

Promoting a healthy diet in antenatal care

Qualitative studies of barriers to nutrition
communication among women of different ethnic
backgrounds in the Oslo Area

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Running a marathon is challenging, but I am also passionate about it.

Oslo, February 2013

Lisa Maria Garnweidner

Summary

Background

The nutritional and weight status of the mother influences not only her own health and foetal growth, but also the offspring's future risk of diet-related chronic diseases. Given the rise in the proportion of pregnant women globally with overweight and diet-related chronic diseases, efforts to promote a healthy diet and weight management in pregnancy are urgently needed. Pregnant women may be motivated to eat healthily and be more receptive for nutrition-related information. However, previous research indicates that health professionals may find it challenging to communicating about a healthy diet and weight management, especially towards a multicultural population. Further knowledge of the receivers' perspectives and experiences may be valuable to addressing possible barriers to nutrition communication in antenatal care.

Aims

The overall aim of this thesis was to identify possible barriers to nutrition communication in antenatal care, based on the experiences of women of different ethnic backgrounds. The specific aim of the first substudy of this thesis was to investigate how female immigrants from African and Asian countries perceived the Norwegian food culture and to identify aspects of their original food culture which might be important to preserve. The specific aims of the second substudy were to explore pregnant women's perceptions of and experiences with nutrition-related information received in antenatal care, as well as their attitudes toward and motivations for healthy eating during pregnancy and postpartum.

Methods

The empirical material of this thesis derived from qualitative, individual interviews conducted in the two substudies. Substudy 1 was conducted among 21 female immigrants from African and Asian countries living in Oslo. Participants were recruited at women's centres run by nongovernmental organisations and open kindergartens. They varied in their country of origin, age, years of residence and employment status. Substudy 2 followed a longitudinal approach. Interviews with 17 women of different

ethnic backgrounds were conducted. Of these, five were ethnic Norwegian and the others had immigration background from African and Asian countries. The participants were interviewed twice during pregnancy and once three months after giving birth. Participants were recruited at Mother and Child Health Centres, where they received antenatal care. They varied in years of residence in Norway and educational background. All of the participants in substudy 2 had a higher risk for the development of diet-related chronic diseases. In both substudies, data collection and analysis were inspired by a phenomenological approach.

Findings and discussion

This thesis comprises three papers. Paper 1 presents the findings from substudy 1. The findings from substudy 2 are described in papers 2 and 3.

Paper 1 investigated female immigrants' (n=21) perceptions of and experiences with the Norwegian food culture. Participants perceived the food of the host country as tasteless and boring, simple and time-saving, healthy and sometimes healthier than their original food. Participants emphasised the importance of preserving their original food cultures after migration. However, the continuity with their original food cultures varied and was either *strict*, *flexible* or *limited*. Taste, preparation effort and adherence to religious dietary rules were identified as markers for culturally appropriate meals. Awareness of strategies mentioned by the study participants to enhance the cultural acceptability of meals may improve nutrition communication. Health-care professionals' knowledge about, understanding of and respect for a person's cultural values and food practices may be core components of culturally sensitive nutrition communication.

Paper 2 explored experiences with nutrition-related information during routine antenatal care among women of different ethnic backgrounds (n=17). Interviews conducted during participants' pregnancies were analysed for this paper. Participants experienced that they were provided with little nutrition-related information in antenatal care. They perceived that the information was presented in very general terms and that it was focused on food safety. Participants were sometimes unaware that their overweight status and dietary intake during pregnancy may increase their own and the offspring's future risk of diet-related chronic diseases. Participants with immigrant backgrounds appeared to be confused about information given by the midwife that was incongruent

with their original food culture. They experienced that they received nutrition-related information in antenatal care too late. Women actively sought nutrition-related information elsewhere, especially in the beginning of the pregnancy. Participants had to negotiate between different sources of nutrition-related information. The midwife was considered the most trustworthy source of information. Throughout the pregnancy, participants often experienced an overload of other pregnancy-related health information.

