source (messenger characteristics), message (argument strength or familiarity), issue relevance, and context (such as distraction or time lapse) (Wathen & Burkell, 2002). This can differ between conventional online media and media transmitted in a social setting (i.e., social media). Conceptually, social media differs from regular web sites in that they are user-generated; concerning

online social networks, the content is usually shared between peers and the receiver usually knows the sender, to some extent. Practically, social media also pose higher risks than other conventional media, since it is much wider (and faster). Due to the outreach of the social web, its message could be uncontrollable, and its often non-moderated nature means that virtually anyone can publish whatever he or she wants. The risks include spreading misinformation and disinformation, which can propagate rapidly through viral messages and word of mouth (World Health Organization, 2013).

Research perspective

As this thesis involves research about online communication, it is important to further explore social interaction and communication from both a theoretical and research perspective.

Symbolic interactionism

As humans, we spend a lot of time interacting with others. These interactions influence individuals' views of themselves, which are then reflected in the ways they convey themselves during interactions. Symbolic interactionism pertains to the continuing processes between one's self, one's social interactions, and how they relate to develop meaning (Blumer, 1986). Symbolic interactionism considers shared reality to be constructed; however, the perspective focuses on the individual aspects of understanding, which are used to explore the construction of the self and its directions for social action (Chen et al., 2011).

According to Blumer (1986), there are some elementary assumptions that underline symbolic interactionism. First, individuals act according to the meanings that things have for them. This assumption rests on the presupposition that the world exists independently of the individual, and that the world is interpreted and understood through the use of symbols (i.e., language) in the interaction process. Second, meanings are assigned and revised through an interpretive process that is constantly changing and subject to redefinitions and rearrangements. This description relates to the view of health mentioned earlier; as health contains several dimensions that need to be

considered, it is important to explore how adolescents understand and interpret factors that might relate to their own health.

Perceptions regarding food, body weight, and health are affected by norms and social standards that may change over time and vary according to context. One of the most important tenants of symbolic interactionism is that truth is tentative because meaning changes depending on the context for the individual. Consequently, questions about the nature of being are best explored by asking individuals about their interpretation of reality and what they believe to be significant (Benzies & Allen, 2001). Symbolic interactionism also emphasizes the idea that the environment is dynamic and that behavior depends on adaptation to the environment (Charon, 1995). From this perspective, adolescents need to relate to the growing and ever-changing digital media landscape of today. This is accomplished in numerous ways, depending on how they perceive and relate to themselves and their different contexts.

Goffman's dramaturgy

Impression management is an applied theory based on symbolic interactionism that has been widely used to explore online social communication and computer-mediated communication (CMC) (Goffman, 1959). It refers to explicit and implicit strategies individuals utilize to try and influence how others perceive them. Impression management is part of a larger concept developed by Goffman called dramaturgy (Goffman, 1959), which refers to a theory of interaction in which social interactions are analogous to the performances of actors on a stage. Goffman's theoretical perspective was not created to explain all parts of the social world, but rather to analyze the interaction order in face-to-face situations.

As Goffman's model was centered around face-to-face interaction, Knorr-Cetina's (2009) introduction of the "synthetic situation" applied it to online interaction. A synthetic situation can manifest in many ways, such as online video calls and when playing online video games against others. Another scholar who has updated Goffman's concepts is Danah Boyd. Danah Boyd (2007) drew on the theories of Goffman (1959), regarding self-presentation

and impression management when exploring adolescents' online behavior. Boyd argued that what adolescents put forward online is their best effort to attempt to express who they are. Yet, while they may intend to convey one impression, the presentation is not always received as they might expect. Learning to make sense of others' responses to their behavior, adolescents assess how well they have conveyed what they intended. Boyd (2007) argued that according to the theory of impression management, adolescents perceive their identity in three stages online: the perception of the real me, how I believe I am being perceived by others, and how I wish I was perceived.

For the purpose of this thesis, the terms impression management and self-presentation will be used interchangeably. Both these concepts refer to intentional and unintentional strategies to control selected behaviors to make a desired impression on a particular audience (Lee, Quigley, Nesler, Corbett, & Tedeschi, 1999; Rosenberg & Egbert, 2011). Boyd and Marwick (2011) asserted that adolescents' practices in online social networks are not only shaped by their interpretation of the social situation, but that their behaviors are also subject to their ability to navigate the technological and social environment. As the Internet provides more information about food, body weight, and health than any tool ever to exist – with no established guidelines on how to use it, or how to evaluate content – competencies, such as those mentioned earlier referred to as eHealth literacy, are important to explore.

Presenting something online is not always what it seems to be, as, for example, everyday posts about what one had for lunch, or what someone is wearing, could easily be interpreted as something very banal. However, Murthy (2012) noted that seemingly simple Twitter posts are a way for tweeters to affirm their identity in an ever-changing online landscape. This need or desire to self-affirm one's identity is often a result when social media users post and share content on a regular basis. As such, using the words of Gackenbach (2011), social media users are constantly inventing and defining themselves online.

An important part of self-presentation is the notion of the audience, those who will watch and view what one presents. As with all social situations, we tend to orient to imagined audiences, no matter what we are doing. Marwick and Boyd (2011) argued that users of online social networks consider their

audiences when they upload and share content. The authors also noted that users often imagine and construct these audiences in order to present themselves in alignment with perceived social norms as well as technological limitations. Digital media also pose implications for understanding spaces. While individuals might understand that, for example, their Instagram audience is possibly limitless, they often behave as if it was restricted and contained. As a large part of one's audience in online social networks consists of 'offline' friends, family, and acquaintances, it is important to understand that this term is not easily understood.

Boyd (2008) showed that adolescent social media users have diverging definitions of friends. In her research, one participant could describe friends as users she follows or has in her social network, while another participant referred to her friends as her 'offline friends' – to signal people she knows 'in real life' (IRL). Ultimately, interaction in social media is different in the sense that contexts and audiences are more diffuse, as they do not share a time or space context. Interaction can take place geographically far away, or one can respond to someone's old messages or posts (Andersson, 2017). In this way, there is what Marwick and Boyd (2011) labeled a "context collapse," where different contexts are integrated and meet each other, such as between private and public. Similarly, Chambers (2013) argued that many young social media users engage in reflexive stances, such as what to show and what to hide, who might read and view one's posts, and how it will be perceived.

An important and closely aligned concept to self-presentation is the framing theory. Goffman (1974) argued that the way something is presented to others (called "the frame") affects the actions and choices individuals make about how to understand that content. Frames construct and modify a message's meaning. Frames are dynamically formed through interaction as they shape, and are shaped by, interaction. As the studies in this thesis relate to online media, the framing theory is used in relation to media. According to Goffman (1974), media focuses attention on certain events and then places them within a context of meaning. Frames influence the perception of the media consumer by both showing the audience what to think about (the media content), or implying what it is important, but also how to think about the issue (the angle, or narrative, around the content). Goffman's understanding of mass media framing has also been used in digital media research. For example, Misoch

(2015) used frame analysis to explore new ways that certain social media platforms functioned as frames and a contextual norm for self-disclosing behavior.

Goffman (1974) argued that that there are two sets of frames, the natural and the social. Natural frameworks establish events as material, or physical, and do not imply any social influences on the causation of events. Social frameworks, on the other hand, are socially driven occurrences, based on the objectives and manipulation of individuals. Both these frameworks, and how they are perceived, influence how information is understood and communicated. Fairhurst and Sarr (1996) listed several elements that can be used to frame a message, such as metaphors that make comparisons to other objects or situations.

Goffman (1959) argued that most individuals are reflective and capable of making choices about how they present themselves, and that they are also capable of adapting to difficult situations. Goffman (1963) revisited this topic when focusing on individuals that somehow differ from the prevailing norm and are stigmatized, in that they might adapt their presentation with regard to the social norms. Taylor (2010) observed that adolescent boys and girls, of all sizes and of different social groups, including adolescents with excess weight, displayed negative attitudes towards individuals who presented overweight. In doing so, the author argued that the adolescents were able to discursively concept themselves as 'normal' in comparison. According to the author, this was a way for the adolescents to distance themselves from the reality of 'everyday fatness,' which was a marker of popularity, signifying a higher social rank. Thus, as excess body fat is not something that is viewed as popular, and with prevalent body image concerns and peer pressure online, adolescents with obesity may feel ashamed to present themselves and their bodies online.

Impression management offers a theoretical approach for the understanding of social interaction, but it can also be used to understand concrete research situations. When researchers' approach and interview participants, we cannot be sure that they are at ease with showing or telling us everything, as they may be uncomfortable or feel insecure. This could be especially pronounced when the researchers are adults and the participants are minors, and when the research questions concern potentially sensitive topics such as food and body

weight. In addition, social media itself can be sensitive for adolescents. Boyd and Marwick (2011) contended that adolescents value the notion of privacy and publicity in their online interaction. According to the same authors, the public is not a defined set of individuals or a constrained space, but rather a flexible category in which adolescents imagine boundaries, but do not control them. Participation in these so-called networked publics has become an essential part of teen culture as adolescents' value interacting with peers broadly, particularly in situations where their discussions are not heavily managed by adults. In the same way, some adolescents might feel comfortable talking about and showing adults and researchers their online milieu, while others might feel a stronger need to protect this sphere.

Background: Setting the scene

This background intends to provide a review of the published literature related to this thesis's overarching aim. Consequently, the broader topics and domains related to this thesis will be addressed.

Adolescents in health research

Commonly understood as the years between the onset of puberty and the establishment of social independence, adolescence is a dynamically and evolving concept informed through biological, psycho-social, temporal, and cultural perspectives (Curtis, 2015). The World Health Organization (2014b) provided one of the most commonly referenced chronologic definitions of adolescence: the period from 10 to 19 years of age. The study participants in this thesis are between 13 to 16 years of age, which is often referred to as early and middle adolescence (Clark-Lempers, Lempers, & Ho, 1991). The WHO (2014b) defines additional terms for young individuals, such as "youths" as being between the ages of 20-24 and "young people" between ages 10-24. Since "adolescents" is the most precise term to denote the study participants in this thesis, I will mostly use this term, but also use, for example, "youth" in the context of "youth culture," since such a concept is less confined to an individual's chronological age.

A number of changes occur in the life of adolescents during this time period. Biological changes signified by puberty, and adolescents' cognitive abilities, such as their abstract thinking and reasoning, are developing (Patton et al., 2016). Furthermore, emotional and social preferences often change, such as a striving for independence away from family towards peers. Adolescents are also exposed to more demanding life events compared to children, but their emotion regulation strategies to manage these pressures are still emerging (Steinberg, 2005). Mayall (2008) argued that everyday life situations of adolescents are limited and controlled with regards to their biological age, as age is an important indicator for stratification in society. Adolescents are, thus,

in a stage of life where they strive for increased independence, but are still dependent upon adults for basic necessities, such as accommodation and food; therefore, in many instances, adolescents must consent to authority (Cook, 2005).

There are several reasons and rationalizations for a particular health promotion focus on adolescents. Viner and MacFarlane (2005) argued that the key ones are mortality and morbidity issues in relation to adolescent-specific developmental issues, the clustering of health risks, and the fact that health behaviors in youth often continue into later stages of life. Many of the health-related behaviors and practices that lead to major non-communicable diseases such as obesity start, or are accentuated, during the second decade of a person's life (World Health Organization, 2014b). For example, diet and exercise patterns have been observed to follow one from adolescence to young adulthood; adolescents living with obesity are more likely to still have obesity in adulthood, compared to adolescents who do not have obesity (Simmonds, Llewellyn, Owen, & Woolacott, 2016; Wiium, Breivik, & Wold, 2015).

One reason why various health factors cluster in adolescence is due to the fact that many health issues in adolescence are influenced by wider underlying factors, such as dis/ability, gender, and ethnicity. Health behavior associations follows different trajectories and have also been seen to be influenced by adolescents' sociodemographic backgrounds, such as their parents' educational level (Wiium et al., 2015). Resnick et al. (2012) contended that peer influences on health issues are greater during adolescence than at any other time in the life course. Adolescents' reliance on peers when making decisions is often used (and abused) by teen-centered media and marketing. As such, the media, especially social media, influence norms and behaviors in this age group more than any other.

The development in all aspects of young individuals' lives during adolescence requires updated and tailored health promotion tactics that are appropriate and accepted by adolescents. From a health promotion perspective, many of the factors that influence adolescents' health behavior are modifiable, as, for example, adolescents' social networks influence their healthy behaviors. Frech (2012) found that social support resources, such as peer and parental support,

were associated with greater levels of healthy behaviors across adolescence and adulthood. In this way, adolescents are social agents who also have the ability to influence the structures and practices surrounding them to a certain degree. Subsequently, adolescents' experiences and social practices are worthy of study in their own right (James & Prout, 1997). However, children and adolescents have often been viewed as incomplete individuals that are categorized based on what they can and cannot do. They have been viewed as socially becoming, inadequate individuals on the way to becoming adults and complete. While adolescents are controlled by structures, they also act as agents in and upon these structures (Prout & James, 1990). In many research areas related to health, such as health promotion and nursing, children are now viewed as active agents; to learn about their experiences, researchers need to seek information from them directly (Kirk, 2007). Similar notions have also been established in large consensus reports, such as the United Nations Convention on the Rights of the Child (1989), which emphasize that children have the right to express their opinions and be heard in all matters affecting their health.

According to Tomasik et al. (2012), online spaces have significantly changed adolescent identity and relationship creation, which were earlier conferred primarily through face-to-face interactions. The digital revolution has also facilitated adolescents' in identity formation that increasingly includes new features derived from global culture, particularly youth cultures (Boyd, 2014; James, 2014). Adolescents are, thus, not only passive when it comes to norms and ideals, but also influencers and agents in their own right. With social media, they are able to generate and distribute their views and ideas to a larger digital public, which also concerns issues related to food.

Food and food choice influences

A key rationale in the subject of Food and Nutrition used to explore adolescents' relationship with food communication in online digital media relates to health and food intake. Dietary factors constitute one of the most substantial impacts on the global burden of disease (Forouzanfar et al., 2015). Early experiences are critical in shaping personal food preferences, and food preferences can be developed through learning processes among adolescents

(Birch & Fisher, 1998; Birch, 1999). This thesis does not focus on food consumption or eating per se, but rather looks at food communication and social practices that, in turn, might influence food consumption.

Food consumption is a complex behavior resulting from the interplay of several influences across various settings. Previous studies have linked factors on the individual level, social level, physical environment, and macro level with the etiology of eating habits among adolescents (Kinard & Webster, 2012). Drawing on the model from Story et al. (2008) (see Figure 1), food communication in online digital media can be seen as an environmental factor that affects adolescents' food choice on multiple levels. For example, food communication with peers in social media would suggest the social environment, which, in turn, could influence their cognitions such as attitudes (individual factors).

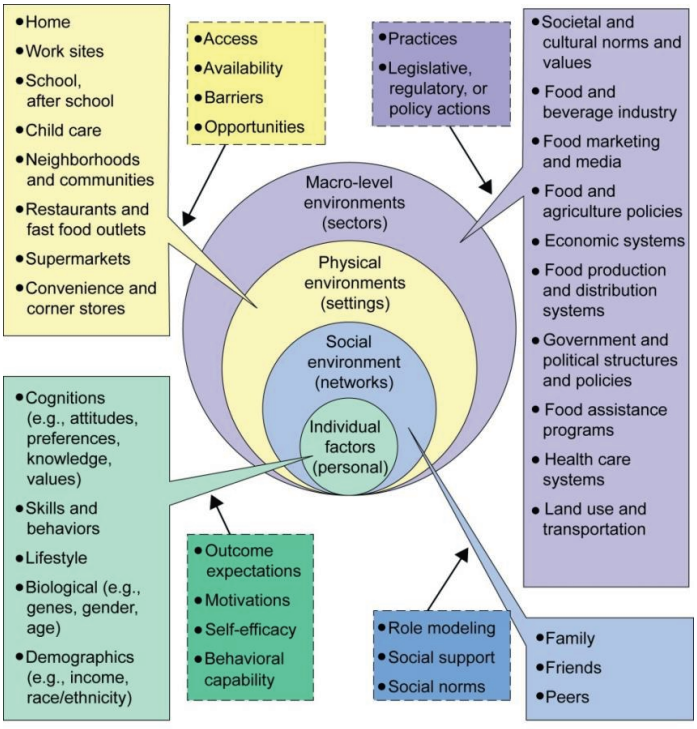


Figure 1. Influences impacting eating behaviors, from Story et al. (2008).

The social aspects, in particular, are significant because adolescents are increasingly influenced by what their peers eat (Fletcher et al., 2011; Kümpel Nørgaard et al., 2013). Adolescents are found to adjust to peers' food choices and consumption by selecting similar food products or eating similar quantities (Bevelander, Engels, Anschutz, & Wansink, 2013). Social norms can account for increased or reduced intake in the company of others, depending on how much the others eat and the degree to which one is willing to impress them (Herman, Roth, & Polivy, 2003). Social modeling behavior is grounded on a normative framework whereby individuals use others' food consumption as a guideline or norm for how much is suitable to eat (Herman & Polivy, 2005). As friends become more important in adolescence, the amount of time spent online and interacting with peers increases significantly during this age (Swedish Media Council, 2013).

Online, adolescents also encounter various types of commercial food marketing (Alvy & Calvert, 2008), which, in the model constructed by Story et al. (2008), pertains to food communication from a macro level. The food influences can be mediated biologically, such as a neurological response to a visual depiction of appetizing foods (cf. Van Meer, Van Der Laan, Adan, Viergever, & Smeets, 2015), and unconscious through what is often called automatized, or mindless, eating (Wansink & Sobal, 2007). Considering these various multilevel influences, it is useful to take an ecological approach to understand how online digital media can influence adolescents' eating behaviors. An ecological approach suggests multilevel linkages, connections, and relationships between multiple factors that impact health and nutrition, with an emphasis on the connections between adolescents and their environments. Using such a perspective, it then also becomes important to understand the symbolic and cultural manifestations of food, as eating patterns are assumed to mirror structures of meaning as constructed by the adolescents (Murcott, 1995).

Different social media permit various kinds of food-related communication. This variation can influence dietary habits differently depending on the type of communication and norms that may be transmitted and performed (Kelly et al., 2015). Taken together, these sorts of encounters of digital food encounters, can create a 'landscape of foods,' or foodscape (Wenzer, 2013).

Digital media as part of adolescents' foodscape

Johansson et al. (2009, p. 30) used the concept of foodscapes to capture "all the places and contexts where children eat and come into contact with food and the meanings and associations connected to them." The idea of foodscapes is being increasingly used within health promotion and public health nutrition as a framework to assess the 'agency' of our food environment (Mikkelsen, 2011). With the increased use of social media, online spaces are increasingly becoming a part of adolescents' foodscapes (cf. Holmberg, 2017).

The idea of focusing on the food environment, and that these environments might have an impact on individual behavior and health, is not recent. The settings approach came about as part of the Ottawa charter on health promotion; it presented and argued for the idea that the surroundings in which we live and work influence individuals' health (World Health Organization, 1986). Foodscape research is often concerned with a critique of current food environments and, thus, contains a normative approach to 'how it should be.' This normative approach seems to be most noteworthy within public health nutrition and health promotion researchers, with more nutrition-friendly foodscapes being the aim (Mikkelsen, 2011). Within research centering around obesity, the agency of the nutrition environment is highlighted through the notion of obesogenicity (Glanz, Sallis, Saelens, & Frank, 2005). Obesogenicity refers to the idea that the human-made environment may either prevent or be conducive to weight gain (Swinburn, Egger, & Raza, 1999). Similar to some of the literature on foodscapes, these models highlight the 'agency' of the environment and assume that the environment can act in ways that are either supportive or counterproductive for a given food behavior and, in turn, on an individual's body weight.

Body weight

The term body weight is in the health sciences used to refer to an individual's weight or mass. In this context, a person's body weight is in focus due to its implications on a person's health. Underweight or overweight is considered an important indicator of an individual's health (Ringback-Weitoft, Eliasson, & Rosen, 2008). Alberga et al. (2016) argued that, because obesity and eating

disorders co-occur in individuals and have several risk factors in common, it is important to view them as connected. By integrating this view, weight-related issues then encompass both obesity and eating disorders, as well as disordered eating and sub-clinical variants or symptoms, such as overweight and body image dissatisfaction (Alberga et al., 2016). Factors that influence weight-related issues are multi-factorial and complex (World Health Organization, 2017).

Individuals tend to become aware of their body weights in childhood or adolescence through, for example, comments made by peers and family (Eli, Howell, Fisher, & Nowicka, 2014). Researchers have argued that digital media might influence weight perceptions and eating behaviors (Das, Mohan, & Makaya, 2014). There are a number of trajectories, such as exposure to idealized images and increased access to weight and diet information (Cerri, Fisher, & Taheri, 2012; Holland & Tiggemann, 2016). Furthermore, with social media, there has been an increase and diversification of opinions and information, often in direct opposition to each other. Researchers have identified discourses such as those pertaining to body positivism, fat activism, weight stigmatization, but also pro-anorexia, and 'thin- and fitspiration' (Cobb, 2017; Lupton, 2017; Tiggemann & Zaccardo, 2016).

Since two of the studies in this thesis focus specifically on adolescents who have obesity, I will continue by elaborating more on this topic.

Obesity

Overweight and obesity are defined by the World Health Organization (2016a) as an excessive fat mass that proves a risk to health. At a group level, obesity is usually classified with the body mass index (BMI), which is a weight-for-height index. Since children are still growing, age- and gender-specific BMI cut-offs are used (Cole & Lobstein, 2012). On the individual level in, for example a clinical setting, more precise instruments are normally used (Boeke et al., 2013).

Around one in ten children worldwide, between the ages of 5–17, are living with overweight or obesity, as defined by their BMI (World Health

Organization, 2017). Although the dramatic increase in overweight and obesity among adolescents in nations such as the United States and Sweden seems to have plateaued, rates continue to be high (Rokholm, Baker, & Sorensen, 2010). A recent report showed that the rising trends in adolescents' BMI have plateaued in several high-income countries, albeit at high numbers, but have increased in many middle- and low-income countries (Abarca-Gómez et al., 2017).