Paper 3 investigated pregnant women's (n=16) attitudes toward and motivations for healthy eating. For this paper, the postpartum interviews, which were conducted three months after women gave birth, were also analysed. Three groups of participants were identified: *the healthy changers*, who considered pregnancy a period to adopt healthier eating behaviour; *the temporary healthy forcers*, who tried to eat healthily only during their pregnancy; and *the temporary vacationers*, who perceived pregnancy as 'time-off' from healthy eating. Participants' attitudes could be interpreted as having motivations with different degrees of self-autonomy. For instance, an important motivational factor among the healthy changers was their own health. By contrast, *the temporary healthy forcers* often appeared to relate their motivation for healthy eating to advice received from health professionals. Women who were unconcerned about healthy eating during pregnancy often expressed experiences of restrained eating and weight management prior to pregnancy. Ethnic Norwegians and participants with immigrant backgrounds were represented in all three groups. Immigrant women emphasised a wish to continue, to a varying degree, with dietary habits and foods from their country of origin. However, culture-specific advice about safe and appropriate food in pregnancy did not appear to influence their motivations for healthy eating.

Collectively, the papers described possible barriers to nutrition communication as interpreted from the participants' accounts. These barriers may be important to address in order to promote a healthy diet in antenatal care. The possible influence of individual's ethnical and cultural backgrounds on their food practices, experiences of receiving unspecific information and the variety in participants' attitudes toward and motivations for healthy eating indicated a need for an individualised communication approach. The consideration of individuals' preferred food culture, their ability to understand the information and their attitudes toward and motivations for healthy eating

may be important aspects of tailored nutrition communication in antenatal care. Culture-sensitive and nutrition literacy-based communication can be appropriate strategies.

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List of papers

I Garnweidner LM, Terragni L, Pettersen KS, Mosdøl A. Perceptions of the Host Country's Food Culture among Female Immigrants from African and Asian Countries: Aspects relevant for Cultural Sensitivity in Nutrition Communication. *Journal of Nutrition Education and Behaviour*. 2012; 44: 335-42.

II Garnweidner LM, Pettersen KS, Mosdøl A. Experiences with Nutrition-related Information during Antenatal Care of Pregnant Women of Different Ethnic Backgrounds residing in the Area of Oslo, Norway. *Midwifery*, In Press.

III Garnweidner LM, Pettersen KS, Terragni L, Mosdøl A. Attitudes toward and Motivations for Healthy Eating among Pregnant Women of Different Ethnic Backgrounds following routine antenatal care in the area of Oslo, Norway. *Maternal & Child Nutrition*. Under Review.

1. Introduction

The prevalence of overweight and diet-related chronic diseases in women of childbearing age is increasing in Norway and throughout the world (1-4), creating specific public health concerns. Pre-pregnancy overweight and excessive weight gain during pregnancy are associated with an increased risk of the development of preeclampsia, pregnancy-induced hypertension and gestational diabetes mellitus¹ (GDM) (2, 5-7). The prevalence of GDM in Norway almost doubled from 1999 to 2008 and is now 2.6%, as assessed through routine antenatal screening of fasting venous plasma glucose (3, 4). These figures may be underestimates, as indicated in studies using an oral glucose tolerance test (8-10).

The development of GDM may lead to long-term consequences for the woman's health (11, 12). Maternal obesity, advanced maternal age, family history of diabetes, a previous history of GDM and belonging to certain ethnic groups increase the risk of the development of GDM (8, 11, 13). According to a systematic review, women with previous GDM had a sevenfold increased risk of developing Type 2 diabetes mellitus (T2DM) after giving birth (12). Moreover, growing evidence suggests that the intrauterine environment plays a central role in determining the offspring's future risk of diet-related chronic diseases (14-16). Intrauterine exposure to maternal hyperglycaemia is a strong predictor of neonatal fat mass (17). Thus, pregnancy can be considered an important period for future disease prevention, both for the mother and the child (18).