From a health perspective, living with obesity increases the risks of developing several severe diseases and conditions, such as type 2 diabetes and cardiovascular disease (Biro & Wien, 2010). According to the World Health Organization (2017), childhood obesity is currently one of the most crucial public health challenges. The risks of cardiovascular disease and several cancers increase progressively with increasing BMI (Ng et al., 2014; World Health Organization, 2012). Obesity has also been reported to negatively influence adolescents' quality of life (Swallen, Reither, Haas, & Meier, 2005) and has been associated with psychopathologies such as depression (Mustillo et al., 2003; Strauss, 2000). Given this, it is important to focus on adolescents with obesity, as many adolescents do not 'outgrow' their obesity (Freedman et al., 2005; Simmonds et al., 2016).

Historically, there has been a debate around what causes obesity. Recent increases in childhood obesity are often attributed to the existence and expansion of the so-called 'obesogenic environment.' These environments are characterized by social–environmental and physical features that incite a sedentary lifestyle and provide easy access to energy-dense foods (World Health Organization, 2016b). There is, thus, a misalliance between humans' evolved physiology and the present environment that contributes to an energy imbalance between energy intake and energy expenditure (Duffey & Popkin, 2011; Kirk, Penney, & Mchugh, 2010). While genetic dispositions and metabolic anomalies influence an individual's weight, the significant increases in obesity are most likely caused by behavioral and environmental factors (Baranowski, Cullen, Nicklas, Thompson, & Baranowski, 2003).

A contested condition and weight stigma

Some aspects of obesity have been contested and debated, such as its health impact (e.g. for the fat-but-fit paradox, see review by Ortega, Lavie, & Blair, 2016). However, the generalizability of these claims has been disputed (Högström, Nordström, & Nordström, 2016), and there are illnesses that indicate a more causal link and process with obesity (Bliddal, Leeds, & Christensen, 2014; Buchwald et al., 2009). Due to the strong relationship that obesity has with several different types of diseases, many organizations, such as the World Obesity Federation and the American Medical Association, classify obesity itself as a disease, and not just a risk factor for disease (Bray, Kim, & Wilding, 2017; Should We Officially Recognise Obesity as a Disease?, 2017).

The World Obesity Federation (Bray et al., 2017) argued that classifying obesity as a medical diagnosis might help individuals to deal with their weight concerns, as it might reduce the weight stigma and the belief that obesity is solely self-inflicted and something shameful. In addition to targeting individuals that have obesity, this view might also facilitate change in the public and professional discourse in terms of blame for the condition by creating greater understanding. It is, thus, important to consider how health care professionals, individuals in the media, and researchers write and talk about obesity, in that such individuals are clear about the potential health consequences of obesity while being aware of the complexity surrounding the issue, such as weight stigma.

Weight stigma is defined as the discontent of individuals that are perceived to be overweight or obese (Tomiyama, 2014). Weight-related bias among children and adolescents has been acknowledged for almost 60 years (Richardson, Goodman, Hastorf, & Dornbusch, 1961). Puhl and Latner (2007) argued that weight stigmatization includes several concepts such as weight bias, discrimination, and rejection, and that it can be communicated verbally, physically, and socially.

Similarly, Sumeng et al. (2010) showed that children with obesity are significantly more likely to be bullied compared to other children, even when controlling for factors such as age, gender, ethnicity, and socioeconomic

status. While the proportion of adolescents with obesity has increased during the last decades (World Health Organization, 2012), there is no indication that obesity has become a less stigmatized condition. One review has shown consistently that adolescents with obesity are more often labeled in a derogatory way by their peers compared to adolescents with normal weight (Puhl & Latner, 2007).

Quality of life in adolescents with obesity is generally reported as lower when compared to adolescents who do not have obesity, and those seeking help from health care are usually more affected than the overall population (Buttitta, Iliescu, Rousseau, & Guerrien, 2014). One of the key drivers for adolescents with obesity to seek treatment is a desire to socially integrate with peers and to avoid bullying (Reece, Bissell, & Copeland, 2015). In a Swedish study with children that had overweight or obesity, aged 10-12 years, Mériaux-Gunnarsson et al. (2010) found that the respondents wanted to be part of a community, but that they spent a lot of time alone. In this way, online media might provide these adolescents with support that they may lack and contribute to health information.

Digital and social media

A key feature that has shaped today's society is the information revolution, which has been facilitated by rapid technological advancements. This has contributed to a quicker, broader, and more complex dissemination and communication around information and norms regarding food, body weight, and health (Kickbusch, 2007). In this way, as Fuchs (2015) argued, social media platforms provide avenues for adolescents to express themselves, which might contribute to a more participatory culture, influencing adolescents' actual agency and their sense of agency.

In 2016, 60% of Swedish adolescents aged 14-16 reported that they felt included in and participated in the current information society (Alexandersson & Davidsson, 2016). The same report found that adolescents that reported that they use social media daily were more likely to feel included in the information society, as they could influence and take part in it actively. The same relationship was also found for adolescents that reported feeling

competent navigating online. Being able to, and daring to, navigate the online landscape was an important factor for the adolescents' sense of participation in the information society.

It is important to note however that the communicative infrastructure, the social media applications, are most often commercial in nature. Fuchs (2015) highlighted these commercial aspects and that corporations might capitalize on their users in new ways, such as by storing their online consumption behavior and creating targeted advertisements. Evidently, adults are the ones who operate digital media platforms and permit these commercial influences. It is, thus, within these structures, as conceived by the adult world, that adolescents can experience relative liberty and autonomy when they use various online social networks (Kaare-Hertzberg, Brandtzæg-Bae, Heim, & Endestad, 2007).

Classifications and overview

Digital and social media are information and communication technologies (ICT). The "digital" in digital media refers to the media in question having been encoded in a machine-readable format. This understanding is important as, for example, digital images differ from analog photographs in that the former are modifiable and structured differently. The "social" in social media emphasizes the social components, such that these media facilitate various ways of communication.

Complementing this distinction, Murthy (2012) argued that another distinction should be made between "online social networks" and "social media." Online social networks, such as Facebook, are defined by Boyd and Ellison (2007) as web services that enable users to generate a public or semi-public profile, within a confined structure, and through which the users can connect and form relationships with other users. Social media, as Murthy (2012) contended, are primarily considered as a medium where 'regular' people form social networks (versus professional journalists) to create user-generated 'news' (in a widely defined sense). The word "social," in social media, signifies its distinction from 'traditional' (mass) media. Thus, most types of online platforms and websites that offer a way for their users to interact, or make their voices heard more generally, can be considered to be

somewhat social, while online social networks denote a specific type of platform with a clearly defined social structure. It can, therefore, be useful, as José van Dijck (2013) articulated, to classify social media platforms depending on their user focus. For example, to distinguish between social networking sites with the interaction in focus, such as Facebook, and platforms where user-generated content is in focus, like YouTube.

Reid-Chassiakos et al. (2016) noted that some of the main differences between social media and 'traditional' (mass) media are that social media:

1. Enable the creation and sharing of user-generated content. It also means that the old boundaries between professional- and amateur-produced content are diminishing.
2. Allow the users to retrieve and obtain the information and content they are interested in or need, instead of information merely being broadcasted to them. This also means that the users can arrange and create their narratives themselves, instead of using mass media-generated constructions.
3. Generate distributed content from social interaction of many sorts, such as likes, comments, and retweets.

Danah Boyd (2014) offered a brief explanation regarding her definition of social media, which also illustrates the context of how they emerged:

> Over the past decade, social media has evolved from being an esoteric jumble of technologies to a set of sites and services that are at the heart of contemporary culture. Teens turn to a plethora of popular services to socialize, gossip, share information, and hang out. (…) I use the term social media to refer to the sites and services that emerged during the early 2000s, including social network sites, video sharing sites, blogging and microblogging platforms, and related tools that allow participants to create and share their own content. (p. 6)

Boyd (2014) further argued that social media follows a development from what is often described as "Web 2.0," which started with the use of instant messaging applications and online forums. There is no clear line between these tools and social media now, as most sites and platforms are constantly evolving, and, for example, many online forums now allow users to also share images and videos. Conversely, most websites and platforms have now

become 'social' to varying degrees. Therefore, as Boyd (2014) argued, the significance of social media often refers to its impact on, and relationship to, larger cultural shifts:

> In addition to referring to various communication tools and platforms, social media also hints at a cultural mindset that emerged in the mid-2000s as part of the technical and business phenomenon referred to as "Web 2.0." The services known as social media are neither the first—nor the only—tools to support significant social interaction or enable teenagers to communicate and engage in meaningful online communities. Though less popular than they once were, tools like email, instant messaging, and online forums are still used by teens. But as a cultural phenomenon, social media has reshaped the information and communication ecosystem. (p. 6)

The online environment is ever-changing and expanding. It is difficult to categorize different social media channels and applications, as they are constantly changing in terms of features and uses. Scholars, such as Jenkins (2008), have referred to this movement as media convergence, which is the movement of media content across multiple media platforms as well as the merging of earlier distinct media technologies and forms.

For example, platforms that previously received a lot of research focus were MySpace (cf. Levine et al., 2011) and the Swedish Lunarstorm and Bilddagboken (Olsson, 2017). As their popularity decreased, so did the researchers' interests. However, some platforms are longer-lived, and constantly develop and add new features to stay relevant. Instagram, for example, was launched in 2010 as a mobile-based image-sharing application. However, in 2013, Instagram introduced the possibility for its users to share short videos. In late 2013, Instagram direct was introduced, a feature that enabled users to interact through private messaging. These features converged and users could then send private messages with photos and videos (Duggan, 2013; Hochman & Manovich, 2013).

The Swedish Media Council (2017b) reported that 99% of Swedish 13- to 16-year-olds have access to their own cell phone and that 94% use it for going online. The same reports also showed that 90% of adolescents use social media, such as Facebook and Instagram. Furthermore, Davidsson and Lindahl

(2017) reported that gender differences in the use of Internet and digital media are insignificant up until six years of age. After this age, gender differences are present and exist across age groups. Generally, girls and women in Sweden are more active in online social networks than boys and men. Females also more frequently upload and share content than males.

As many social practices have become greatly media dependent, it is more difficult for researchers to just focus on the media as such. Herring (2008) argued that it is important to go beyond technological fascination and focus on young users and their communicative needs as they are expressed through different media. Moores (2012) argued that current research around media tends not to focus on the media per se, but instead highlights the interwoven relationship between media, everyday life, and social practices. This is in line with Berg's (2015) reasoning: As Internet use and the significance of online practices increase, the significance and novelty of the Internet in itself will fall into the background, as it is implicated in all aspects of life. Thus, today, whether a social phenomenon is related to the Internet is not a particularly relevant question. Instead, how and to what extent it relates are the important concerns.

Online self-presentation

A key issue when adolescents use social media is the creation of their online self (Davis, 2012). Self-presentation is in focus as soon as adolescents register or create accounts and begin interacting with others online (Boyd & Ellison, 2007). Kennedy (2006) and Hernwall and Siibak (2011) argued that adolescents' online lives are an aspect of their everyday lives, but that their virtual identities are fluid between different social contexts, such as in school, around family, and among peers.

A starting point when understanding adolescents' presentation of themselves online is the concept of the "body-self." The body-self can be viewed as an adolescent's visual representation of his or her reproduced, cognitive, idealized, and physical identity (Abiala & Hernwall, 2013; Sparkes, 1996). Along these lines, the body-self represents agency in a social relational identity, and is something with which both the adolescent and their social

environment interact. When put in a social setting, the concept is similar to Goffman's (1959) concept of self-presentation and Boyd's (2007) interpretation of self-presentation in an online setting. Commonly, these stances view adolescents as "performing" in an embodied response to their social world.

A significant aspect influencing how adolescents' present themselves is how they understand and confer their culturally constructed gender and age in relation to their sex and biological age. As argued by Abiala and Hernwall (2013), adolescents' biological age traverses with their cultural age, gender, peer and larger socio-cultural values to generate a multifaceted and intertwined online user position. As such, the opportunities and constraints of social media as perceived by adolescents are biased towards echoing dominant cultural norms and values. In a report by the Swedish Media Council (2014), the participants experienced a significant shift between the ages of 10 and 13 years. The researchers noted that older adolescents distanced themselves from younger ones, and that appearing older was seen as favorable. The report also displayed clear gender differences in presentations with girls changing profile images more often than boys. Abiala and Hernwall (2013) also reported such gender differences among Swedish boys and girls aged 10-14 years. Girls' presentations were found to be more passive, while boys were more sexually explicit and aggressive.

The current online environment is characterized as multimodal (Kress, 2009). Jenkins (2008) argued that while online digital media are growing more intricate and sophisticated, they do not necessarily require a great deal of technical proficiencies to be used. As a result, users increasingly produce multimodal contents comprising various types of images and videos. This means that, to present themselves online, adolescents use and mix various semiotic elements such as images, texts, videos, and the arrangement and integration of said semiotic elements (Kress & Van Leeuwen, 2005). Therefore, visual content, including profile pictures, is central to creating an online impression (Herring & Kapidzic, 2015). A study among Estonian 11- to 18-year-olds found that looking good was the most important aspect when adolescents selected a profile photo for their online social network (Siibak, 2009). The same study found that this was more common among girls, at 56%, compared to boys, 31%. The study also reported that girls highly valued

photos that reflected their personality, an aspect that was only moderately valued by the boys. The researchers showed that 79% of boys and 85% of girls reported that a person must be good-looking to become popular online.

As current online media tend to focus on visual communication, this can be a sensitive issue for adolescents with overweight and obesity. Communication of weight stigma has been identified in relation to various online media. Researchers have found that online message boards, Twitter, and Facebook contain derogatory remarks pointing to weight stigmatization, while blogs and forums more often contain more nuanced comments (Chou, Prestin, & Kunath, 2014; De Brun, Mccarthy, Mckenzie, & Mcgloin, 2014). I will elaborate more on weight stigma in the section covering body weight, and will now continue by discussing online media and health.

Digital media and adolescents' health

Examining the relationship of digital media and health, Boyd (2014) noted that it is important to keep a balanced mind when thinking of digital media with regards to adolescents' health. Boyd argued that because of the continued novelty of these technologies, there tends to be biased reporting that characterizes online spaces as specifically sinister worlds in terms of sexual predation, misogyny, and bullying. Boyd noted, however, that whether many adolescents are scarred by the same kinds of experiences 'offline' is rarely noted. While it is important to support and help adolescents to navigate their public lives safely, it is also important to acknowledge that technology does not create these problems. Instead, Boyd argued that the Internet reflects and sometimes magnifies both the positive and negative aspects of adolescents' everyday lives. Since these technologies are increasingly interwoven in adolescents' daily social practices, digital media, thus, help reveal how wider cultural and social factors are influencing their lives.

Such nuanced perspectives are important, as there are both positive and less positive aspects of adolescents' use of social media. The use of digital technology might have cognitive and social benefits; therefore, it is important to balance these against potential risks (Bell, Bishop, & Przybylski, 2015). Patients engage and inform others as they share health-related experiences,

such as treatment achievements and disappointments (Eckler, Worsowicz, & Rayburn, 2010; Norman, 2012). In this way, online social networks and digital media might facilitate adolescents' empowerment by means of providing more and differentiated information, enabling adolescents to make more informed decisions regarding their health (Third et al., 2017).

Nonetheless, online safety is a significant concern that needs to be understood in a broad sense, accounting for issues such as risks of bullying, accidental or non-consensual sharing of sexually explicit content, and fraud. Almost three out of every ten Swedish girls aged 14-16, have reported that they have been harassed or bullied online, compared to 10% of boys in the same age group (Davidsson & Lindahl, 2017). The same study reported that among those that had been harassed or bullied, 37% reported that they experienced the situation as somewhat serious or very serious. The authors stipulated that probable explanations might be that girls more often use services that might enable bullying to a higher extent, such as image-based online networks, but also that girls may be more vulnerable online.

Consumption culture and food media

Adolescent use and understanding of social media result from larger social, cultural, and economic forces within the current society. Unlike consumption, which is something an individual does, consumerism is a trait in a society. It is part of a social arrangement where human wishes and needs are important drivers. This is also connected to media. Murthy (2012) argued that individuals' daily interaction with media is very much a part of larger socioeconomic forces and culture industries. What adolescents consume, such as food, is mediated by these cultural industries that imply a commercial character with making profits as a key driver. This can be illustrated with food marketing. Story and French (2004) argued that food marketing targets adolescents, as they are viewed as independent consumers (usually with pocket money), and as they are also forthcoming adult consumers whose brand loyalty, if established in youth, can be highly economically satisfying for the company over the lifespan.

This consumption culture has meant that consumption has become central for adolescents' social practices, as they express themselves through how and what they consume. What food practices they engage in are, thus, associated with specific values and lifestyles. The increased media attention towards food has also led to an increased visibility of different perspectives regarding food and cooking. There is an arsenal of complex and sometimes conflicting discourses when it comes to how and what to eat. For example, I previously reported that certain diets have successfully been promoted in social media, contradicting national dietary guidelines (Holmberg, 2015). The diversity of food information and often conflicting claims may confuse rather than simplify. With the proliferation of online digital media, increasingly more people can connect and voice their opinions regarding matters such as health and food.

Individuals ideas around eating and consuming food as a social and cultural practice are shaped in various situations, and media have come to play a big part in these practices. Food has played a significant role in media, and media have, in various ways, influenced food practices since the introduction of modern media (cf. Jarlbrink, 2012). During the last decades, however, there has been what Greene and Cramer (2011) labeled a "food media explosion." Furthermore, the framing of food in mass media, such as in newspapers, has also been connected to health and obesity (Sandberg, 2004).

Digital food media and digital food marketing

Johnston and Goodman (2015) argued that food media, such as in the form of influential food bloggers, represent a fundamental component of contemporary foodscapes. For example, food media communicate detailed food instructions in the form of recipes, and they also project commanding imagery of what signifies a preferred meal. They highlight both celebrity culture and popularized food culture, as food media need to be perceived as authentic and accessible, yet exclusive and aspirational. Rousseau (2012) connected the expansion of food media with the increased use of digital platforms and argued that food media has proliferated and taken various forms, such as food and recipe blogs, food and restaurant review sites, and diet accounts and communities on social media platforms.

Previous researchers have explored food content on various types of online media. Starting with asynchronous forms of online interaction, one research focus has been on food content on blogs. Schneider et al. (2013) found that well-visited American food blogs often contained recipes that were excessive in saturated fats and sodium. Consequently, the authors suggested that the public should be mindful of the potential risks of nutritional limitations of popular food blogs. Other studies have revealed that blogs concerning food and exercise often discussed food solely as fuel (Lynch, 2010).

Similarly analyzing blogs, Simunaniemi et al. (2011) focused on fruits and vegetables, and found that laypeople who blogged about this could be categorized into four ideal types, including The Persuader, who focuses on influencing others' diets and consumption with a personal interest in the topic, and The Exhibitionist, who focuses on everyday life and himself or herself. These and other findings on the purposes of food blogging diversify the view of nutrition communication, establishing new challenges for the media strategies of nutritional professionals. Blogs allow for non-conventional experts to circumvent traditional peer-review processes by publishing in the public domain. In a previous study (Holmberg, 2015), I used the example of how prominent low-carb, high-fat diet promoters in Sweden can reach a wide audience and appeal to a like-minded community of dieters by using self-made blogs and websites.

Popular microblogs such as Twitter have also been researched in relation to food communication. Hingle et al. (2013) found that Twitter can provide a method for observing real-time food consumption and diet-related behavior. This type of data visualization may present a method for identifying relationships between diet and behavior. Similarly, media-sharing sites popular with adolescents, such as YouTube, also propagate large amounts of food and diet information. Cerri et al. (2012) showed that a large number of the top-ranked videos on YouTube labeled with the words "diet" or "weight loss" were not considered relevant to either term. Furthermore, the researchers found that a majority of the videos did not contain scientifically sound information, and that videos often contained incomplete and vague information.

Looking at social networking sites, quantitative studies have indicated associations between the use of these and unhealthy eating behaviors (e.g., breakfast skipping and consumption of sugar-sweetened beverages) among adolescents (Sampasa-Kanyinga, Chaput, & Hamilton, 2015). Several studies have also focused on specific platforms, such as Facebook. Facebook is one of the world's most popular online social networking sites, and, thus, it is no surprise that food- and nutrition-related content has been studied there. Freeman et al. (2014) found that food producers, such as Coca-Cola, have used the interactive features of Facebook to increase the spread and marketing of their products. Such companies benefited from users' social networks, as the networks increased the spread and the individual relevance of their brands. The authors also observed that young Facebook users, in particular, were inclined to engage in this type of food marketing by sharing the marketing content.

Food marketing and food content marketing, such as that found on Facebook, are important, as they may influence individuals' energy consumption from a specified set of available foods (Bodenlos & Wormuth, 2013). Screen-based food marketing and content have also been associated with an increased consumption of energy in the foods that individuals end up preparing for themselves (Pope, Latimer, & Wansink, 2015). Studies have also indicated that reactions might differ depending on an individual's weight status, in that the exposure to appetizing food cues has been shown to decrease the desire for high-calorie food in normal-weight restrained eaters, yet increase said desire in overweight restrained eaters. (Ouwehand & Papies, 2010).

Digital marketing is a growing area for food advertisement, with adolescents being a prime demographic due to their interest for new media and digital technology as well as their strong spending capacity (Montgomery & Chester, 2009). Research on the consequences of this marketing has lagged far behind the development of these marketing methods, due to the rapid speed of change. In their Lancet commission paper, Patton et al., (2016) argued that food depictions in television, films, and point-of-sale advertising have moderate evidence for behavioral outcomes such as food consumption. In addition, they concluded that, while the strongest relationship with obesity is with overall media use and screen time, a significant mediator is likely to be

sedentary behavior and reduced physical activity, and not only food consumption.

However, advertising effects on food consumption among adolescents have been seen to be neutralized by peer influence and the individual's self-efficacy (Kinard & Webster, 2012). An important factor for adolescents to navigate food and health content online is critical thinking skills and information. The increasing amount of online health information not only poses implications for the individual, but Gray (1999) argued that this shift has also established new responsibilities for health professionals as patients are increasingly informed. If medical and nutritional information had been previously restricted to textbooks and research journals, then the Internet has provided entrance to the school of lay medicine (Kata, 2012).

Health information seeking

Before looking at online health information, it is useful to clarify the concept of health information seeking more generally. Loiselle and Dubois (2003) argued that there has been an increased research interest in health information-seeking behaviors during the last several decades. The authors related this increased interest with the emergence of the information age, an emphasis on patients' self-care, as well as an overall renewed interest in health promotion and illness prevention practices among health care professionals.

In a review, and concept analysis, Lambert and Loiselle (2007) identified two main dimensions of health information-seeking behaviors. The first is the information dimension, which refers to the type and the amount of information that is searched for in a given domain. Type reflects the content and the particular health topics, such as a specific disease. The amount refers to how much information about a particular issue that the individual seeks out, signifying the depth of the search. The second is the method dimension, which is defined as the practices individuals engage in to acquire health-related information in accordance with their specific needs. It can be discussing and reflecting with others, reading, observing, and browsing online sources.

With regards to the first dimension, Kim and Syn (2014), identified that adolescents' health information behaviors in the published literature covers a wide range of types of information. Topics that have been explored previously include food-related information, specific diseases and conditions, mental and sexual health issues, information about drugs and substances, as well as more general healthy lifestyle information for well-being, such as exercise habits. With regards to the second dimension, the practices in which individuals engage to obtain health-related information differ depending on a range of factors. When seeking psychosocial information and support, adolescent patients tend to consult peers, or those that have experienced a similar health issue (Beresford & Sloper, 2003).

Lambert and Loiselle (2007) identified several outcomes or consequences that individuals experience as a result of health information seeking. The authors categorize these into: i) cognitive outcomes, such as increased knowledge and perception of control and coping, ii) behavioral outcomes, such as increased self-care skills and changes in health habits, iii) affective outcomes, which encompass experiencing increases of hope and empowerment, and iv) physical outcomes, which include an increased physical quality of life.

While these outcomes are mostly reported as positive, some users and seekers of health information experience relatively negative outcomes. According to Miller (1995), these experiences can include feeling more concerned and overwhelmed when compared to those that do not seek this information. The outcomes of an individual's health information-seeking behavior appear to be dependent on how well the information that the individuals wanted corresponds to what they actually obtained. Several studies (Garvin et al., 2003; Miller, 1995) have reported on individuals, often specific patient groups, that are categorized into two groups based on their coping styles: those that want and desire health information, versus those that do not want this type of information. Miller (1995), therefore, suggested that, in a clinical context, the health information patients receive about their condition should be adapted according to their coping style.

It is also important to consider the specific situation, as Lambert and Loiselle (2007) argued that an individual's inclinations to either seek or evade health information are dynamic and differ according to changing personal and

situational factors and over time. For example, with regards to sensitive information, previous studies have shown that adolescents tend to search online, as this might provide some anonymity (Gray, Klein, Noyce, Sesselberg, & Cantrill, 2005). However, there have been dramatic changes in the digital media ecology in recent years that require this notion of anonymity to be updated. There is, thus, an increased need to understand online health information seeking in this current digital media ecology.

Online health information

By the age of six, some Swedish children have already reported searching for information online, and by the age of 11, 91% have reported that they have searched for information online (Davidsson & Lindahl, 2017). Around one third of Swedish 12- to 15-year-olds and almost two thirds of 16- to 19-year-olds have looked for online health information (Findahl, 2014). In the US, similar numbers have been reported (Wartella, Rideout, Zupancic, Beaudoin-Ryan, & Lauricella, 2015).

Individual factors that are often found to influence an individual's inclination to go online for health information are their age, gender, and motivation (Li, Theng, & Foo, 2016). Younger individuals are generally more prone to go online for health information. In a review, Kim and Syn (2014) found that, although adolescents still favor asking others for help, progressively they approach online resources (i.e., websites, search engines, and social media), because they tend to view such tools as accessible and anonymous. Ybarra and Suman (2008) suggested that adolescents mostly used online resources when searching for information about a personal problem, whereas adults mostly used online resources to search for information about a condition of someone who is close to them, such as a family member. While studies have often observed that girls are more prone to look for health information online as compared to boys, this has not been clearly demonstrated in the Swedish context. Davidsson and Lindahl (2017) reported that it is after the age of 16 that girls are observed to more frequently look for online health information than boys.

Among adolescents generally, working on school projects was the most common reason to look for online health information, and the second most

common reason was to find ways to better take care of themselves (Wartella et al., 2015). However, both recent studies (Li et al., 2016) and older ones (Houston & Allison, 2002) have suggested that individuals that experience ill health are more likely to seek online health information. Weaver et al. (2010) suggested that experiencing diminished health status might accumulate individual health concerns, fostering an increase in health-oriented motivations for accessing online information. A condition that has a stigmatizing trait is obesity (Juvonen, Lessard, Schacter, & Suchilt, 2016). Previous studies have found that individuals who experience socially embarrassing symptoms or conditions are more likely to seek information online, which has, for example, been demonstrated among French young adults aged 15-30 years (Beck et al., 2014) and Australian women aged 18-23 years (Rowlands, Loxton, Dobson, & Mishra, 2015).

Previous research has indicated the presence of an abundance of online information related to weight loss methods and obesity (Saperstein, Atkinson, & Gold, 2007). Chung et al. (2013) found that health misinformation was common among young individuals with obesity, such that they had alternative beliefs about the etiology of obesity that differed from conventional explanations. The health misinformation also nursed ambivalence in how to lose weight and, from their perspective, provided reasonable evidence to maintain the behavioral status quo instead of endorsing health-promoting activities. Other studies have reported that adolescents with obesity, in general, had awareness of different treatments for obesity, but that they could not comprehend what the treatments entailed (Reece et al., 2015). In the study, the adolescents reported that they usually attained the information from people they knew and from both traditional and online media.

Due to the multiplicity of online sources and the wide ranges of accuracy and quality of information, healthcare providers and researchers need to better understand how adolescents experience using online sources to meet their health information needs (Okoniewski, Lee, Rodriguez, Schnall, & Low, 2014). Ettel et al. (2012) noted that adolescents generally trust online health information. It is more worrisome then that studies observe that adolescents do not often consider the source of online health information (Hansen, Derry, Resnick, & Richardson, 2003). This notion has to some extent been observed in more recent research. Adolescents often use search engines when they look

for health information; around half of them say that they usually select the first site that appears and only look further if they still have questions (Wartella et al., 2015).

According to the Swedish Media Council (2017b), 65% of Swedish 13- to 16-year-olds report that they are good or very good at evaluating whether online information is true or false, while 7% claim that they are very poor at this. This mirrors a report by the Swedish National Agency for Education (2016), which found that 75% of adolescents aged 14-16 years report that they are good or very good at being source critical. Of adolescents aged 14-16 years, 92% report that they have talked about being source critical in school. However, paradoxically, the same report showed that almost one in four teachers report that they do not teach about being source critical in an online context.

This reliance on search engine rankings can be worrisome, as results from a Google query, for example, are partly based on what one has previously searched for online, from which geographical area one performs the search, paid placements, and various other parameters (Swedish Media Council, 2015a). Therefore, two identical searches in one geographical area can result in two different results. In the search results, so-called organic links are mixed with sponsored links. The sponsored links can be related to the search query, but not necessarily. The search results that are first (on top) are not always the most relevant. Factors such as how many sites and blogs have linked to the site, how complex and well-developed the site is, and how many visits the site has received all affect the ranking (Lewandowski, 2015; Swedish Media Council, 2015a).

Social media and user-generated health content

Many studies do not differ between different forms of online resources. For example, in their review of research covering adolescents' online health information behavior, Kim and Syn (2014) grouped websites, search engines, and social media together as "online resources." The authors, therefore, suggested that future research should address evolving technologies and social media. Similarly, in their review of the European evidence base regarding

children's use of online technologies in Europe, Ólafsson et al., (2014) showed that previous studies have had a strong focus on the 'static Internet' to the neglect of mobile, convergent, and evolving technologies.

Digital media is a popular news source for youth, and among Swedish 16- to 25-year-olds, Facebook was found to be the most important source for news (Davidsson & Lindahl, 2017). However, with regard to health-related content on social media, sources also included health-related consumer reviews, friends' and families' health experiences, other patients' experiences with disease, and health-related images and videos (Pwc, 2012). Age is the most influential factor, with younger ages being more likely to share health information via social media (Pwc, 2012). In social media platforms such as Facebook, what one clicks on, what one 'likes,' and who one 'checks in with' also affects whose status updates one might see. This also affects what kinds of advertisements are showing on one's social media account (Swedish Media Council, 2015a).

As the users themselves can label and describe the content that they create and share, there are no strict or enforced guidelines. It is, therefore, difficult to know how accurate the content may be, an issue which has also been exemplified by nutrition- and weight-related videos on YouTube (Cerri et al., 2012). Therefore, users need to value credibility and reliability differently. A Scottish study showed that 14- to 18-year-olds engage with both health-related user-generated content and factual informative websites (Fergie, Hunt, & Hilton, 2013). The authors also found that the various strategies the participants employed for evaluating reliability were particular to the type of websites. Social media content and factual informative websites were judged according to separate criteria and different indicators of reliability.

However, just as there is a lack of studies that differ between 'static' websites and user-generated health content, there is also a research gap regarding adolescents' subjective experiences of engaging with user-generated health content. Kim and Syn (2014) argued that research concerning adolescents' online health information behavior have had a strong focus on quantitative methods, such as surveys. Therefore, the authors suggested that more qualitative-oriented studies are needed to explore the adolescents' perspectives and experiences of navigating social media in regard to health information.

Health promotion interventions

In 2009, the WHO (2009a) published an extensive report covering effective dietary and physical activity interventions aimed to reduce the risk of chronic non-communicable disease. Focusing on youth, a specific set of interventions were school-based interventions. These were the largest number of studies evaluated in the report. School-based interventions that were effective were found to be multi-component. Examples of effective interventions may include increasing healthy food options available through school food services (e.g. French, Story, Fulkerson, & Hannan, 2004) and establishing multimedia formatted games, including food preparation, produce shopping, and fast food selection (Cullen, Watson, Baranowski, Baranowski, & Zakeri, 2005).

Another review by Van Cauwenberghe et al. (2010), which focused on dietary health promotion interventions targeting children and adolescents, indicated similar results. The authors concluded that, in adolescence, educational programs are likely to be effective for supporting healthy nutrition. Evidence was also identified for interventions that modified school lunches or increased the availability of healthy food, a method that was combined with a nutritional curriculum on food consumption. However, among the studies investigated, the authors noted that the number of studies conducted with children was more than twice as high as those including adolescents, resulting in more evidence of the effects of interventions for children than for adolescents.

In general, across all these settings and approaches outlining dietary interventions, certain successful characteristics and components have been underlined in accordance with a WHO (2009a) report. Effective and fruitful interventions usually involve multiple components adapted to the local context. The adaptation to the local context can be said to be further emphasized, as the report also highlighted that effective interventions tend to include participants in the planning and implementation stages. Furthermore, interventions using the existing social structures of a neighborhood, such as a high school, improved the likelihood of a successful execution.

Although there seem to be some common themes surrounding successful and well-established dietary interventions, empirical gaps do exist. Much of the literature has only reported short-term outcomes and, thus, little is known about the potential long-term effects and sustainability of interventions (Van Cauwenberghe et al., 2010; World Health Organization, 2009a). In addition, as socio-economic positioning and ethnicity have been identified as contributing factors of healthy eating (Brug, 2008), surprisingly few interventions have centered on children and adolescents from low socio-economic positions and from ethnic minority populations (Van Cauwenberghe et al., 2010).

As illustrated in the reviews, further knowledge on how to change long-term behavior in adolescents is needed. A multitude of intervention tactics have been used to promote healthy dietary habits and prevent childhood obesity, but current evidence remains inadequate for establishing the intervention components that contribute to favorable outcomes in adolescents (Van Cauwenberghe et al., 2010; Waters et al., 2011). Thus, new strategies are necessary to effectively engage adolescents in suitable, age-appropriate, and youth-oriented health promotion activities (Hingle, Nichter, Medeiros, & Grace, 2013).

Unhealthy behaviors should preferably not be seen as independent processes, but rather as interrelated, demanding integrated approaches and strategies (Busch, De Leeuw, De Harder, & Schrijvers, 2013). As effective dietary interventions need to adapt to the local environment and should include the perspective of participants in the development and execution stages, health should be viewed as a resource that is formed in a given context (Magnusson, 2013). It is essential to know how resources on adolescents' social and structural levels interact with health-promoting habits and attitudes at their individual levels (Green & Kreuter, 2005).

These new requirements regarding experts' roles are reflected in the realignment of the knowledge base for public health. First, in terms of scientific disciplines, there is a greater integration of knowledge from a wider range of the social sciences (Potvin, 2007; Potvin & Balbo, 2007). Second, lay knowledge is also increasingly valued as a legitimate source of knowledge that should complement scientific knowledge in the construction of evidence to support or evaluate action (Rootman et al., 2001). Pelikan (2007) argued that

health promotion in late modernity has an emphasis on the individualization of an educated self-governing population. This stresses a shift from expert-dominated approaches into participatory methods, focusing on empowerment and health literacy for dealing with health issues. Pelikan (2007) also noted that these changes, therefore, place a focus on strengthening salutogenic and health-promoting resources for health, as well as targeting individual behavior by including methods such as health education.

Social media in health promotion interventions

As has also been shown in relation to traditional health promotion approaches, health promotion targeting food behaviors during the adolescent years can be challenging due to multilevel factors that influence the food choices of adolescents (Story, Neumark-Sztainer, & French, 2002). De Leeuw (2007) stated that health promotion should be broad, empowering, and advocate for the control of the people over the determinants of their health. Therefore, De Leeuw argued that it is vital to know more about the arenas and environments in which adolescents are engaged, since these could be better used in understanding the challenges adolescents face, as well as in outlining dietary health promotion activities that support adolescents in taking control over their health.

One such arena is digital media, which have been suggested as spaces to promote healthy food choices and healthier lifestyles, as described in the European Food and Nutrition Action Plan (World Health Organization, 2014a). As social media are widely used by youths, they have been identified as possible tools for conducting health promotion interventions (Goodyear et al., 2018; Macnab et al., 2014; Norman, 2012). Less research has been conducted on the specific topic of social media in regard to dietary health promotion. However, emerging evidence has suggested that it might be associated with positive benefits. For example, a Swedish study has indicated that the use of ICT in health promotion was encouraged by the adolescents themselves (Lindqvist, Kostenius, & Gard, 2012). In a Swedish study on health-promoting interactive technology, Kostenius and Hertting (2015) found that the high school students emphasized that interactive technology promotes empowerment and independence, reduces stress, and makes

learning easier. According to the students, good relationships increase well-being, and interactive technology can offer a way to socialize and offer support to encourage classmates. The authors also noted that school leaders and health care professionals need to find ways to act as partners, such as using an appreciative process to ask questions about what works well to make interactive technology an enabling technology to increase health literacy.

Studies have also indicated that the Internet and social media, in particular, can be used as a resource in dietary health promotion (Evers, 2006; Korda & Itani, 2013). In previous studies, ICT has been used to facilitate nutritional education, (Brug, Oenema, & Campbell, 2003; Brug, Oenema, Kroeze, & Raat, 2005), nutrition communication (Bouwman et al., 2005), and dietary assessments (Carter, Burley, Nykjaer, & Cade, 2013), while other studies have focused on empowering the participants and fostering health promotion (Hingle et al., 2013; Lindqvist et al., 2012). According to Norman (2012), these studies have indicated that communication methods are familiar for adolescents, and social media technology offers many means for individuals to connect and share in ways that fit their needs and their learning preferences.

Hamm et al. (2014) performed a systematic review with the aim of investigating the purposes of social media concerning child health, and the effectiveness and attributes of social media tools. They found that most studies were in a clinical context focusing on patient groups with acute or chronic conditions. The authors also found that many studies used platforms created by researchers, and proposed that future studies should identify the social media that participants are already using and tailor interventions accordingly. Similar results were also found in an overview of systematic reviews by Welch et al. (2016). They reported that the experiences of using existing social networks with commercial platforms, such as Facebook, as part of social media health interventions are very scarce. Hamm et al. (2014) also found that qualities of social media perceived to be effective included its possibility to facilitate communication between peers. Overall, the review identified that 80% of included studies presented positive conclusions about the social media tool being studied. Similarly, Yonker et al. (2015) also performed a systematic review with the objective of identifying research on the use of social media to interact with adolescents and young adults in order to achieve positive health outcomes. They found that most studies focus on

adolescents' online risk behavior and the resulting implications on their health. Therefore, they suggested further studies around incorporating social media in interventions.

Since adolescents have been shown to increasingly look for health information online, it has become essential to better understand how adolescents use and experience social media and the Internet with regards to dietary and health-related matters. One way to approach the issue is to adopt a health literacy perspective regarding these online arenas. Health literacy involves individuals' knowledge, motivation, and competences to access, comprehend, evaluate, and apply health information in order to formulate judgments and make decisions in everyday life about their health (World Health Organization, 2013). Health literacy is rooted in the health promotion movement, with the aim to empower people to make better decisions concerning their health and improve their skills in managing themselves (World Health Organization, 2013).

Koteyko et al. (2015) argued that it is important to adapt a realistic approach to the use of digital media in health and health care. The authors are concerned that the way clinical literature describes the use of digital media in health (care) might simply repeat the 'empowerment discourse' of early e-health research, in which the users of online health content were believed to attain increased capacity for action in offline contexts, i.e., simply view digital media as empowering tools while ignoring the aspects that influence users offline and online practices. Househ et al. (2014) argued that while research to date suggests that patients seem to have a positive view of using social media, critical issues concerning privacy issues and the risks for misinformation needs to be further researched.

Methods and data analyses

In the following section, the methods, participants, and data analyses used in the included studies will be presented. Descriptions of study methods and data analyses are already presented in the included articles; therefore, this section mainly aims to complement and clarify those descriptions.

Methodological approach

The methodologies are drawn from, and vested in, the previously outlined research perspectives. This thesis rests on a relativist ontology, which acknowledges the existence of diverse interpretations of reality. Chen (2011) argued that the dramatic tradition, which was earlier illustrated with the works of Goffman (1959), can be seen as a version of interpretivism in that it is concerned with understanding the micro-level aspects of social interaction. Corresponding to this relativist ontology, the epistemology focuses on the relationship between the one who knows (the research participants) and the one who seeks to know (the researchers). The studies in this thesis mostly utilized interviews, specifically individual interviews or focus groups, to explore the adolescents' experiences and perceptions, rather than causal explanations (Chen et al., 2011). Patton (2002) argued that while qualitative methodologies usually do not offer evidence in quantitative terms, they offer valuable insights into individuals' experiences and perceptions. Another important aspect of this methodology and epistemology is the acknowledgment of how cultural and contextual aspects are used to create diverse versions of experiences within various settings.

In this way, the research methodology in this thesis can be described as descriptive-interpretative (Elliott & Timulak, 2005; Graneheim et al., 2017). Elliott and Timulak (2005) defined descriptive as the intention of describing varieties and aspects that the phenomenon appear in or have. Correspondingly, the same authors defined interpretive as trying to explore why the phenomenon came about. Due to this interpretative approach, it is, therefore, particularly important for the adult researcher to adapt a 'reflexive'

approach and, for example, challenge their own assumptions about adolescence, as these notions might influence both the research process and the researcher's understanding of the study participants (Kirk, 2007). Thorne (2008) noted that during the past decades, researchers in health disciplines have contested and problematized what, according to Thorne, is a prevailing paradigm of positivistic research. Chen (2011) argued that it could be viewed as a position that argues against the positivistic notion of a passive, mechanistic, and reactive human being. In doing so, the knowledge objects generated from the studies should be viewed as processes rather than definite things, and that research studies aim to identify them by expanding, instead of decreasing, their intricacy (Schatzki et al., 2001).

Overall design

The four articles are based on three different study designs and data collecting methods reflecting the different research questions. See Table 1 for an overview of the four papers.

Table 1. Overview of study designs.

Paper	Design	Sample	Data collecting method	Data analysis
I	Quantitative	854 Instagram accounts	Scrapped from Instagram	Content analysis
II	Qualitative	20 adolescents enrolled at an obesity clinic	Individual interviews	Qualitative content analysis
III	Qualitative	Same as in paper II	Same as in paper II	Qualitative content analysis
IV	Qualitative	49 adolescents at a junior high school	Focus group interviews	Qualitative content analysis

The rationale for the overarching design of this dissertation were based on a range of factors, namely my own and the interests and competencies in the research groups where I worked. It was also based on a preceding application for external research funding (Formas # 259-2012-38). The application that was granted to my supervisors stated that the doctoral research should have a focus on adolescents and address aspects that are of relevance to adolescents' psychosocial health, that the research should be understood with regards to the context of the increased prevalence of childhood obesity, and that the

studies should address components that were related to media exposure. As the PhD position was carried out in the subject of Food and Nutrition, this subject should, of course, be central for the research.

Given the popularity of social media use among adolescents and the empirical research gap identified at the time of study initiation in 2013, we decided to focus on adolescents' online communication and health information seeking. As previously mentioned, health promotion served three significant purposes for the overarching design: to inform the research questions, to direct the data collection, and to identify implications from the research findings. As such, health promotion can be viewed as the larger domain in which the included studies were situated, see Figure 2.

We, the different research groups of which I have been a part (co-authors), then designed studies that explored different aspects related to adolescents' online communication and information related to food and health. Study I explored user-generated content that is characteristic to the advent of social media platforms. It also allowed us to explore how food is communicated online with implications for study II. For studies II and III, we wanted to explore how adolescents in treatment for obesity search for online food and health information, as well as how they experience presenting themselves online. By selecting a clinical sample of adolescents, we stipulated that they experienced more illness compared to a non-clinical sample, which would have implications for their health information-seeking behaviors. It was also stipulated that issues around food and health could be more sensitive in this group of adolescents. Due to appearance norms and weight stigma, we also wanted to explore how these adolescents experienced presenting themselves, as this might have implications for how social media can be used in a clinical setting. The last study was conducted within a school-based intervention. We used a social media platform to foremost communicate and interact with the adolescent participants. This allowed us to explore how social media could be used in health promotion practice.

As such, the overarching study design can be described as pragmatic (Creswell & Clark-Plano, 2007), since it was guided by the research questions, practical opportunities, as well as with the purpose to explore further insights and implications for health promotion practice. Important practical facilitators

were that I had the opportunity through my co-supervisor's affiliation to conduct studies II and III at the pediatric obesity clinic, as well as the opportunity through my main supervisor to participate in the school-based intervention, study IV. The overarching design consisted of using both quantitative (study I) and qualitative study designs (studies II-IV).

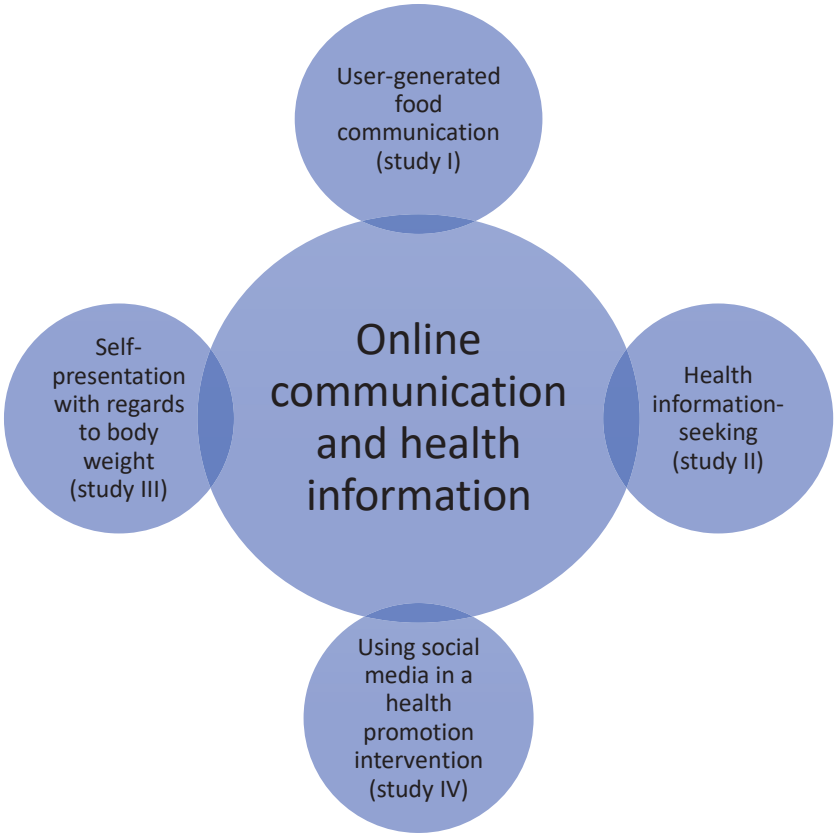


Figure 2. Conceptual overview of the included studies.

Study design, study I

As a first investigation of adolescents' relationship with online food communication, I wanted to explore their online presentation of food. This

was interesting, as viewing adolescents' food presentation might offer insights into what food represents socially and culturally for adolescents. Moreover, what type of food adolescents share in social media, and how this food is presented, also indicate what food messages adolescents are exposed to on social media. In the research group, we decided to focus on images of food, as there was little published research regarding visual food content in online digital media (Hu, Manikonda, & Kambhampati, 2014). We chose to focus on Instagram, as it was the most used image-based social media platform among Swedish 13- to 16-year-olds at the time the study was carried out (Swedish Media Council, 2013).

Instagram images (i.e., "instagrams") are also interesting, as they illustrate a typical aspect of today's social media communication by consisting of multimodal elements (Kress, 2009) that contain both images and text. Due to the popularity of the platform, the expressions of food on Instagram also offer health promotion implications due to its widespread use and potential impact on adolescents.

Sampling procedure using a hashtag (#)

We wanted to analyze existing, but novel, food communication among adolescents, and not interfere with their dialogues. Therefore, it was deemed appropriate to use a hashtag to identify Swedish adolescents' Instagram streams for analysis. A hashtag functions as a descriptive label and as a searchable keyword (Schlesselman-Tarango, 2013). Several different hashtags were considered, such as #Högstadiet (Swedish for "high school"), #Tonåring (Swedish for "teenager"), #Ungdom (Swedish for "youth"), #Fjortis (Swedish slang word for a 14-year-old). However, we observed that instagrams appended with these hashtags were mostly posted by adults, and that they were connoting 'throwback time' (TBT) situations, which are old pictures of the users. The hashtag "#14år" was, therefore, selected as a point of departure, as it mostly predicted adolescents who recently turned 14 years old. Another strength with this hashtag was that it contained the vowel "å," as it linguistically limited posts shared mostly by Scandinavian users.

At the time of study, it was not possible to search for Instagram hashtags through a desktop interface. While Instagram launched website profiles in November 2012, these were limited in functionality, such as the lack of a

search bar and a news feed (Hamburger, 2012). We, therefore, used a third-party web-application with a desktop interface, Statigram. Statigram collects images using Instagram's application programming interface (API). Statigram has now evolved and been renamed Iconsquare: Instagram Analytics & Management Platform. To make sure that the images in Statigram corresponded to the images in Instagram, I compared the photo streams of "#14år" as shown in the web application and the Instagram application. I did not identify an apparent discrepancy. I also emailed Statigram (2014) and a representative confirmed that the photo streams should correspond.

The hashtag #14år had been applied to 3479 images indexed by Statigram, as of March 2014. Of these images, 1358 were not retrievable for reasons such as the user having changed their privacy setting from public to private, or users having removed their accounts. In addition, as some users had appended several of their images with the #14år hashtag, 409 images were removed as they did not correspond to unique users. Consequently, 1712 Instagram accounts were obtainable. Of these accounts, 711 accounts were excluded, as they, based on written and visual profile information, were judged not to be operated by an adolescent user. The hashtag could for example relate to a sibling or daughter turning 14 years, or posts of couples celebrating 14 years of marriage. Only users who could be identified as adolescents (i.e., by providing information about their age on their profile) were included in the study. This mean that 1001 Instagram accounts were ultimately eligible for analysis.

Each account was searched for images visibly depicting food for human consumption. In accounts with these images, the first food image preceding the image appended with the hashtag was selected for analysis. To prevent an overrepresentation of birthday-related images, the selected image had to been posted a minimum of two days before the tagged image (#14år).

The food images were analyzed using content analysis, which is further described in the data analysis section.

Study design, studies II and III

The sampling procedure and sample was the same for studies II and III. I will, therefore, start by describing this process and go into the study-specific details afterwards.

Both studies II and III had a focus on adolescents undergoing treatment for obesity. In study II, I wanted to explore the adolescents' experiences of engaging with online information regarding food, weight management, and health. In study III, I wanted to explore their experiences of self-presentation on social media.

I already had a connection with the obesity clinic at Queen Silvia Children's Hospital due to my co-supervisor's affiliation with the clinic. Contact was taken with the head of the clinic and we, the research group, expressed our interest to conduct the study at the clinic. After several meetings and discussions with the clinic staff, as well as an approved ethical application, we initiated the recruitment.

Sampling procedure

Adolescents' health literacy as well as their online self-presentation practices are, among other things, influenced by their age and gender (Manganello, 2008; Swedish Media Council, 2014). Therefore, to be able to explore nuances, as well as to compare and contrast the adolescents' experiences, both boys and girls were chosen for inclusion from within a limited age range.

During two months in 2015, all enrolled patients between the ages 13 and 16 years with an appointment at the obesity clinic received study information and an invitation to participate in the study. I assembled the information materials and the nurses at the clinic helped me distribute them to the patients and their parents/custodians. I also put up posters with study information and contact information in the waiting room at the clinic.

When the adolescents arrived at the clinic, I was usually introduced to them and their parents by one of the nurses. I introduced myself and explained the purpose of the study, and as they had received study information prior to their

visit, most were already somewhat familiar with the study. Thereafter, I invited them to be interviewed by me in a room adjoining the clinic.

Initial analysis of the interview material was conducted in parallel with the recruitment. By doing so, I was able to modify the interview questions based on previous interviews, for example, by highlighting and emphasizing aspects that were raised by a previous participant to see if they also corresponded to the experiences of the next participant. It also enabled me to determine when additional interviews did not generate any new or significant data. This initial analysis suggested that a sample size of 20 was adequate, such that a wide range of nuances and aspects were represented in the material, and that the last interviews did not generate new tentative categories, but rather reinforced existing ones. This sample size was met after 24 invitations.

Individual interviews

Individual interviews were conducted in the interview room at the clinic. The interviews were also audio recorded. The interviews were semi-structured and followed a thematic interview guide consisting of questions pertaining both to study II and study III. The interview guide consisted of open-ended questions with prompts to facilitate further exploration when applicable, which also enabled a flexible approach. The intention with using this guide was to ensure that the interviews were somewhat consistent and comparable. However, it also allowed me to be flexible and to adjust the order of questions.

First, general questions were asked regarding the adolescents' Internet usage and their use of social media. This initial probing was important as central concepts in this study were not automatically comprehended in the same way for all the participants. Therefore, I initially intended to reach a shared understanding of key concepts such as "social media," "nutrition," "health information and content," and "self-presentation." For this purpose, and to help the adolescents focus on experiences related to social media, an image sheet depicting different commonly used social media platforms was used. See the appendix for an illustration of this sheet.

As the interview progressed, it was possible to explore why and how the participants searched for and selected online information regarding food, weight management, and health, as well as how they experienced and

evaluated this information. Described in terms of Goffman's (1959) concept of expressions and appearances that we 'give' to others, the adolescents were also asked how and why they presented themselves to others online. They were also asked what they chose not to show or share with others online, and what they considered and highlighted in their self-presentations. Interviews followed the thematic interview guide focusing on aspects of self-presentation that are under the user's control, such as profile attributes they choose to complete and images and updates they post and share.

The adolescents also used a laptop with Internet access to show the social media and online resources that they used, and to show how they searched for and evaluated information. This allowed me to ask questions about the content that they searched for on the Internet, as well as the content they were exposed to online. Similarly, the participants also used the laptop to show me examples of their self-presentation practices. In doing so, the interviews could be centered on concrete presentation practices that the adolescents engaged in and on their experiences and feelings about these practices. These activities were screen-captured using Camtasia Studio 8.5 software (TechSmith). Examples of online food images from study I were also used to stimulate conversation about the type of food content that the adolescents were exposed to online.

The interview materials in studies II and III were transcribed verbatim and analyzed by means of qualitative content analysis, which is described in more detail in the data analysis section.

Study design, study IV

This study was conducted as part of an evaluation of a two-year, health-promoting, school-based intervention regarding food and physical activity habits. The aim of this study was to describe adolescents' experiences of participating in a health-promoting school-based intervention regarding food and physical activity, with a focus on empowering aspects.

Setting and participants

The intervention school was selected as the principal, as well as teaching staff, had expressed interest to engage in a project to promote health. All 7th graders in the school (n=54, 12-13 years old) were recruited at baseline in 2014. At the endpoint measurements in 2016, all adolescents who had taken part of the intervention and that were still enrolled in the school were invited for the focus group interviews. Five pupils were not available due to no longer being enrolled in the current school or extensive absences. Consequently, 29 girls and 20 boys participated in the present focus group interviews. The classroom teachers, three women and one man who were responsible for the respective classes and had participated in the intervention in different ways, were also invited for a focus group.

The school was located in a low socioeconomic status area characterized by a significantly lower average income, higher degree of unemployment, and a higher multicultural composition of the population, as compared to the average in the municipality (Gothenburg Municipality, 2015). For example, 49% of pupils had completed ninth grade, compared to 74% of the city as a whole, and 94% of pupils had a foreign background (such that they were not born in Sweden, or were born in Sweden with both parents born elsewhere), compared to the municipality average of 34% (Swedish National Agency for Education, 2015a, 2015b).

The intervention

The specific intervention activities and components were developed and implemented through cooperation and shared decision making between the researches and the participants. The intention was to enable empowerment through partnership with the adolescents (Nutbeam, 1998). This was accomplished by letting the adolescents express their perceived health-related needs, by providing and discussing how to access health information, and by facilitating skills development. The aim, type, and content of each health promotion session were guided partly by common experiences and reasonable actions for implementation (e.g., that the content could be delivered within the given time frame and physical environment), and partly by the participants' expressed wishes and needs.

The sessions were carried out in collaboration with the classroom teachers, and members of the research group led each health promotion session. The intervention activities were carried out over three semesters. The participants were divided into six groups during the first semester, depending on their mutual interest in regard to food and physical activity (as determined by the initial interviews). Within each group, the participants collectively identified short-/long-term goal(s), and members of the research group utilized health coaching to support the process of identifying shared goal(s) as well as available resources during the goal-oriented health coaching sessions.

Health coaching was defined as the process of supporting health-oriented empowerment through a structured communication technique aiming at facilitating reflection and confidence in one's own ability and strategies for health-promoting action. The intention with all the activities was to increase adolescents' abilities to formulate and influence perceived opportunities and barriers for health behavior change, as well as to enhance their motivation and belief in their own ability to change their situations.

The intervention had a focus on food and physical activity habits. Intervention activities could, for example, be preparation of healthy plant-based snacks and meals, searching, compiling, and presenting health benefits of a balanced and healthy diet to each other, meetings with the person responsible for school meals in the municipality, theme days with physical activities (e.g., playing sports) and food-related workshops (e.g., identifying the amount of added sugars in common foods), visiting a health exhibition, and classroom workshops concerning critical discussions around societal body ideals.

To provide information to the participants and their parent(s)/legal guardian(s), as well as others outside the intervention, a website describing the 'How to Act?' project was used. The website was accompanied by a private group on the Facebook online social network, administrated by members of the research group. As 49 (94%) of the adolescents reported that they had an account on Facebook, an intervention specific group was created on this platform. Anonymous accounts were also created so that non-users could get an account for the intervention. A majority, 31, of the pupils sequentially joined the group. The Facebook group was utilized in a variety of ways during

the intervention, with the overall aim of facilitating participation and providing a forum for communication between the participants and researchers. The participants were, for example, encouraged to post photographs during intervention activities, such as of food preparation. In addition, the researchers posted information and reminders on upcoming health promotion sessions, feedback (comments and photographs) from previously implemented health promotion sessions, and communicated information about events.

Focus groups

As part of the endpoint measurements of the intervention, nine focus groups were conducted during the final semester for two months in the fall/winter of 2016. Each focus group consisted of four to seven pupils and were audio recorded. One researcher led the groups and I assisted by taking notes and managing the audio recordings in eight of the nine focus groups (we conducted two parallel focus groups at one occasion). The focus groups were conducted in the school, and boys and girls were interviewed separately with the exception of one mixed group. All the researchers, the three women and one man who led the focus groups, were experienced in the focus group methodology in the research areas of Sport Science and Food and Nutrition.

We started the focus groups by letting everyone introduce themselves and clarifying the purpose of the focus groups. The questions focused on how the adolescents experienced the intervention with regards to positive or negative influences on participation and learning. We used a large sheet of paper with the printed word "participation" on it when talking about the adolescents' experiences of participating in the intervention. To make the concept of participation more tangible, we used the cue words "cooperate," "deciding," "feeling listened to," "taking responsibility," and "being able to influence." Similarly, when we talked about "learning," we used the cue words "food," "physical activity," "body," and "health" to focus the learning experiences towards these subject areas. Cue words to facilitate reflections with regards to learning were: "being able to," "daring to try," and "new habits." Please see the appendix.

Images (n = 23) from intervention activities were used to facilitate conversation and help the adolescents remember the various intervention

aspects. When the adolescents were asked what intervention aspects that they believed had influenced them, they were encouraged to select an image that illustrated this aspect and talk about it in more detail. The adolescents could also select a blank sheet if they could not find an image that corresponded with what they wanted to talk about. Both positive and less positive intervention aspects and experiences were explored. If certain images were repeatedly not selected, the researcher intended to ask the group why they believed that those images were not selected. The same was done if the adolescents did not talk about using information and communication technology. Questions were also asked to continuously engage the whole group when talking with one participant, such as: "Do any other of you share this experience," or "Do any other of you experience this in the same way?".

In a similar fashion, the research group (myself excluded) also conducted a focus group with the four classroom teachers to explore how they experienced what the adolescents perceived and experienced participating in the intervention. This focus group was conducted a few weeks after the focus groups with the adolescents, and we also used the images from the intervention activities to stimulate the discussion. The questions focused on how the teachers had heard the adolescents talk about the intervention in school as well as the teachers' own observations from participating together with the adolescents during intervention activities.

The focus group interview materials were audio recorded, transcribed verbatim, and analyzed using qualitative content analysis. This will be further elaborated upon in the next section, data analysis.

Data analysis

In symbolic interactionism, it is essential to explore subjective viewpoints and how individuals make sense of their world from their individual perspectives (Carter & Fuller, 2016). Their viewpoints are then interpreted by the interviewer and researcher. In interpretivist research, researchers scrutinize concrete experiences as expressed by the research participants, which result in concepts and understandings (Chen et al., 2011). In a similar way, qualitative analysis can be described as a cognitive process, based on defined principles

and iterative in nature, as the analysis moves from bits, to patterns, and sometimes, to relationships (Graneheim et al., 2017; Patton, 2002).

In this thesis, all the included studies used content analysis to analyze the collected data. Miller et al. (2016) argued that an understanding of social media in relation to content is important, considering that content is essential in the dynamics of social media. A focus on content in a social media context also infers that content is inactive, because it is something that users do and construct. Focusing on content, therefore, places the analysis on the adolescents and their interactions with content. This view aligns well with the focus on the adolescents' perspectives that underpinned this research.

As the data and data collection differ between the studies, I will go into specific details in relation to each study. First, however, I will discuss content analysis in more general terms.

Content analysis

According to Krippendorff (2013), content analysis is an empirically grounded method that is explorative in process. Content analysis has grown into a range of methods of research that can yield inferences from different kinds of spoken, pictorial, symbolic, and other communication data. There are also multiple ways to perform a content analysis. For instance, one can count the characters or words of a text, or categorize expressions, or explore the content's connotations or denotations (Neuendorf, 2002). It is, therefore, important to understand the world in which the communication data make sense, which can answer the research questions.

Texts or images do not have single meanings that can be discovered or identified for what they are. All communication data are generated and aimed to be interpreted by the receivers and not just to the person undertaking the analysis. Therefore, it is important to understand that communication exists and is bound to specific contexts. Krippendorff (2013) stated that the context functions as a conceptual validation for reasonable interpretations by rendering perceptual data into readable texts, including for the results of the analysis. The analyses are also situated in a particular context, situation, and time. The analysis is, thus, open to re-interpretation and negotiation, as the

same content can yield different outcomes when interpreted by different analysts.

Ultimately, this proposes an ontology that is relative, assuming that reality is constructed intersubjective through the meanings and understandings developed socially and experientially. Therefore, it also stipulates a subjectivist epistemology that assumes that analysists cannot separate themselves from what they know. As such, according to Holloway and Wheeler (2013), the analysis takes on an interpretative approach to social realities and in the description of the experiences of individuals. In this interpretative practice, both the *how* and the *what* are important. Holstein and Gubrium (2005) argued that the *how* focuses on the mechanisms underlying individuals' constructions of their experiences, and the *what* informs us about the forms and distributions of these realities.

In this thesis, mainly qualitative content analysis was used, but the first study also contains elements of quantitative analysis, as some descriptive statistics to compare the categories generated from the material were employed.

Content analysis in Study I

An Instagram contains both images and written text in the forms of captions and hashtags (Hochman & Manovich, 2013). As the focus in this study was on the visual presentation and framing, we were guided by what is described as visual content analysis. According to Leeuwen and Carey (2001), visual content analysis is a systematic observational method used for exploring the ways in which media represent people, events, situations, and different motifs. It offers description of fields of visual manifestation by exploring the elements of one or more defined areas of representation, time periods, or types of images. Leeuwen and Carey (2001) further argued that visual content analysis, unlike, for example, semiotic methods, is primarily concerned with multiple rather than individual images. Therefore, a quantitative approach was applicable.

According to Rose (2012), there are three kinds of focus one can adapt in visual methods: a) where the image is taken, b) the image itself, or, c) where the image is shown. This study and this analysis section, in particular, mostly focus on the image itself, as the analytical procedures for categorizing the

Instagram material will be outlined. However, where the image was taken covers some of the categories that we generated and, to our understanding, signifies certain meanings for one's presentation of food. Where the image is shown is not something we analyzed explicitly in this study, and it can rather be seen as an underlying assumption that Instagram, as a social media platform popular among many adolescents, has a general impact and poses certain meaning. Thus, this study's analysis is relevant, as it uncovers what certain viewers are exposed to when using this platform and what many feels is important to share with others.

Just as the transcribed interview material is the unit of analysis in text-based content analysis (Graneheim & Lundman, 2004), the instagrams (i.e., image, caption, and hashtags) were the unit of our analysis in this study. Rose (2012) further divided visual methodologies into their focus on technological aspects (how it was made, circulated, and shown), composition (such as the visual arrangements of elements in an image), and social aspects (how it is used and who is watching it). Our analysis mostly concentrated on the composition, as the focus was on categorizing the kinds of food items that were depicted in the images; how food was displayed; in which context food was presented; and how the uploader described the image with captions and hashtags.

We focused on how the uploader presented the instagrams and did not focus on comments and 'likes.' We used a general inductive approach for analysis, as there were few earlier studies examining this phenomenon. However, according to Krippendorff (2013), most content analyses are abductive in nature, as content analysts draws inferences about phenomena that are not directly observable. Often, a mixture of statistical knowledge, theory, experience, and intuition are used to answer the research questions from available contents. Furthermore, Krippendroff (2013) argued that without abductive inferences to phenomena outside the contents being analyzed, generalizations are inductive and cannot sufficiently answer research questions pertinent to the content analysis. Thus, there is also an interpretive component in content analysis.

Principles for categorization were developed and evaluated within the research group. A coding protocol was agreed upon, and the material was manually coded by the first author using this coding protocol. Food categories were

iteratively constructed in that we had ideas of food groups based on their perceived health, and we also found inspiration through nutritional surveys, such as the national Swedish "Riksmaten" (Swedish National Food Agency, 2006). In the research group, my thesis advisor also had previous experience with categorizing food and health messages in media, such as in Swedish children's TV programs (Olafsdottir & Berg, 2016) and in TV commercials (Prell, Palmblad, Lissner, & Berg, 2011). The final food groups were modified and adjusted according to the foods that were present and made meaningful in relation to the material.

While two of the authors lead the categorization, my main supervisor and myself, the whole research group (co-authors) collectively agreed upon which categories to use and how to define them. To explore whether these categories were understood in the same way, and to enable myself to categorize the whole material according to the agreed upon definitions, several meetings were held to review and conclude the coding protocols. Information about certain beverages and other food products were often searched for and found online, using the food manufacturers' website in cases where the nutritional information was uncertain to the researchers. This was especially helpful for non-Swedish products, such as Danish and Norwegian products, as we were not always familiar with these food products. After these discussions, my main supervisor independently coded a random selection of instagrams, 10% (n=85) of the sample. Cohen's kappa analysis (Sun, 2011) was used to estimate inter-rater reliability. The analysis showed that the agreement for all categories was acceptable, using k=0.5 as a minimum (Stemler & Tsai, 2008). Agreement for food group classification was between k=0.71 and k=1.0. For categories reflecting the food context, food display, and textual description, values between k=0.73 and k=1.0 were reached.

Content analysis classifies all the units on specified dimensions to describe the field of images (Leeuwen & Carey, 2001), and our categories were chosen to cover different aspects of the Instagrams; therefore, one Instagram could be assigned to several categories. As a visual object always exists in a context, it is important to consider these components in different ways. According to Dasiopoulou et al. (2008), a number of cues based on the statistics of our everyday visual world are useful to guide this decision. Identification of an object in an image, or a close-up image of the same object, may be difficult

without being accompanied by useful contextual information. In the categorization, we used categories to reflect these aspects, such as if the food was in zoom or more in the periphery, and if food was portrayed with a person.

We used the context in different ways during the categorization to reflect domain knowledge, visual knowledge in terms of qualitative descriptions (e.g., how the uploader described the content in the image), and contextual knowledge with respect to image-capturing conditions (e.g., if the food object appeared isolated, if the food items were zoomed in). To analyze if the way food was depicted was linked to the type of food presented, we created two aggregated contrasting food categories of importance to health that also appeared frequently in the sample. The two food categories were foods high in calories, but low in micronutrients (HCLN: e.g., candy (chocolate and non-chocolate), soda, ice cream, cake), and fruits and vegetables. We decided to use the definition from Bandini et al. (1999) of high-calorie, low-nutrient foods. Other terms that have been used to try to label these types of foods are inconsistently described in the literature, ranging from terms such as "non-core foods," "empty calories," "low-nutrient-dense foods," and "junk foods" (Drewnowski, 2005). An advantage with using HCLN is that it takes into account both the energy and nutrient content of food items. Using cheese as an example, while cheese is usually high in calories, it also often contains several nutrients (e.g., rich in calcium and protein); therefore, this food item was not included in the HCLN category. This reasoning is a strength, as Drewnowski (2005) argued that healthy foods are often defined by their lack of 'problematic' or 'unhealthy ingredients,' such as fats, sugars, and sodium, rather than by the presence of beneficial nutrients they might contain. Thus, if we had, for example, used the concept "non-core foods" in the same manner as many previous studies have used it, cheese might have been included in this category, despite the presence of key nutrients (Toumpakari, Haase, & Johnson, 2016).

Chi-squared analyses were used to test if these two food groups, HCLN and fruits and vegetables (F&V), were presented differently, compared to other food groups.

Qualitative content analyses

The content analyses in studies II-IV were based on qualitative content analysis (Graneheim et al., 2017; Graneheim & Lundman, 2004; Hsieh & Shannon, 2005). Graneheim et al., (2017) positioned qualitative content analysis as balancing between a descriptive and an interpretative paradigm. As Hsieh and Shannon (2005) wrote, content analysis can be directed, conventional, or summative, or as argued by Graneheim et al. (2017) inductive, abductive, or deductive.

The analytical procedures were different in the studies, and I will, therefore, describe them individually. In study II, an inductive approach was used (Graneheim et al., 2017), in study III, a directed approach was used (Hsieh & Shannon, 2005), and in study IV, an abductive approach was used (Graneheim et al., 2017). However, there are several similarities between the analyses in these studies, and I will describe these first.

All the interviews in the studies were audio recorded and transcribed verbatim. In qualitative content analysis, the transcribed text constitutes the unit of analysis. A general principle in qualitative content analysis is to move from these texts, the concrete and specific, towards a more abstract and conceptual understanding (Graneheim et al., 2017). This is achieved by coding and categorizing the data. This also relates to what Thulin and Jonsson (2014) referred to as the "children's perspective" and the "child perspective." The authors argued that as children are dependent on adults' epistemological perspectives, it is important to consider both these perspectives. In these analyses, the children's perspective refers to listening to the adolescents' own experiences and perceptions. However, the child perspective requires the researchers to interpret the voices of adolescents in order to gain an understanding of their perspectives as a collective. The content analysis enabled these perspectives, as the meaning units and codes, which are close to the text, reflected the experiences of individual participants, while the categories reflected the adolescents' shared experiences.

Study II

The transcribed interview material was analyzed by means of qualitative content analysis, following the recommendations described by Graneheim and Lundman (2004). An inductive analysis was conducted. This research group

(the co-authors and me) consisted of individuals with several years of experience within the fields of food and nutrition, psychology, pediatric medicine, and nursing.

The analysis was inductive in that a theory was not used to categorize the material. Nevertheless, the concept of eHealth literacy, as described by Norman and Skinner (2006b), was visible in the research questions guiding the analysis. The research questions captured different aspects of eHealth literacy: to seek and find health information, to understand and appraise the information, and to apply the knowledge gained to address perceived health issues.

The following three research questions were formulated to guide the categorization of data:

a) Why did the adolescents search for or avoid searching for information regarding food, weight management, and health information online?
b) How did the adolescents evaluate and select food, weight management, and health information online?
c) How did the adolescents perceive and experience finding and using online food, weight management, and health information?

Initially, I listened to the audio recordings several times to appreciate nuances and ambiguity. I also read the transcribed text several times to fully understand the material and get "a sense of the whole" (Graneheim & Lundman, 2004, p. 108). Next, meaning units were highlighted in the text. Meaning units can be described as sentences or paragraphs that relate to the same central meaning and that are significant to the research questions. To apprehend the social context in which the meaning units were captured, contextual cues, such as descriptions of what participants showed on the screen in relation to the transcripts, were also included. In this way, the screen-captured search activities assisted the interpretation and data categorization, as they provided additional and clarifying information and details, which complemented the audio recordings.

Longer meaning units were sometimes condensed and 'shortened.' Then, the meaning units were labeled with a code to facilitate reflection and abstraction

of data. Finally, groups of codes with similar characteristics were collapsed into categories. This was implemented to contrast and compare them against other categories by separating them into subcategories or merging them into broader categories. In this study, we conducted three categorizations following the three research questions. See Table 2 for an example of the categorization procedure. This specific example is from the categorization following the second research question: how the adolescents selected food, weight management, and health information online.

Table 2. Example of the categorization in study II.

Meaning unit	**Code**	**Subcategory**	**Category**
* showing how he searches for information about cholesterol * P: This site, 1177. My teacher showed me, she said that it was good, and I trust her. She told me during Biology class, and told me that this is a good site to read about diseases.	Trusted teacher recommended a website	Recommendations from trusted persons	Perceived trustworthiness
I: Why is this (Wikipedia) trustworthy? P: Because, if was not trustworthy, then there would be warning triangles. That means that someone has corrected it, or re-written the text. Anyone can write on Wikipedia, so that is why. I: So that is something you think about? P: Yes, I do not go to just any site and believe what it says.	Evaluating trustworthiness when using Wikipedia	Evaluating reliability and accuracy of information	

I = Interviewer, P = Participant

This initial analysis was undertaken by me, but the coding and categorization were repeatedly discussed in relation to the tentative categories by two additional study authors, my supervisors. Furthermore, while the analytical procedure is depicted as a linear process, the actual analysis was conducted as a 'back-and-forth process,' such that we constantly questioned and critically examined the codes and categories until we reached consensus. This step was important for the trustworthiness of analysis, by letting researchers with different backgrounds provide their perspective of the material. Some

categories were modified and refined after these discussions. The final categories were comprehensive and mutually exclusive, such that the same code could only be assigned to one category.

Since the material was categorized and presented according to three research questions, I wanted to see if it was possible to generate a theme that intersected with all the categories to 'tighten' the study.' According to Graneheim and Lundman (2004), a theme reflects the content on a latent level, representing the "how?" and is a way to connect the underlying meanings from the categories.

Following Creswell and Miller's (2000) recommendations, the validity of the analysis was tested by seeking confirmation from individuals external to the study and by means of member checking. Thus, study findings were presented to the staff at the obesity clinic where participants were recruited, and the staff provided input and commented on the categorization and our understanding of data. However, this discussion did not result in revisions of categorization, but rather confirmed the findings. Emails that summarized study findings were also sent to the participants to provide them with an opportunity to comment on the study results, but no one chose to do so.

Study III

The transcribed interview material in study III was analyzed using a directed approach to qualitative content analysis, as described by Hsieh and Shannon (2005). This approach is similar to what Graneheim et al. (2017) described as abductive. During the initial stages of the analysis, when the meaning units were identified and codes were created, an inductive approach was used. To create categories and subcategories, Goffman's (1959) dramaturgical action model was used. The categories and subcategories were labeled and organized according to the concepts of frontstage and backstage, i.e., what the adolescents shared and emphasized in their self-presentations, and what they were more cautious about presenting or chose not to share. The aim of this study guided the analysis: to explore how the adolescents present themselves on social media, their rationale behind their presentations, and their feelings related to self-presentation.

This research group (the co-authors and me) consisted of individuals with several years of experience within the field of food and nutrition, psychology, information technology and learning, and nursing.

The first steps of the analysis were similar to that of study II: 1) the interviews were listened to several times to appreciate nuances and ambiguity, and the transcribed text was read several times to fully understand the material; and 2) as the goal of the analysis was to categorize and identify all instances of the adolescents' self-presentation activity, all text segments relating to the study aim were highlighted and thereafter labeled with codes. Similar codes were ordered into tentative categories that shared a commonality.

This analytical procedure was also performed back-and-forth, and the codes and related transcribed text segments were repeatedly discussed in relation to the tentative categories by my two supervisors and me. These discussions considered the codes as potential explanations for the statements while seeking to find the simplest and most likely explanation using the collected details of participant utterances and activity. Similar to the analysis in study II, the laptop screen recordings assisted the categorization of data. The screen recordings provided contextual materials, such as the participants' use of digital image manipulation techniques, the variations in presentation modalities (images, video, and text), the possibility of identifying patterns by comparing older and more recent postings, and the participants' reactions to postings from friends and followers.

The final categories were internally homogenous and externally heterogeneous, such that the same code could only be assigned to one category. Similar to the analysis in study II, the validity of analysis was tested by presenting our findings to the personnel at the obesity clinic. The personnel provided input on the categories; however, this discussion did not result in revisions of category scheme, but rather confirmed the findings, indicating that the personnel could relate to the findings. Study findings were also summarized and emailed to the study participants. However, no one chose to comment on the results.

Study IV

An abductive analysis was performed to analyze the focus group materials by means of qualitative content analysis (Graneheim et al., 2017; Graneheim & Lundman, 2004). An initial inductive categorization was conducted to describe what the adolescents experienced as contributing to or impeding their participation in the intervention, as well as the intervention aspects that influenced their perceptions related to healthy food and physical activity habits. To interpret how these descriptions related to the adolescents' empowerment and their involvement in the intervention, an overarching theme was generated. This descriptive theme reflected explicit statements of what the adolescents talked about, both in relation to the abilities Tengland (2007) argued are needed to gain control over one's health, as well as Greene's (2013) thoughts of intervention aspects that facilitate adolescents' active involvement. In this way, these concepts and theories informed the creation of the theme.

The research group for this study (all the co-authors and me) consisted of researchers and PhD students with several years of experience within the fields of Food and Nutrition and Sport Science. They had an interdisciplinary background involving sociological, psychological, health, sports, nursing, and nutrition perspectives.

Based on the research questions, the analysis was performed in the following steps:

a.) The audio recordings from the focus groups were transcribed verbatim. The recordings were listened to, and the transcripts were read in their entirety, repeatedly, to understand the contexts and dynamics of the focus groups.

b.) Sentences or phrases containing features related to each other through their content and context, and of relevance to the research questions, were highlighted as meaning units. The meaning units were inputted to a table to assist the categorization process. The categorization process was, thus, transparent, as it allowed the rest of the research group to follow the steps in the categorization and provided an overview of the different meaning units, which allowed for comparison.

c.) As the meaning units consisted of several sentences and sometimes long paragraphs, they were shortened into condensed meaning units. Using an inductive approach, the meaning units were abstracted to codes. The codes functioned as labels and described the meaning units in relation to the research questions.

d.) Similar codes, reflecting the same aspects of the text in relation to the research questions, were collapsed into categories and subcategories. The categories were discussed and revised several times within the research group.

e.) The categories captured the meaning of several subcategories, but they referred to a descriptive level of content, staying close to the adolescents' descriptions. The categories expressed the manifest content of the text, aiming to answer the question "what?" (Graneheim & Lundman, 2004). The subcategories were internally homogeneous, as they consisted of codes that shared similar features. Externally, the subcategories were heterogeneous, as the same code could only be assigned to one subcategory.

f.) A descriptive theme that intersected with the categories was generated to describe the content on a latent level and forming a unifying red thread running through the categories (Graneheim et al., 2017). To formulate the theme, the adolescents' statements were interpreted, both in relation to the abilities Tengland (2007) argued are needed to gain control over one's health, as well as Greene's (2013) thoughts of intervention aspects that facilitate adolescents' active involvement.

g.) The categorization from the focus group with the teachers was analyzed in a similar way, by identifying meaning units and creating codes inductively. The codes were thereafter connected and organized within the categories generated from the focus groups with the adolescents.

Ethical considerations

The planning and performances of studies II, III, and IV were based on the Swedish Research Council's (2011) guidelines for research. According to the guidelines, research is required to satisfy both a research criterion, i.e., that the research involved should be important and of relevance, and the criterion of protection of the individual. Protection of the individuals concerns that the participants in the study have been given information about the study goal and objectives. It also concerns that the participants have been given the opportunity to ask questions, have received answers to those questions, and that they have given their consent to participate in the study. The written and oral information to participants in studies II, III, and IV followed the recommendations laid out by the Swedish Central Ethical Review Board (n.d.). Written and oral consent were obtained from both participants and their parents/legal guardians. It was also clarified that participation in studies was voluntary, and that they could withdraw at any moment without giving any explanation.

Ethical review boards evaluated all the studies. The research protocol for paper I was evaluated by the regional ethical review board in Gothenburg (DNR: 468-14). The review board concluded that the study did not involve human subjects, and they did not object for us to carry out the study. Research protocol for papers II and III was also evaluated and approved by the regional ethical review board (DNR: 035-15), and so was the research protocol for the intervention study concerning paper IV: "How to Act?" (DNR: 469-14).

The most recent edition of Good Research Practice (Swedish Research Council, 2017) contained revisions reflecting changes in legislation and new areas such as stem cell research. However, this latest version (still) did not contain guidelines or recommendations specifically related to conducting research online. It is, therefore, necessary to examine against other notable sources. An often-cited publication related to Internet research ethics has been published by the Association of Internet researchers (AoIR) (Markham & Buchanan, 2012). According to the AoIR, all the studies in this thesis can be defined as Internet research, as they either utilize the Internet to collect

data (such as study I) or study how people use and access the Internet (such as studies II-IV).

The AoIR stated that one main ethical tension related to conducting Internet research is that between public and private. Study I differ from the other studies in this dissertation as informed consent was not obtained from the Instagram users who shared their images that were included in the study. There are ethical issues in undertaking research without asking for consent. Although there are researchers who argue that data derived from social media is considered to be in the public realm if it is not password protected, or when a subscription is not required to access the content (Hookway, 2008), it can still be seen as a violation of the adolescents' integrity.

Boyd and Marwick (2011) argued that, in the era of social media, it is easy to mistake accessibility with publicity. Just because adolescents are in a public environment does not mean that they want to be public figures, nor does it mean that they want to be the visible to absolutely anyone, including researchers. We saw a value in approaching the Instagram images this way, as the unobtrusive approach made it possible to investigate online dietary communication without interfering with it.

This also refers to how the study objects are defined. When conducting research on social media, it can be difficult to establish the boundaries of the research fields. According to Berg (2015), one can focus on the person (user) publishing and creating the materials, which then requires informed consent. However, one can also focus on the images as online documents and, therefore, view the uploader as an author who published these online. Then, it is foremost a copyright issue. For study I, at the time of data collection, Instagram's terms of service (TOS) instructed that users provide a copyright release by using the public section of the platform. Also, in this thesis, I use still images to illustrate some results. The companies from which these still images are taken, Facebook © and YouTube ©, fall under US jurisdiction. According to the Copyright Law of the Unites States (Title 17), Chapter 1, section 107, the fair use of a copyrighted work, including such use by reproduction in copies, for purposes such as scholarship and research, is not an infringement of copyright.

Lastly, with regards to all the studies in this dissertation, I have been cautious in how data is presented. I have been careful to not reveal any combinations of data that could be assembled and linked to a particular profile or user. It includes such measures as not revealing usernames, blurring photos that could be linked to a particular user, and using personally made examples of the categories to illustrate the results (in study I).

Results

In this section, the results from the included studies are briefly presented. This section also offers some results that that have not previously been published.

Study I

The aim of this study was to explore how adolescents portray food images in a widely used, social media image-sharing application.

As previously explained, we chose to focus on Instagram, as this was the most popular image-sharing application at the time of study initiation. Within the sample of 1001 Instagram accounts, food images were identified in a clear majority, 854 (85.3%) accounts. Of these, most belonged to adolescents that were identified as girls, 625 (73.2%), and 228 (26.7%) to boys, while one user was not identified as a boy or girl. More than half of these users used Swedish, then came Norwegian and Danish. Two users used a combination of these languages.

Among the 854 food images, food was almost always central in the images, such that the food was centrally placed in the photo or explicitly referred to in the uploader's description. In the other images, food was more seen in the peripheral on the images. The food items identified were coded into 35 food groups. Cookies and pastry were the most commonly identified food group, found in a fifth of the images. The second most common food group was sodas and lemonades. High-calorie, low-nutrient foods (HCLN) were found in a majority of all images. More healthy food groups such as fruits were identified in around a tenth of the images, which was also the case for vegetables and berries. Together, fruits, vegetables, and berries (F&V) were identified in around a fifth of all images.

Categorization based on the context and the framing of the food images was also established; i.e., how food was portrayed on the images, in which social context it was presented, and how it was described by the uploader.

Outside eateries, such as cafes, restaurants, and bistros, were depicted in one quarter of the images. High-fat dairy was the biggest food group within these instagrams, as many of these images showed foods containing cream, such as beverages with whipped cream on top, and cakes with cream. People were visually present in a quarter of all the images. It could be a 'selfie' (self-portrait photo) while eating something, or of another person sitting next to the adolescents in a cafe. Only around a sixth of the Instagram images visually depicted partly consumed foods. Hence, in most images, where individuals were depicted, food was not seen to be consumed.

Another reoccurring category was food items that were lined up and arranged, as they might have been in an exhibition. Around one fifth of the images contained food items that were displayed like this. Many of these images were of packaged HCLN foods, such as chocolate bars and soda cans. These types of images often contained descriptions that suggested the anticipation of a fun event, such as a party. In almost one fifth of all the images, the uploader had zoomed-in on the food items to produce a close-up image of the food. While the most common food items within this category were cookies and pastry, the second, third, and fourth largest food groups in this category were fruits, berries, and vegetables.

A brand name was clearly displayed on almost two fifths of the images. The majority of such images depicted sodas, and the most common brand was Coca-Cola. The American ice cream company Ben and Jerry's and the coffeehouse chain Starbucks were other common brands identified in the material. The uploader often assigned hashtags or captions in relation to the instagrams depicting these brands, suggesting the participation in a promotion campaign. For example, images relating to the "Share a Coke" campaign were identified in almost half of the images with Coca-Cola. In these images, uploaders took photos of Coca-Cola containers with the uploader's own name, or of someone in their social network, whom the uploader then tagged in the Instagram image. When also including images where brands were shown more peripherally, almost half of all images contained a brand name.

In most of the food images, the uploader had assigned positive adjectives, such as #amazingfood, or symbols, such as happy emojis (ideograms and smileys). These positive descriptions could be related to the food or the

situation in general, such as "#havinganicetime" or "#Love." Negative expressions were much rarer and only identified in a few of the images. The expression of palatability was found in around a fifth of the images, while expressions of unpleasant taste were found in only two instagrams.

Regarding how the different food groups were presented in the images, we found that HCLN foods were more frequent in a context of a special occasion, compared to images containing other foods. HCLN foods were also more often displayed in an image were the foods were arranged, such as a still life. HCLN foods were also more often present in images with brands. Images containing HCLN foods also more often contained positive expressions in captions or hashtags. However, HCLN foods were less frequently zoomed in compared to images containing other foods.

When comparing images containing fruits and vegetables with images depicting other foods, we observed that fruits and vegetables were less often present in images where people were portrayed. Images depicting fruits and vegetables were also less frequently displayed with brands and less often held in front of the camera, but more frequently shown zoomed-in and were more often given descriptions that expressed palatability.

We also identified explicit health- and body-related messages as depicted in hashtags or in captions. See Table 3 for examples of these types of messages.

Table 3. Identified health references.

Health aspect	**n**	**Examples**
Referring to fat or calories	13	#willbefat
Referring to health or nutrition	12	[in a caption] "Am I healthy now?"
Referring to work out/exercise	6	#workoutfood
Referring to body	2	#summerbody2018

Study II

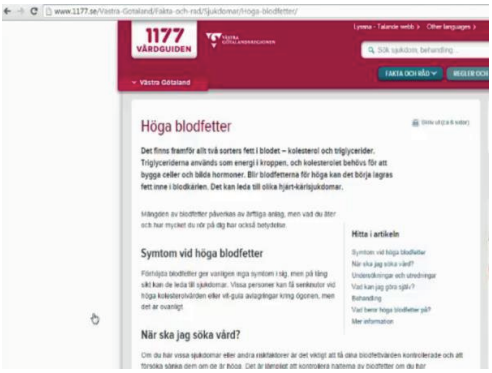
The aim of this study was to explore why and how adolescents in treatment for obesity searched for and selected online information regarding food, weight management, and health, and how they experienced and evaluated this information.

All the study participants were active on several social media platforms. A majority also said that they searched for information about food, weight management, and health information online. Four adolescents said that they did not actively search for this type of information online. They described three main reasons why they were reluctant to do so: they did not trust online health information, they felt confused by it, or they did not experience a need, since, for example, their parents provided the health information they needed.

Four categories were generated based on why the adolescents stated that they search for information regarding food, weight management, and health information online. The first category related to searching for information about food and recipes based on culinary curiosity. In addition, the adolescents also expressed searching for information and inspiration related to exercises and diets to lose weight, such as the low-carb, high-fat diet. Another reason the adolescents stated was to search for nutrition and workout information to feel better and for performance, e.g., searching for vitamin recommendations and sport snacks. Lastly, the adolescents also communicated searching for health remedies and cures when they were feeling unwell or sick, which related to more acute and specific kinds of health information needs.

To illustrate what the adolescents searched for online, I will use examples from the screen recordings. In Figure 3, Image A illustrates a participant's experience of searching for information about blood lipids after receiving information from the clinic that he had gained weight. Image B illustrates another participant's experience of looking for exercises to lose belly fat.

A B



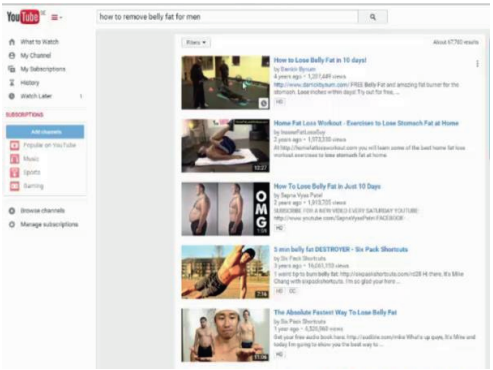


Figure 3. Illustrations of screen recordings.

The adolescents were also asked how they evaluated and selected food, weight management, and health information online. Generally, the participants described and seemingly demonstrated a variety of motivations and abilities to evaluate and select the reliability of online health information.

The participants explained that they evaluated the reliability of online information based on the information's perceived trustworthiness. They accomplished this in three different ways. They evaluated the reliability and accuracy of information, such as by comparing information from different sources. They stated that they trusted information when they could identify and relate to it, and when the source was familiar to them. Lastly, the participants explained that they relied on information and sources that was recommended to them by people they trusted, such as their parents.

However, the adolescents said that they did not always evaluate the trustworthiness and admitted that they sometimes selected sources and information out of convenience. In those cases, they stated that they were not particularly engaged in searching for the information, or that they prioritized

quick information retrieval over trustworthiness. For example, this may mean they selected the first result of a search engine query or responded to links and material presented via a social media 'push,' such as a weight loss video in the 'suggestions' window on YouTube.

Another way of selecting the information that the adolescents described was based on the presentation format. This refers to choosing information based on whether the format and content was accessible and easy to understand. The last category was that the adolescents described selecting information or sources based on their visual appeal. This mainly referred to food content and the adolescents gave examples, such as selecting YouTube videos based on the attractiveness of the thumbnail image.

The third categorization referred to how the adolescents perceived and experienced finding and using online food, weight management, and health information. The adolescents generally described both encouraging and discouraging experiences of engaging with this type of information and content online. This did not only concern information that the participants actively searched for, but also information that they found or were exposed to in their online social networks.

They described positive experiences, such as engaging in online forums about diets and weight loss, where they obtained nutritious meal ideas and inspiration as well as social support from other members. The adolescents also talked about positive experiences when they were introduced to new foods ideas in their online social networks, which might inspire the adolescents to try them. The participants also explained that online information sources may affect their understanding of their health and living with obesity. This reflected information that they found about the negative health impacts of obesity. For example, one participant mentioned that he realized the connection between blood lipids and cardiovascular disease. Although they described that they were initially scared, they described the experience as positive, as they said that this motivated them to exercise and eat healthier.

The adolescents also described negative experiences. They mentioned that they encountered a confusing amount of misinformation and misleading

commercial content online. The adolescents also depicted experiences of peer-facilitated food marketing in online networks that they believed could affect their weight management negatively. This peer-facilitated food marketing is similar to the one found in study I. Participants also expressed disappointment over unsuccessful weight loss attempts that they initiated after finding information from online sources. They stated that this might demotivate them from continuing to engage in weight management. Some of the girls also expressed that they might be disheartened by online fitness profiles on blogs if the blogger made it look too easy to lose weight. The participants explained that such comparisons could raise negative and critical feelings.

Based on the categories generated from these three categorizations, an overarching theme was generated: *Social media might be a resource for health inspiration, health information, and social support, but it requires awareness and competencies.*

Study III

The aim of this study was to explore the experiences of adolescents in treatment for obesity, regarding how they present themselves on social media, their rationale behind their presentations, and their feelings related to self-presentation.

Based on the adolescents' descriptions of their experiences, three main categories were generated. The categories were considered in relation to Goffman's notion of backstage and frontstage.

The first category pertained to the adolescents' descriptions of avoiding social media that they perceived as facilitating unkind comments, and managing their online social networks and followers in order to not communicate with strangers. It also included using the social media platforms in accordance with what they wanted to present. This category, thus, reflects the adolescents' descriptions of how and why they selected certain social media platforms when engaging with others online. Therefore, this category was named, "Creating a safe and purposeful stage."

The second category referred to the adolescents' descriptions of having to balance between presenting what was important to themselves, and what was expected from the users in their online social networks. It also concerned the adolescents' descriptions of modifying themselves, such as displaying a more favorable image of oneself by highlighting content associated with social status or by concealing part of themselves such as their weight. The girls, in particular, expressed that they modified images of themselves in order to appear slimmer and undertook certain self-presentation strategies so that their weight would not be in focus. This included not showing close-up photos of their bodies as well as things more broadly associated with weight, such as being careful not to present images of 'fattening' foods. This category referred to the adolescents' descriptions of what they considered in their self-presentations to others and the various strategies they used to convey themselves in accordance with their own and others' expectations. Therefore, this category was named, "A special, admirable, and modifiable front stage."

The last category referred to what the adolescents chose not to share, or were very cautious to share with others in social media. The adolescents explained that they did not disclose information concerning their health and health care, such as weight loss activities they undertook or their visits to the obesity clinic. They saw this information as private, as it could raise questions from others and cause them embarrassment. This was not always connected with weight or obesity, but in many cases, related to their need for health care privacy. Not wanting their patient status to be visible to peers, participants also believed that using social media in a clinical setting was potentially difficult. Therefore, this category was named, "Keeping health backstage."

Study IV

This study aimed to describe adolescents' experiences of participating in a health-promoting, school-based intervention regarding food and physical activity, with a focus on empowering aspects. The adolescents' experiences of using a social media group, a key component of the intervention, will be in focus within the context of this thesis.

Based on the participants' descriptions, a theme was generated that intersected with all the categories: *Gaining control over one's health: deciding, trying, and practicing together, in new ways, using reflective tools.* The adolescents stated that they appreciated influencing and deciding intervention components. They also explained that they were influenced by collaborating with peers in active learning activities, such as practicing sports and preparing meals. They also reported that acquiring new health information and trying new activities as inspiring, and the use of pedometers and photo food diaries as helping them to reflect over their health behaviors. These experiences were also reflected in comments expressed by their teachers.

An aspect that was mentioned positively by the adolescent in regard to several of the categories was the use of the Facebook group in the intervention. A private group on Facebook was created at the start of the intervention. I chose to use Facebook as a majority, 49 (91%), of the adolescent participants reported that they had an account on this platform during the individual interviews before the intervention. I also created anonymous accounts so that non-users could get an account for the intervention. I did not invite the teachers to the group, as I wanted this to be a forum for the adolescents.

A majority, 31, of the adolescents joined the group. This was a continuous process as the adolescents did not join all at once. The group was created in the fall of 2014. However, during this semester, the projected consisted of focus group interviews and individual interviews to plan for the intervention activities. The intervention activities did not start until 2015. For example, 7 students joined the group during the intervention 'kick-off' that was hosted at our department in January 2015. Two new students joined the group in March the same year, related to a photo food diary contest where we announced that we would present the winner on Facebook. On April 9, 2015, 31 adolescents were members of the group. The attrition rates were low, and only two adolescents left the group before the intervention came to an end in fall 2016.

The group was utilized in a variety of ways during the intervention, with the main aim to facilitate participation and provide a forum for communication between the participants and researchers. For example, the adolescents were encouraged to post photographs during intervention activities, such as preparation of meals. In addition, the researchers posted information and

reminders on upcoming health promotion sessions, feedback (comments and photographs) from previously implemented health promotion sessions, and communicated information on events.

Throughout the intervention, there were 69 posts in total in the Facebook group, posted by 7 authors (me, 3 other PhD students in the project, and 3 adolescents), and 23 members that reacted on posts, such as 'liking' or commenting. Of these posts, 38 were status updates (e.g., information about upcoming activities), 25 were media uploads (e.g., photos from activities), 5 link shares (e.g., information about holiday activities that the adolescents could engage in), and 1 was an event (the all-day 'kick-off' event at our department).

See Figure 4 for an illustration of the Facebook posts. Image A depicts a post where I reminded the adolescents about a swimming activity. Image B depicts a post where I informed and reminded the adolescents about bringing their sport clothes for a full-day activity at our department. The images also show how the adolescents comment and ask questions, and other adolescents replying. Moreover, group members could 'like' the post, and it was also possible to see which of the group members 'viewed' the post (these posts were "seen by everyone").

A

B

Figure 4. Examples of Facebook posts.

The adolescents' experiences of using the Facebook group related to two main categories that were generated from the focus group material. In the category "Interacting and cooperating with peers," the adolescents mentioned that they appreciated using the Facebook group, as it enabled them to interact with peers. As expressed by one participant:

> …almost everyone is part of the group, so you can see who has seen [a post], who has commented, so you can comment back and stuff like that, so that was good. (Focus group 3)

The other main category that reflected adolescents' experiences of using the Facebook group was "Opportunities to influence and have a dialogue." This category related to adolescents' opportunities to influence the intervention and communicate with the researchers. The adolescents mentioned that the online group was a good way to distribute information about activities in advance. As expressed by two participants:

> K: It was actually really good. You get information. M: Yeah, you get information, so you know in advance what to do, so you are more prepared

> and have more control over what goes on, that is really good. (Focus group 5)

The adolescents described that they experienced more control and were better prepared when they knew in advance how the activates would be carried out, and that it was easier for them to participate in activities that required planning and preparation. The adolescents also mentioned that it was positive that the researchers were part of the online group, as it enabled them to ask questions. As expressed by some boys:

> O: Yeah, the group was good, because when you had questions, you could ask them in the group. R: Yeah, and you replied quickly, and when we had questions you answered them. (Focus group 8)

During the focus groups, I also asked the adolescents more detailed questions about the use of social media in the intervention and their recommendations for using this in future interventions. The adolescents said that using Facebook, specifically, was good, as Facebook allows for the uploading and distribution of many types of materials, such as textual contents, images, and video. Another thing the adolescents highlighted as positive with using Facebook was the fact that many of the participants already used it, and that most participants joined the intervention group.

> F: Do not use Snapchat, Twitter, or Instagram Me: Why? F: It will be too much. I: Yes, and Facebook is easier, and most already use it. M: Everyone has it. F: Most do not have Instagram, some might have Twitter. (Focus group 3)

When asked about how to make sure that as many adolescents as possible join the group, the adolescents suggested that they could have been forced to join, as they are all offered iPads from the school. Some participants also said that joining a social media group for the intervention was too private, and that using other accounts created by the researchers would not be a good alternative, as it would be too complicated. However, they mentioned that it

did not really matter as many participants did join, which meant that the information could reach everyone anyway:

> D: Some didn't join as they perceived it as too private. They don't want to join with other pupils, sort of. They had private accounts, I know some that have that (…) D: It is too complicated to use separate accounts. One already has so many accounts and user names and stuff. M: I don't think anyone wants to use a separate account. But it was cool, I mean, even the students that did not join got the information. (Focus group 5)

I also talked with the adolescents about using other types of social media platforms instead of, or complementing, Facebook. The adolescents expressed that chat applications were difficult to use, as they were often experienced as more private compared to Facebook:

> Me: Why should we not use Snapchat instead of Facebook? S: It is scary. Me: Why? A: I agree with you, I share private images and stuff like that there, so I don't want everyone to see that. Me: Would it be too private? S: Yes. (Focus group 1)

> S: Who would want their teachers among their friends? I don't want that. They will see what I do, and tell my mom what I do on Snap. I don't know. I mean, I do not do anything bad, but still. I might post something and then they will call my mom and be like "S did this." (Focus group 4)

However, some said that these chat applications could be used anyway, as it was possible to block and control their usage:

> K: I would add you (the researchers) on Snap. Not to be mean, but we can block you if we don't want you to see. S: Right! We will block you, I am just kidding. K. No, not blocking, but we can do so that you only see certain things. C: Yeah, we can decide what to show you. S: Yes, so we will see your Snap, but you will not see ours. (Focus group 4)

> M: You could also create a group. Instead of Facebook, you could create a group chat with everyone in ninth grade. There you send information, like "bring this." Me: Where should we have that group? M: You could do it on KiK. I: Yes, KiK. (Focus group 1)

Thus, while the adolescents generally described Facebook as a good platform to use in the intervention, they also provided alternative suggestions for social media to consider in future interventions.

Discussion

In this section, I will first provide a discussion of the results from the included studies, and continue by discussing their methodological strengths and limitations.

Discussion regarding the results

In order to discuss and integrate the broader themes that connect the studies, two overarching questions have been formulated, based on the four included articles:

a) How did these adolescents communicate food in image-based digital media, and how did they experience engaging with online food, body weight, and health information? (Studies I, II, and III)
b) How did the adolescents experience that online digital media could contribute to health promotion practices? (Studies II, III and IV)

Food as a significant means for adolescents' online self-presentation

Study I show that images of food were identified in most Instagram accounts of adolescents. The food was framed in various ways, but it was most often centrally placed on the images. The food was only seen actively consumed on a minority of the images. Furthermore, a majority of descriptions by the uploaders mentioned positive general feelings, and only a fifth of the descriptions focused on the taste of the food items. The food items could, therefore, be viewed as working as props emphasizing and helping to frame a situation, an activity, or a feeling. Drawing on Goffman's (1959) and Boyd's (2014) work, it can, thus, be suggested that the food functioned as important elements in adolescents' identity formation on Instagram. Many of the food images were also organized and arranged in a way, which implies considerable

effort and attention in the presentation that may exemplify a part of an adolescent's self-presentation online.

A significant majority of the food items that were depicted on the Instagram images in study I contained foods such as sugar-sweetened beverages and candy. These findings were also in line with the experiences of the participants in study II. The adolescents in study II described peer-facilitated food marketing in their online social networks, and that these food motifs often were of candies, ice cream, and energy drinks. The adolescents also described these images as tempting and potentially negative for their weight management. Some of the adolescents also expressed a need to buy and consume the foods that they were exposed to in this way.

In study III, the participants, particularly the girls, said that they protected themselves and their self-esteem by not disclosing their weight online. This did not only concern the presentation of their bodies, but also referred to not presenting motifs more widely associated with weight, such as high-calorie foods. They explained that they did not want to be judged by others, such that they had obesity due to the food they presented, which would indicate what they consumed. These experiences, as described by the adolescents, illustrate how food is associated with body weight.

Studies I and II indicate that adolescents share and are exposed to a significant amount of user-generated food content in social media. A majority of the food images in study I contained HCLN foods. These findings are similar to other research involving adults and other social media platforms. A study among American adults' food-related posts on Facebook showed that a majority (75%) of these food posts were classified as 'unhealthy' foods (Barre, Cronin, & Thompson, 2016). Similar to the contextual categories in our study, the authors also found that common themes were eating out, food-related events, and emotions about food.

Many of the food images in study I depicted brands. A brand is here understood as "a name, term, sign, symbol, design, or a combination of these, that identifies the goods or services of one seller or group of sellers and differentiates them from those of the competition." (p. 598, Armstrong, Kotler, Harker, & Brennan, 2009). Connor (2006) argued that branding is a

significant aspect of marketing, particularly for young people as the majority of youth-oriented food advertisements employ a branding approach. Examples in study I were beverages containing high-fat dairy products (e.g., Frappuccinos with whipped cream from Starbucks), sugar-sweetened beverages (e.g., Coca-Cola), and ice cream (e.g., Ben & Jerry's).

Participants in study II described these type of food images almost as advertisements. The participants described different examples and were able to identify aspects of the presentation, like the lighting, that made the food images look more appetizing. Roper and La Niece (2009) found that the symbolic meaning of food brands becomes more intricate and important during adolescence. This also relates to Goffman's (1951) notion of collective objects and symbols, which are artifacts that are culturally significant and represent community ties. One such example is Starbucks, which is expensive in Sweden, compared to the US (Schneider, 2016), and can also be seen as a marker of social status, indicating affluence. Starbucks can also be viewed as exotic, being an American brand. American culture has a strong influence on global culture (Cismas, 2010). These images also signify outside eateries in mostly social contexts, and location matters in youth consumer cultures (Best, 2014). Sharing imagery of Starbucks, thus, acts as a type of public proof that the adolescents have associated themselves with this brand and the related social markers and connotations that are attached to these products.

In a similar way, study III highlighted aspects of what adolescents with obesity did not want to present. One such thing was to not present foods that are deemed 'fattening' or high in calories. The adolescents said that as they have obesity, posting this type of food might lead to them being judged by others for consuming this type of food. In light of weight stigma among adolescents (Farhat, 2015), and returning to Goffman's (1963) reflections on stigma, this type of food can be seen as material artifacts that are associated with identities that connote stigmatizing traits, i.e., overweight and obesity. In this sense, the findings from studies I, II, and III, suggest that food presented on social media is indicative of the uploader, and conclusions can be made about other uploaders based on the food items presented, since they would indicate the uploader's consumption practices. It can, thus, be suggested that digital media represent an aspect of adolescents' foodscapes. They represent a significant

component of current foodscapes, how they function, and the socio-material means by which they are produced.

Using social media in health promotion practices

To understand the study findings in light of using social media in health promotion work, I will also highlight aspects from the findings that are important to consider.

The findings on how food connects to adolescents' online self-presentation highlight a need to understand sociocultural factors when implementing and considering these findings in health promotion work. From a nutritional and a more normative perspective, considering the increases in childhood obesity rates, it can be argued that high-calorie foods should be limited. Similarly, this can also be argued for in terms of communicating such food images, as this practice might encourage consumption of said foods, which was both indicated by the participants in study II and has been supported by previous research (Bevelander, Anschutz, Creemers, Kleinjan, & Engels, 2013). From a sociocultural point of view, however, these foods are associated with festivity, indulgence, fun, and social markers of identity (Holmberg, 2017; Nordström, Coff, Jönsson, Nordenfelt, & Görman, 2013). This brings in a larger and more general discussion relating to salutogenesis and pathogenesis, e.g., a difference in focus with using social media by viewing it as a resource, on the one hand, or as something that should be restricted and monitored to prevent inspiring unhealthy behaviors, on the other hand.

From the perspective of disease prevention, this food communication can be seen as negative. The influence from food advertising on adolescents' consumption has, in previous studies, been counteracted by their self-efficacy (Kinard & Webster, 2012). However, the peer-transmitted food advertisement results in studies I and II might not be as easy to disregard, as they are framed within a social context and often by peers. In the original definition of eHealth literacy, there is a separation between information and media content (Norman & Skinner, 2006b). The findings in studies I and II suggest that this separation is increasingly blurred with more sophisticated social media communication taking place. Commercial content is becoming personalized

(e.g., persuasive food marketing as seen in study I), and food and health information transmitted between users are influenced by food marketers, as seen in study II.

Looking at the positive aspects, however, there are many elements to consider from these studies. In study II, we found that the adolescents appreciated using social media to find food-related information as well as recipes and inspiration from their social networks. Similar findings have also been reported in a study focusing on young adults. Vaterlaus et al. (2015) found that young adults perceived that social media expanded their food choices, as they obtained recipes and meal ideas from their network and could share their food-related experiences with their social networks. The integrated aspects to health that the adolescents in study II demonstrated might be encouraged, such as engaging with culinary content out of a general interest and not just related to weight, and behavior changes with the aim to feel better and perform well and not just to lose weight. The stigma that can be associated with weight and the positive effects when eating behaviors are normalized indicate that it might be preferable to focus more on positive inspiration for behavior changes and well-being (Coles, Birken, & Hamilton, 2016).

Social media can also be used positively to counter-market against 'unhealthy' foods. In study I, we found that the adolescents shared many colorful images of fruits and vegetables, and that these frequently communicated palatability. Palmedo et al. (2017) suggested that it is worthwhile to invest in counter-marketing campaign against unhealthy foods, similar to what has been used in tobacco counter-marketing. The authors suggest that this could be used to expose industry motives and undermine the marketing practices of products and, in that way, de-normalize the marketing of unhealthy foods. Social media bear potential to be used in this health-promoting way. This has also been suggested by Daems et al. (2017), who explored which campaign elements (media, spokesperson, appeal, and message) were most appreciated by adolescents to raise their advertising literacy. The authors found that social media were the most appreciated by adolescents 12-13 years of age. They also found that positively framed and humoristic campaigns with short messages were preferred.

Another finding is how to understand the adolescents' experiences of acceptability of using social media in health promotion practices. In this thesis, it related to the type of social media used, in what context it was or could be used, and depending on the adolescents' backgrounds.

In study IV, Facebook was used to communicate with the adolescents in the intervention. At the time, Swedish national reports indicated that many adolescents had left Facebook for other platforms such as Instagram and KiK (Swedish Media Council, 2015b). However, after asking the adolescent participants, almost everyone reported that they had an account on Facebook; in the focus group, they reported that this was the best platform to use. It indicated that this platform was popular in this particular school and among these adolescents. Something that I observed in study III was that some of the adolescents with an immigrant background said that they used Facebook to stay in contact with family members and relatives in other countries. As many adolescents in the intervention in study IV had an immigrant background, this might be a factor that explained why Facebook was commonly used among this group.

The participants in study III emphasized that they would consider it too sensitive an issue for their clinic personnel to be present in their social media lives by, for example, hosting a discussion group on Facebook, due to what Marwick and Boyd (2011) described as context collapse. Context collapse refers to the way that social media collapses distinct audiences, often breaking down boundaries that exist between the distinct offline community spheres in which people participate. These sentiments were also echoed by some participants in study IV, such that they preferred to use Facebook in the intervention and not chat applications such as Snapchat, as the latter was perceived as too 'private' and something that they would only want to use with their friends. These findings might indicate a stratification of use seen in other studies (Mediacom, 2017), in that Facebook might have been less sensitive to use compared to other social media platforms, such as chat applications, as it was perceived as less private.

In the context of health promotion interventions, as well as in the clinical context, it is imperative to be sensitive to the implications of adopting social media platforms. It is important to be attentive to potential drawbacks; as an

example, visual-based media might be especially sensitive for adolescents who feel stigmatized about showing their bodies. Another aspect to be considered before adopting social media groups in a clinical setting is that not all young patients self-identify as typical patients (Song et al., 2012) or want to connect with their health care team on social media (Hausmann et al., 2017). They might not wish to engage with communities that focus or emphasize their status as patients, or make this aspect of their life visible to others in social media, as described by the participants in study III.

In study IV, the adolescents mentioned that they enjoyed having the opportunity to influence and be involved in creating intervention components. The adolescents mentioned that the use of the Facebook group enabled this, as they had early access to information about the intervention, which made it easier to understand and relate to the intervention. The adolescents also explained that the possibility to interact with peers was appreciated, and that this was facilitated through the Facebook group as a majority of adolescents joined the group. In study II, the adolescents stated that they found social support within, for example, different diet groups on Facebook or when engaging with Instagram accounts. Taken together, studies II and III indicate that these adolescents with obesity used social media to follow certain diet- and health-related accounts and forums, but that they monitored their interaction and information retrieval in order to prevent them from becoming known to their entire online networks. An example was how they exercised caution about leaving digital traces by choosing not to 'like' certain weight- and food-related contents or groups on social media.

The findings in studies II and III support the views held by Norman (2012), who argued that communication methods that are familiar among adolescents, and social media technology, might provide means for adolescents to connect and share health information in ways that fit their preferences. The adolescents also expressed that they appreciated using the Facebook group to communicate with each other and the researchers. However, in an earlier study, when the adolescents were enrolled in grade 7, they expressed that they wished to engage less with digital technology, as they said that it encouraged sedentary behaviors and unhealthy eating habits (Jonsson, Larsson, Berg, Korp, & Lindgren, 2017). Studies have suggested that adolescents, in general, experience a duality of both positive and negative health influences when

engaging with digital technology (Favotto, Michaelson, & Davison, 2017). However, similar to our findings, Favotto et al. (2017) noted that adolescents enjoy digital technology for connecting and communicating, which could be harnessed in health promotion work while still considering the individual and contextual aspects previously mentioned.

Methodological considerations

This section is introduced with general methodological considerations followed by a discussion of strengths and weaknesses related to the specific studies.

Accountability of research is one important aspect that will be discussed. Romm (2001) defined accountability as the efforts social scientists utilize to generate conceivable accounts of the motivations and meanings that comprise research participants' social realities. An important aspect of accountability also involves applying and connecting theory to research participants' experiences in order to expand the understanding of social reality. It also includes being sensitive to the circumstances of social interaction and data collection. In this sense, to assure the quality of research, social scientists grounded in an interpretivist tradition need to argue for their selection of research approaches and methods and, at the same time, recognize alternative potential interpretations.

All the studies involved several researchers when interpreting and analyzing the material. An important tenant in interpretative research methods is the focus on social dimensions of reality constructions. Chen (2011) argued that, as there are a multitude of individual interpretations in a situation, the researcher should aim to gain a shared interpretation. I was new to this area of research when I first enrolled as a PhD student. It was, therefore, important to collaborate with experienced researchers who had both practical and theoretical competencies in conducting research in this field. As this research area is interdisciplinary in nature, this involved collaborating with researchers from different fields and with different educational backgrounds. This was a very valuable aspect when designing and conducting the studies. Similarly, I have presented the results from the studies at PhD seminars at the

department, during guest visits abroad, and at (international) conferences. This have enabled me to look at the studies and results from different perspectives.

This also relates to how I have handled issues of translations. Van Nes et al. (2010) argued that, since the interpretation of meaning is the core of qualitative research, researchers must recognize challenges of language and translations. I will provide examples pertaining to the specific studies below. However, for translation, there was a common strategy for all the qualitative studies. Van Nes et al. recommended staying in the original language for as long as possible. Qualitative content analysis was used in studies II-IV. The text segments from the transcripts, the meaning units, and the condensed meaning units were in the original Swedish. In all these studies, at least one of the co-authors was also a native English speaker who could also speak Swedish. We could, therefore, discuss issues of translations when creating and naming categories and when translating the quotes in the articles.

Study I

Methodologically, the first study differed from the other studies as it used statistics, which is associated with a positivistic stance on research. However, it did not involve an elaborate use of interpretative statistics, but mostly descriptive statistics. In symbolic interactionism, one can explore both the individual process and the structure when studying human realities (Carter & Fuller, 2016). In this way, by counting and using statistics, we were able to explore digital food imagery, which can be viewed as a communicative structure that many adolescents are exposed to and contribute to while engaging in digital online media.

When we started designing the study, there had not been many studies analyzing food images in social media. However, later research on social media has produced similar types of food categories that we generated (Barre et al., 2016). This speaks to the validity of our categorization. According to Leeuwen and Carey (2001), reliability can be thought of as a calculable index of the consistency or lack of measurement error in a particular content analysis. High levels of reliability are related to a clear and precise definition of

the categories. It is also important that all coders understand the classifications in the same way. In our study, all the other authors who collectively agreed on which categories to use through discussion sessions and meetings carried out confirmatory classifications.

There are also other aspects to consider. According to Leeuwen and Carey (2001), what is at stake in conducting visual analysis is the degree to which the results about the field analyzed can be said to describe features that are semantically significant for viewers of the images. In other words, does the analysis yield statements that are meaningful to those who normally encounter and view the images? In our study, examples from the Instagram categories were also used in the interview studies II and III. During these interviews, the participants were asked if they recognized and could relate to such imagery. The adolescents were also asked what they thought about the images and their descriptions of possible reasons why the uploaders had posted them. Many of the adolescents in studies II and III, especially those who had an Instagram account, could relate to the images from the study. They also showed similar photos and images from their own accounts. Furthermore, similar categories like the ones that we generated have been described in studies categorizing food posts on Facebook (Barre et al., 2016) and Instagram (Phan & Gatica-Perez, 2017). For example, the authors found that food-related festivities were common, and that the type of food is not always possible to categorize when it is not clearly depicted, which is also something that we observed.

The study also utilized a relatively novel data collection method within the research field of Food and Nutrition by using a hashtag. I want to stress that the online digital landscape is ever-changing. To illustrate this, at the time of data collection, 3479 images tagged with "#14år" were identified in March 2014. Looking at this hashtag later, on August 6, 2017, I identified 8327 images and videos tagged with this hashtag. This means that there is much more data associated with this hashtag nowadays, and it also means that it is difficult to know if the study reflects this hashtag in the same sense as it did during data collection.

Furthermore, this ever-changing nature of social media pertains to an important aspect of reliability, namely replicability. Krippendorff (2013) stated that replicability is an essential form of reliability in content analysis. It can be

difficult to replicate this study and validate study results, as the Instagram image landscape is highly transitory and fleeting. For example, when I went back to the same hashtag stream retrospectively, many of the images had been deleted, and many of the users had changed their privacy settings from public to private. This makes it difficult for other researchers to validate the study findings. However, by selecting one food image from all the analyzed accounts, I believe that we were able to generate a wide variety of categories that can be used to transfer the results to a certain extent.

Moreover, the use of hashtags is contextual and food presentations need to be understood in relation to the context. Phan and Gatica-Perez (2017) showed that food posts on Instagram had a clear relationship with the local culture and country. Their sample of Instagram food posts were from Switzerland and presented foods such as fondue. Thus, the authors argued that it is important to have an awareness of the region's cuisine to categorize the foods correctly. Furthermore, the authors' sample of food posts contained a significant number of alcoholic beverages, which our sample of adolescent food posts did not contain; this also indicates a demographic aspect (age) as influencing food presentations. Using different hashtags would, thus, yield different results. For example, Chung et al. (2017) reported that women in their study used different hashtags (#caloriecounting and #fooddiary) to post about foods for support and to promote healthy eating habits.

Studies II and III

As studies II and III are based on the same data collection, these will be discussed together. As Mishler (1991, preface) pointed out: "An interview is a joint product of what interviewees and interviewers talk about together and how they talk with each other." It is, thus, important to acknowledge the context and dynamics during these interviews, as any potential knowledge claim must be considered in the context and setting in which the interviews took place. This, of course, goes beyond the physical location and also concerns aspects such as interpersonal dynamics, interpretations, and understanding of meanings (Ekholm & Fransson, 1987; Vähäsantanen & Saarinen, 2013).

Before the interviews, I discussed together with the research group and clinic staff whether it might be sensitive, for the girls, in particular, to be interviewed by me as an adult male. When approaching participants in the waiting room at the clinic, I always asked the participants if they felt okay to being interviewed by me, and if they were comfortable showing some of their social media. We also had the possibility to let a female interview the participants, if it were to be requested by the participants, but we did not receive such indications. I informed the participants about this, and this was also stated on the information material.

Kirk (2007) contended that there is an ongoing discussion about whether researchers should adapt to the 'least-adult role,' such as 'playing' or 'pretending' to be a child, or whether they should try to befriend their child participants, for example, during interviews. Researchers that oppose this view argue that it is problematic because of the innate power relations between adults and children, and that friendship is usually viewed as a relationship between equals (Harden, Scott, Backett-Milburn, & Jackson, 2000). I side with this latter notion, and while I did not try to befriend the participants, I did try to make participants understand that I had a sincere interest in listening to their stories and experiences. I also explained why this information was of interest to us.

It is also important to recognize that the interviews were only conducted at one time point, and that the adolescents did not know me from before. The adolescents were interviewed in a designated room at the clinic in conjunction with their regular visit. As the context and setting wherein the interview takes place is of great importance (e.g., Graneheim & Lundman, 2004; Mishler, 1991), this was discussed extensively in the research group and with the clinic staff. For example, the separation between this research project and the adolescents' regular treatment activities was clarified in the written and oral information presented to potential participants by the clinic nurses and myself. This was done to avoid a potential misconception that their participation would impact their treatment in some way.

During the first stage of the interviews, it was important to create a shared understanding of important concepts between the adolescents and myself. For all studies, this related to what I meant with, for example, "the Internet,"

"online," and "social media." For study II, this reflected concepts such as "health" and "health information." For study III, this involved clarifying situations and things that the adolescents emphasized in their presentations, and attributes that they were more careful to present or did not want to disclose at all.

Trustworthiness of analysis is integral when considering the results. Therefore, the studies will be discussed based out of the concepts of credibility, dependability, and transferability proposed by Graneheim and Lundman (2004). Credibility refers to the application of the study and relates to how well data and processes of analysis address the intended focus. Selecting participants with various experiences increases the likelihood of shining light on the research questions from a multitude of aspects. As this study invited girls as well as boys, and adolescents using social media to different aptitudes (both adolescents using it to a high and low degree), opportunities were given for different perspectives to be highlighted.

During the analysis, credibility also referred to choosing appropriate meaning units and to properly judge similarities within and differences between categories. Uncertainties in this regard were discussed within the research group. As Patton (2002) noted, it is important to consider the triangulated inquiry, namely, that except for the interviewer and those 'studied,' the ones receiving the study (e.g., readers) also need clarity concerning the research and analysis process. The data analysis was described, as were the principles of how categories were generated. This allowed other researchers to follow the process. The analysis process was also partly illustrated by displaying characteristic quotations from the different categories as way of showcasing a relationship between results and data (Elo & Kyngäs, 2008).

The validity of the analyses in the studies were also tested by obtaining confirmation from persons external to the studies and by member checking. Therefore, I presented the study findings to the personnel at the obesity clinic where participants were recruited. The personnel offered input and commented on the categorization and our interpretation of data. However, these discussions did not lead to significant revisions of categorization, but rather confirmed the results. I also summarized study findings and emailed

them to the participants to allow them to comment on the results, but no one did.

A related concept is dependability. The term accounts for volatility during the research process, and design-induced changes, i.e., the extent to which data change over time and alterations made by the researchers process during the analysis. As changes can occur naturally and be of theoretical or practical nature, it is important that researchers rigorously and candidly disseminate the research process as fully as possible (Mishler, 1991). I used the same thematic interview guide across interviews, and the intention was to cover all the domains in each interview. However, individual compromises between interviewee and interviewer probably resulted in different focal points during the interviews. This was expected as individual interview practices creates unique conversational spaces, but it also allowed for richer and more varied data to be generated (Pezalla, Pettigrew, & Miller-Day, 2012).

Transferability is another vital idea linked with trustworthiness. It pertains to the notion that findings can be transferred to other settings or groups. To facilitate transferability, it is important to give a clear and distinctive description of context, selection and characteristics of participants, data collection, and analysis (Graneheim & Lundman, 2004). The purpose is to signal that the interpretation generated is likely to be the most probable. A limitation with studies II and III is that I did not collect background information regarding the adolescents' socioeconomic status or foreign background. The Swedish media council (2017a) reported that the use of social media might be different between adolescents with both parents born in Sweden and adolescents with both parents born in another country. For example, the report indicated that adolescents with both parents born in Sweden tend to use social media more. They also tend to self-disclose more, such as present their face on images, and show personal details such as their real name and address. The report also suggested comparable differences between adolescents from higher socioeconomic status compared to adolescents from lower socioeconomic status (e.g., parental education). This also relates to study II. The participants described and showed a vast variation with regards to eHealth literacy skills. Adolescents' eHealth literacy is influenced by a range of factors such as their present health status, family and educational background, their motivation for seeking health information, and

the technologies they use (Manganello, 2008; Norman & Skinner, 2006b). These factors were not all explored. For example, I did not have any information about their socioeconomic background, how they were doing in school, or how technologically skilled they were outside the scope of the interview situations.

In the studies, four adolescents were invited to participate, but declined the invitation: three boys aged 14, 15, and 16, and one girl aged 13. Two of the boys said that they were too tired to participate, and the other boy and girl said that they were not that active on social media. While I stressed that we also wanted to hear from adolescents that were less active on social media, which was also stated on the information materials, they declined the invite. This might indicate that mostly adolescents that self-identified with using social media extensively and that were interested in the topic were interested in participating.

I believe that the use of screen recordings in studies II and III had several strengths. The screen recordings allowed us to center on concrete examples and the adolescents' own examples of searches and uploads. By recording the searches and exploration of information, it was possible to follow the adolescents' reasonings in study II. Similarly, the use of the screen-recorded laptop also worked well with the theoretical framework in study III. Goffman (1959) argued that the impressions we make on others stems from what we *give*, and what is *given off*. Simply put, what adolescents communicate to others originate both from what they select to share to convey a good impression, but also what they involuntarily disclose as a consequence of who they are and how they react to others. By viewing the adolescents' self-presentation practices questions about these less voluntary aspects were also able to be explored.

During the analysis, the screen recordings also assisted us to comprehend the context in which the text segments and meaning units were situated. It allowed us to include contextual cues, such as descriptions of what participants indicated on the screen in relation to the transcripts. As such, the screen-captured practices supported the interpretation and data categorization, as they provided supplementary information and features, which complemented the audio recordings. However, these strengths must also be

viewed with an ethical lens. Murthy (2012) argued that by exploring individuals' social media practices, we might discover a certain level of richness around their daily rituals and habits, but the researchers are also exposed to a stark candor.

Study IV

In study IV, focus group interviews were conducted to collect data. Similar to studies II and III, conducting research interviews with adolescents was accompanied by power relations (Vähäsantanen & Saarinen, 2013). As two adults (one researcher and myself) were present during each focus group, a power imbalance may have been present. This imbalance may have constrained the adolescents' opportunities to express themselves freely. It may also have contributed to the adolescents feeling inclined to answer the questions in a certain way, such as to answer in a socially desirable way. However, Cyr (2016) raised a few interesting points around these matters. Cyr argued that desirability bias and groupthink generally provide focus groups with external validity. Cyr claimed that although the conclusions or consensus that emerges from a question in a focus group may necessarily not mirror every participant's individual view, the norms to conform reflects traditional conversations, since social pressures permeate everyday social interactions.

For focus groups, Dahlin-Ivanoff and Hultberg (2006) highlighted the gender aspect and suggested keeping girls and boys in separate focus groups. In the last focus group interview, we had a mixed-gender group. In line with this reasoning, it can, therefore, be argued that this could have influenced the dynamics, in that some of the adolescents might have felt inhibited to speak freely.

Another thing that might have influenced the adolescents in different ways during the focus groups was the use of images depicting intervention activities. Using these images might have steered the adolescents to talk about certain experiences or aspects of the intervention. However, I believe that using the images facilitated reflections and helped the adolescents to reminiscent intervention activities. These notions were also reported by the

classroom teachers during their focus group interview. They said that it would have been challenging to remember all the activities that made up the two-year intervention. Furthermore, we used 23 images, as we tried to represent most of the activities and components that were central to the intervention.

Just as with studies II and III, I will discuss the trustworthiness of the content analysis in study IV (Graneheim et al., 2017). An important step to manage issues of trustworthiness was to incorporate several researchers in the analysis. This pertains to issues of dependability, as including other individuals in the analysis might lead to different inferences and it is essential to address alternative interpretations. Credibility is another aspect of trustworthiness that was addressed in the study, and it refers to selecting participants that have experienced the phenomenon under study. All adolescent participants were invited to participate in the focus groups, but six pupils were no longer attending the present school, and five pupils were unavailable during data collection (e.g., due to leaves abroad). It is, thus, possible that these 11 adolescents might have provided opposing or complementary perspectives not raised in this study.

A strength was that the participants represented a broad array of backgrounds. Some adolescents were born in Sweden, but many were born in other countries. Another strength was including the classroom teachers' perspectives regarding how they had observed the adolescents' experiences of participating in the intervention. The teachers had known the adolescents for several years and had been involved since the start of the intervention.

The adolescent participants' varying abilities to verbally express themselves, and their inclination to do so, was observed both within and between the different focus groups. In particular, the first couple of focus groups, consisting of girls, were the most articulate overall. This might be due to a range of factors, such as adolescent girls' emotional and cognitive maturity, social factors, such as gender norms, or a general eagerness to participate in the intervention (Koolschijn & Crone, 2013; Wiium et al., 2015). However, the categorization was based on all the focus groups. Meaning units from all the focus groups were represented in the categories and quotes from all the focus groups were included to illustrate the categories.

Conclusions

This thesis indicates that adolescents' relationship with food, body weight, and health communication in online digital media is complex and multifaceted.

The findings suggest that food is a significant means of adolescents' online self-presentation practices, as indicated by their manifest communicative practices on popular platforms as well as by their own experiences. Food imagery was most often communicated in a positive way within the context of fun events and situations, associated with commercial elements, and often depicted high-calorie food items. Adolescents with obesity experienced this within their online social networks and viewed it as challenging for their weight management, comparing it to advertisements.

These findings suggest that while the participants described such negative experiences, the positive aspect of engaging with online health content was also apparent. Adolescents with obesity experienced using social media as positive for inspiration and information about food, weight management, and health. They described experiences of social support in online groups and forums regarding food and weight. However, they did not want to make this purpose of their social media use known by their social networks. This also referred to their patient status, namely, not wanting to use social media in the healthcare setting to reveal their patient status to their peers. The girls, in particular, also explained experiences of presenting their bodies as being problematic, which would further problematize the use of social media, as it is often visual-based, in this context.

This relates to the question of using social media in health promotion work. Using existing social media platforms that adolescents are already using pose both benefits and challenges. Such platforms are feasible and easy to use, as the adolescents often already have accounts and the barrier to access and reach the adolescents is reduced. However, in health care, it might be problematic, as the adolescents do not want to make this aspect of themselves as patients visible to their online social networks. Overall, the findings

emphasize a need to listen to the adolescents' own experiences when exploring these issues in order to understand potential health implications as well as social media's practical use and role in health promotion work.

Implications and suggestions for future research

I will provide some implications based on the research findings and the methods that were used.

In the original definition of eHealth literacy, there is a separation between information and media content. The findings in this thesis suggest that this separation is increasingly blurred, due to more sophisticated and multimodal social media communication. The studies indicate that these marketing techniques seem to have made an impact on adolescents' online food presentation practices. Dietary health promotion initiatives could, thus, make adolescents aware of how they contribute to food manufacturers' persuasive marketing and how they are also most likely exposed to this in their online environments This might lead to an increased understanding around how to manage potentially negative social pressures and develop social support for healthy eating.

This thesis has outlined participatory methods that can be used in future research to obtain nuanced understandings of adolescents' experiences of using social media. For example, the use of a laptop with software that allowed me to record the adolescents' screen activities was valuable. It allowed me to center the interviews around concrete examples that the adolescents showed, provided rich contextual information about the adolescents' social media use and experiences, which facilitated the conversations during the interviews and provided additional and valuable information that assisted the qualitative content analysis. Most importantly, this approach was also accepted by the adolescents. This method might, therefore, be used in other studies and research areas where a focus is to explore online experiences and practices.

The findings also highlight that adolescents' health is, in part, a social matter, and the widespread use of social media means that it inevitably plays an important role in the health promotion process in adolescents. The combination of mobile technology and social media means that health recommendations are available from other users, blogs, and health professionals, and can be delivered increasingly in real time. Health information via social media must, therefore, be provided frequently and as close to the individual level as possible, so that it is always current within the social media platforms.

Conceptually, this study focused on issues related to food, body weight, and health (which, in addition to food and body weight, mostly concerned physical activity/exercise). The interview questions and the content of intervention activities most likely directed the adolescents towards these particular perspectives on health. As suggested by McCuaig and Quennerstedt (2018), framing the research by a focus on what the adolescents consider to be a required for living a good life could generate different results in order to explore health issues among adolescents more broadly. This could be considered in future research in order to illuminate other aspects that adolescents believe influence their health that were not focused on in this thesis, such as smartphone or Internet 'addiction' (Starcevic & Aboujaoude, 2015).

While the research reported here acknowledged individual differences and demographic attributes to influence the adolescents' experiences, such as their gender, their socioeconomic status, and their cultural background, they did not constitute the analytical focus. For a more in-depth exploration and problematization of, for example, factors related to gender, future research could use theories stemming from critical feminist theories or using a more clearly articulated intersectional lens.

Generally, it is necessary to consider the issue of time sensitivity in this field of research dealing with topics related to online communication. Research studies can quickly become out-of-date as technologies and adolescents' own practices continue to evolve and change. Therefore, these findings and results must be updated regularly and viewed with a lens that considers the current media ecology.

Svensk sammanfattning

Detta är en svensk sammanfattning av doktorsavhandlingen: *Food, body weight, and health among adolescents in the digital age: an explorative study from a health promotion perspective.*

Syfte

Avhandlingens övergripande syfte var att utforska ungdomars relation till kommunikation gällande mat, kroppsvikt och hälsa i digitala medier, samt hur ungdomar upplever att delta i en hälsofrämjande intervention med fokus på mat och fysisk aktivitet. Delstudierna fokuserade på hur ungdomar presenterar mat samt hur de upplever att presentera sig själva i sociala medier, deras erfarenheter av att söka och använda hälso-relaterad information online, samt hur de upplever att använda sociala medier i en intervention.

Denna sammanläggningsavhandling består av fyra artiklar (delstudier) med följande syften:

Artikel I: att utforska hur ungdomar presenterar mat i en vanligt använd fotodelningsapplikation
Artikel II: att utforska varför och hur ungdomar som genomgår behandling för fetma söker efter och väljer information på Internet, relaterat till mat, kroppsvikt och hälsa, samt hur de upplever och evaluerar denna information
Artikel III: att utforska erfarenheter av självpresentation på sociala medier hos ungdomar som genomgår behandling för fetma, anledningar kring deras presentationer och deras känslor gällande självpresentationen.
Artikel IV: att utforska ungdomars erfarenheter av att delta i en hälsopromotiv skolbaserad intervention gällande mat och fysisk aktivitet, med fokus på aspekter relaterade till egenmakt och möjligheter för lärande.
Ungdomarnas erfarenheter av att använda en grupp på sociala medier, vilket var en central interventionskomponent, är i fokus i denna avhandling.

Inledning

Denna avhandling är skriven inom kostvetenskap, ett ämnesområde som beskriver människors möten med mat utifrån ett tvärvetenskapligt perspektiv. I dag sker många av dessa möten med mat i sociala medier. Sociala medier kan definieras som Internetbaserade digitala plattformar som möjliggör användare att skapa och kommunicera användar-genererat innehåll i form av exempelvis text, bild eller ljud. Ungdomar i Sverige använder sociala medier i en mycket hög utsträckning. Tidigare forskning visar att matkommunikation, genom exempelvis sociala medier, kan påverka ungdomars matvanor och intag på olika sätt och dessutom ger matkommunikationen också en inblick kring matens sociokulturella betydelse för ungdomar.

Mat är också ofta kopplat kring kroppsvikt. Under de senaste decennierna har det blivit en markant ökning av ungdomar som lever med övervikt eller fetma i medel- och höginkomstländer så som i Sverige. Jämfört med ungdomar som inte har fetma så indikerar tidigare studier att ungdomar med fetma generellt upplever mer illabefinnande så som psykisk ohälsa och metabola sjukdomar. Ungdomar som söker sjukvård för sin övervikt mår oftast ännu sämre. Tidigare forskning visar att ungdomar generellt söker efter hälso-relaterad information på Internet men mindre är känt kring hur ungdomar med fetma upplever att göra detta. Dessutom är mindre känt kring hur ungdomar upplever användar-genererad hälsoinformation från sociala medier jämfört med från traditionella hemsidor. Behandling av barnfetma rör sig mot patientcentrerade vårdmodeller som beaktar patienters perspektiv. Därför behövs mer information kring hur ungdomar som genomgår behandling för fetma upplever att använda hälso-relaterad information i sociala medier.

Tidigare forskning indikerar också att sociala medier kan användas vid hälsopromotivt arbete riktade mot ungdomar och i hälso- och sjukvården. Utseendeideal och viktstigma kan dock göra att det är känsligt för ungdomar med fetma att använda sociala medier, där visuell självpresentation ofta är en central del (ex. användandet av profilbilder). Det är därför viktigt att veta hur ungdomar med fetma upplever det att presentera sig själva på sociala medier, för att kunna förstå och föreslå implikationer kring användandet inom hälso- och sjukvård. Studier visar också att det behövs mer kvalitativa studier kring hur sociala medier kan användas i hälsopromotivt arbete med ungdomar.

Många studier som utvärderat detta har undersökt beteende-förändringar och fokuserat på att mäta effekter. Många av studierna använder också kommunikationsplattformar utvecklade av forskarna, i stället för att använda sociala medier som redan används av ungdomarna. Det är därför viktigt att veta hur ungdomarna själva upplever att använda sociala medier vid en hälsopromotiv intervention.

Teoretiskt perspektiv och utgångspunkter

Viktiga begrepp för denna avhandling är hälsa och hälsopromotion. I denna avhandling har centreringen kring hälsopromotion haft tre implikationer; vid formulerandet av forskningsfrågorna, för att guida datainsamlingen och för att undersöka implikationer från studieresultaten. Till exempel, för att förstå ungdomars erfarenheter av att söka och värdera hälso-relaterad information på Internet och i sociala medier användes konceptet eHälsoliteracitet. eHälsoliteracitet kan beskrivas som förmågan att förvärva, förstå och använda online-information i syfte att bibehålla eller främja hälsa.

För att förstå ungdomars kommunikation och erfarenheter av kommunikation och information i sociala medier användes symbolisk interaktionism som perspektiv. Symbolisk interaktionism har två grundläggande antaganden. Det första är att individer agerar i enlighet vad saker betyder för dem och vilken mening det har för dem. Detta innebär också ett antagande om att världen existerar oberoende av individen men att världen tolkas och förstås genom symboler (språk) i en interaktiv process. Det andra är att mening skapas och revideras i en tolkande process som konstant förändras. En tillämpad teoretisk gren sprungen ur symbolisk interaktionism är Goffman's dramaturgi. Denna teori, och senare tolkningar av densamma av bland annat Danah Boyd, har använts i avhandlingen för att förstå ungdomarnas själv-presentation i sociala medier. I stort, så vilar denna avhandling på en relativistisk ontologi som erkänner flera tolkningar av verkligheten. Detta innebär att epistemologin påverkas av relationen mellan de som vet (studiedeltagarna) och de som söker att veta genom tolkningar och antaganden (forskarna).

Metod

Föreliggande studier som inkluderats i denna avhandling har vuxit fram ur en pragmatisk process som framför allt drivits av forskningsfrågorna, praktiska möjligheter och förutsättningar, samt en intention om att identifiera insikter och implikationer för hälsopromotivt arbete. Bland annat så låg en extern forskningsansökan som grund för de större temaområden som inkluderats i avhandlingen, så som att studierna skulle beröra media, ungdomar och också förstås mot bakgrund av den ökade andelen unga med övervikt och fetma. Praktiska möjligheter har varit att jag genom min handledares arbetsplats på Drottning Silvias barn- och ungdomssjukhus hade möjlighet att genomföra studier på obesitasmottagning, liksom min andra handledares involvering i en skolintervention hade möjlighet att delta i How-to-Act?-projektet. Den övergripande studiedesignen består både av kvantitativa (studie I) samt kvalitativa metoder (studie II-IV).

Studie I

Hashtagen #14år användes för att hitta ungdomar på Instagram. Efter manuell granskning så söktes dessa användares publika bild-strömmar igenom för bilder med mat. Livsmedlen identifierades och kategoriserades baserat på typ av mat samt hur maten var presenterad (ex. vilken miljö maten presenterades i och social kontext). Deskriptiv statistik användes också för att få en överblick över materialet och även kunna jämföra olika kategorier.

Studie II och III

Individuella semi-strukturerade intervjuer genomfördes med 20 ungdomar, 11 tjejer och 9 killar, mellan 13–16 år. Ungdomarna var inskrivna på obesitasmottagningen, Drottning Silvias barn- och ungdomssjukhus. Under intervjuerna användes en tematisk intervjuguide och deltagarna fick även använda en laptop med skärminspelningsprogram för att i studie II visa hur de sökte efter hälso-relaterad information på Internet samt berätta om sina upplevelser. För studie III visade de hur de presenterade sig själva på Internet och berätta om sina upplevelser. Intervjuerna spelades in och transkriberades ordagrant. Detta material kategoriserades med kvalitativ innehållsanalys. Skärminspelningarna assisterade analysen genom att de visade kontextuell information.

Studie IV

Skolan där interventionen genomfördes ligger i ett socioekonomiskt utsatt och multikulturellt område i Göteborg. Invånarna i området har också på gruppnivå, jämfört med mer välbärgade områden i Göteborg, en sämre självskattad hälsa samt en kortare medellivslängd. Fokusgruppintervjuer genomfördes med interventionsdeltagarna efter 2 år av intervention, när ungdomarna gick i årskurs 9. Under fokusgruppsintervjuerna deltog 23 tjejer och 20 killar mellan 14–15 år. Även en fokusgruppsintervju med deras mentorer (klassföreståndare) genomfördes för att efterhöra om lärarna (n = 4) observerat liknande erfarenheter hos ungdomarna, som ungdomarna beskrev vid fokusgruppsintervjuerna med oss. Intervjumaterialet transkriberades ordagrant och kategoriserades med kvalitativ innehållsanalys.

Resultat

Studie I

De flesta av de konton som antogs tillhöra ungdomar delade bilder innehållandes mat. En majoritet av dessa matbilder presenterade mat som var kalorität med lågt innehåll av mikronutrienter (ex. bakverk och läsk). I nästan hälften av alla bilder förekom det livsmedelsrelaterade märken och logos (ex. Coca-Cola). Dessa var ofta inspirerade av olika reklamkampanjer och påminde om livsmedelreklam. Frukt och grönsaker förekom i runt en fjärdedel av bilderna. Dessa bilder var ofta in-zoomade och ackompanjerades med hashtags eller undertexter som uttryckte smak. Dessa bilder påminde därför om bilder i kokböcker.

Studie II

Ungdomarna beskrev både positiva och negativa erfarenheter av att använda och söka efter hälso-relaterad information på Internet. Å ena sidan sa de att de kunde få inspiration för matlagning, recept, och även visst socialt stöd i forum och grupper i sociala medier. De kunde även följa andra ungdomar med övervikt och fetma samt andra med liknande diagnoser och relatera till samt inspireras av detta. Å andra sidan uttryckte ungdomarna att upplevde missvisande information och reklam-innehåll på Internet som distraherade och gjorde det svårt att hitta tillförlitlig information. De beskrev också att de i

sina sociala nätverk möttes av användargenererade matbilder från andra användare som de beskrev som negativt för deras viktkontroll då de blev sugna att äta den maten som presenterades för dem. Baserat på ungdomarnas erfarenheter genererades ett övergripande tema: sociala medier kan vara en resurs för hälsoinspiration, hälsoinformation, och socialt stöd, men det kräver en medvetenhet och kompetenser.

Studie III

Intervjuerna med ungdomarna visade att framför allt tjejerna upplevde att det var jobbigt att presentera sig själva och sina kroppar på sociala medier. De beskrev erfarenheter som kan liknas vid viktstigma. Som svar på detta ville de undvika ett fokus på sin vikt och presenterade därför helst inte närbilder på sina kroppar och de undvek också helst att presentera exempelvis livsmedel som var förknippade med övervikt och fetma, som kaloritäta livsmedel (ex. 'snabbmat'). Deltagarna uttryckte också att det skulle vara problematiskt att använda sociala medier på kliniken då de upplevde att det var privat och känsligt att gå på mottagningen. De ville inte riskera att andra i deras sociala nätverk skulle få reda på att de var patienter.

Studie IV

Baserat på fokusgrupperna med ungdomarna genererades ett tema: öppna lyckta dörrar: besluta, prova och öva tillsammans, i nya sammanhang och använda redskap att reflektera med. Ungdomarna beskrev att de uppskattade att få ha inflytande över interventionskomponenter som att bestämma aktiviteter och gruppkonstellationer. Ungdomarna uttryckte även att de uppskattade och lärde sig genom att samarbeta med varandra i aktiva lärandeaktiviteter så som att utöva sporter och laga mat. Vidare beskrev ungdomarna att det var inspirerande att få ny hälso-relaterad information och att få prova nya aktiviteter. Ungdomarna uttryckte även att använda stegräknare och accelerometer samt fotomatdagbok hjälpte dem reflektera över deras hälso-relaterade beteenden. Dessa upplevelser och erfarenheter som ungdomarna delgav under fokusgrupperna hade även observerats av deras lärare.

Diskussion och konklusion

Resultaten diskuteras utifrån två övergripande teman som bygger på resultaten från delstudierna.

Mat en viktig del av ungdomars självpresentation i sociala medier

Det första temat belyser hur mat är en betydande del av ungdomars självpresentation i sociala medier och att detta har flera implikationer.

Studie I visar att bilder på mat identifierades i en majoritet av ungdomarnas Instagram-konton. Maten presenterades på olika sätt men var ofta centralt placerad och arrangerad. En majoritet av uppladdarnas beskrivningar var positiva allmänna uttryck och en mindre del fokuserade på smaken. Maten kan därför ses som rekvisita som används för att presentera en situation, en aktivitet eller känsla. I linje med Goffmans och Boyds teorier om självpresentation kan mat därför ses som betydande element i ungdomars identitetsskapande på Instagram.

Användargenererade matbilder likt de i studie I var även något som deltagarna i studie II kände igen från sina sociala medier. De beskrev erfarenheter av att mötas av bilder mat i sina sociala nätverk som delats av vänner och familj. Liksom studie I, så beskrev deltagarna att bilderna ofta föreställde livsmedel som godis, bakverk, energidrycker och fikor. Deltagarna i studie II beskrev även att denna typ av matbilder kunde inverka negativt på deras möjligheter att hantera sin vikt då de beskrev att de blev sugna på att konsumera maten de exponerades för. I studie III, beskrev framför allt tjejerna att de undvek att presentera mat som var associerade med övervikt och fetma, så som ’onyttig’ snabbmat, eftersom de inte ville bli dömda av andra på grund av vad de delade. De beskrev att andra då kunde anta att de hade fetma på grund av detta. Resultatet belyser således hur matpresentation också är relaterat till kroppsvikt.

Tillsammans visar studierna I-III att ungdomar delar och möts av bilder av mat och att ungdomarna har flera meningar och antaganden kopplat till detta. Mycket av maten som delas på ungdomarnas sociala medier, och som de beskrev att de möttes av, var kalorität mat och att livsmedelsmärken är

framträdande inslag. Detta indikerar en slags livsmedelsreklam genererad av ungdomarna själva. Detta får implikationer för eHälsoliteracitet. Den ursprungliga definitionen av eHälsoliteracitet gör en åtskillnad mellan informationsinnehåll och medieinnehåll. Dessa studier visar dock att det blir allt svårare att separera mellan dessa typer av innehåll i ett allt mer komplext digitalt medielandskap. Ungdomar gör själva reklam i sina sociala medier inspirerade av kampanjer och med personliga inslag. Detta är viktigt att beakta vid hälsofrämjande och behandlande arbete med ungdomar. Att göra ungdomarna medvetna om att de själva kanske bidrar till det och att många själva antagligen är exponerade för detta i sina sociala nätverk.

Kontextuell förståelse av sociala medier i hälsopromotivt arbete

Ett annat huvudfynd är att förstå ungdomars erfarenheter av att använda sociala medier i hälsofrämjande arbete, i relation till vilken typ av medium som används, i vilken kontext det används och relation till ungdomarnas bakgrund.

I studie IV användes Facebook för att kommunicera med ungdomarna i interventionen. Vid studiestarten indikerade nationella rapporter att många ungdomar börjat använda Instagram och KiK i hög usträckning och att Facebook visat på en nedåtgående trend. Efter att ha frågat ungdomarna rapporterade i princip alla att de hade ett konto på Facebook, och i fokusgrupperna efter avslutad intervention beskrev ungdomarna att Facebook var den bästa plattformen att använda för detta syftet. Det antyder att denna plattform var populär i den här skolan och bland dessa ungdomar. Något som jag observerade i studie III var att många av ungdomarna med invandrarbakgrund sa att de använde Facebook för att hålla kontakt med familjemedlemmar och släktingar i andra länder. Eftersom de flesta av ungdomarna som ingick i studie IV hade en invandrarbakgrund, kan detta vara en faktor som förklarade varför Facebook (fortfarande) var så vanligt använd bland dessa ungdomar.

Deltagarna i studie III betonade att de skulle betrakta det för känsligt att använda sociala medier på obesitasmottagningen. De upplevde att de inte ville visa denna sida av sig själva som patienter för dem de har i sitt sociala nätverk. Liknande upplevelser återfanns bland deltagarna i studie IV. De upplevde att det var bra att använda Facebook i interventionen eftersom det inte var lika 'privat' som att använda chat-applikatoner så som Snapchat. De beskrev att de

framför allt kommunicerade privat med sina vänner på dessa. Dessa resultat tyder på en stratifiering av användandet av olika sociala medier hos ungdomarna, baserat på olika behov och vilka de kommunicerar med.

I relation till att arbeta med hälsofrämjande insatser som i skolbaserade interventioner eller i kliniska sammanhang är det därför viktigt att utgå från hur ungdomarna upplever eventuella för- och nackdelar med att använda sociala medier. Exempelvis kan visuellt baserade medier vara särskilt känsligt för ungdomar som upplever viktstigma, så som i studie III. En annan aspekt som var tydlig i studie III är att inte alla unga patienter identifierar sig själva som typiska patienter. Det är därför inte självklart att de skulle vilja gå med i grupper som förstärker denna identitet eller göra denna aspekt av sina liv synlig för andra i deras sociala nätverk.

I studie IV nämnde ungdomarna dock att möjligheten att påverka interventionsaktiviteterna uppskattades och att de fick information om interventionen underlättade detta, vilket ofta skedde genom Facebook-gruppen. Dessutom uppskattades möjligheten att umgås med varandra vilket eleverna uttryckte att de kunde göra även i Facebook-gruppen. Även i Studie III, berättade deltagarna om att de kunde hitta socialt stöd på sociala medier, så som i olika dietgrupper på sociala medier. Sammanfattningsvis indikerar studierna II och III att ungdomar med fetma upplever det som positivt att använda sociala medier för att följa vissa diet- och hälsorelaterade konton och forum, men att de övervakar sin kommunikation och informationshämtning för att förhindra att detta blir känt för hela sina sociala nätverk. Ett exempel är hur de uttryckte att de var försiktiga om att lämna digitala spår, så som att välja att inte ’like:a’ vikt- och matrelaterade innehåll på sociala medier.

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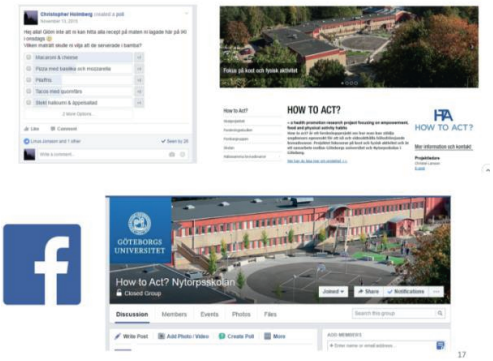
Appendix

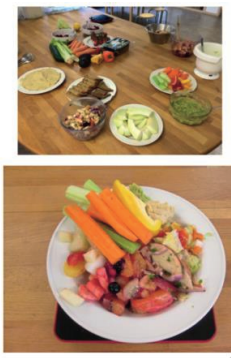
Image sheet depicting social media services, used in studies II and III.

Examples of images of intervention activities that were used to facilitate the focus group discussions in study IV.



Facebook group and website

Sugar exhibition



Snacks and meal preparations

Sheets that were used to facilitate the focus group discussions in study IV.