Women belonging to some ethnic minority groups have a higher risk of developing obesity and diet-related diseases as compared to the majority populations in European countries (19-22). There is some evidence that compared to European women, African and Middle Eastern immigrant women have a higher pre-pregnancy weight, while Asian immigrant women tend to be leaner (8, 23, 24). However, the prevalence of GDM among immigrants from both Africa and Asia is higher than in the majority population (8, 25). A population-based cohort study conducted in Groruddalen, a county in Oslo, found GDM in 13% of the women overall, 11% in the ethnic Norwegians and between 12 and 17% in the groups of non-European origin

¹ Gestational diabetes mellitus is defined as any degree of glucose intolerance with onset or first identified in pregnancy (10)

(8). Women of Asian origin in particular, and to a lesser degree those of African origin, tend to develop GDM at a lower body mass index (BMI) and younger age as compared to other ethnic groups (25). The reason for this higher prevalence seems complex, involving a life history of gene and environment interactions, exacerbated by low physical activity and an unfavourable diet (22, 26, 27). Norway's national guidelines for antenatal care therefore suggest that women from African and Asian countries be screened for GDM by an oral glucose load test (28).

Overweight and diet-related chronic diseases are largely preventable through a healthy diet, physical activity and weight management. Dietary advice combined with physical activity has been shown to increase glucose tolerance and reduce hyperglycaemia (29). Empirically derived healthy eating patterns have been associated with a lower risk of incident diabetes in several cohort studies (30-32). One important intervention trial among 522 overweight subjects confirming this, suggests that T2DM can be diminished by individualised counselling aimed at a reduction in body weight of 5% or more, in total intake of fat to less than 30% of energy consumed and in intake of saturated fat to less than 10% of energy consumed; as well as an increase in fibre intake to at least 15 g per 1000 kcal and moderate exercise for at least 30 minutes per day. During the mean duration of follow-up of 3.2 years, the risk for diabetes was reduced by 58% in the intervention group (33). Several similar studies support these conclusions (34-36). Still, most of these studies were conducted among non-pregnant women (37). At present, some randomised controlled studies are in progress which investigate the effect of dietary and lifestyle advice for women with GDM (38).

Migration to a more affluent country may be considered a risk factor for the development of overweight and diet-related diseases (27, 39). A growing body of literature suggests that some ethnic minority groups living in Europe have developed less healthy dietary habits since migration (26, 40). Collectively, these dietary changes result in a higher intake of energy, saturated fat and salt, and a lower intake of fibre, which may have significant health implications (26, 40). Still, few studies have addressed immigrants' actual food intake after migration (41). In Norway, immigrants from outside Scandinavia are excluded from national dietary surveys (42). However, the results from the Oslo immigrant Health study provide valuable indications about immigrants' dietary practices and food habits after migration. For

instance, immigrants from Pakistan and Sri Lanka reported dietary changes after migration that could have substantial health implications. These participants' accounts indicated very high fat consumption, which may be an important concern given the increased obesity rates observed in these groups (43). Further assumptions about the diet may also be derived from studies showing that vitamin D and iron deficiencies are common among immigrant children in Norway (44).

Recommendations for a healthy diet during pregnancy are similar to those for the population at large (45). The increased energy and nutrient requirements during pregnancy can usually be met through a small increase in food intake and a diet rich in fruits and vegetables, whole grain products and animal protein sources, including low-fat dairy and meat products. There are, however, some recommendations that apply specifically to pregnancy, such as taking folic acid supplements to help reduce the risk of neural tube defects and iron supplements to prevent anaemia. There are additional recommendations to avoid food poisoning from harmful pathogens, such as listeria or salmonella, and exposure to foods with remnants of industrial pollutants and high levels of Vitamins A and D (45). In the Norwegian guidelines for antenatal care, health professionals are encouraged to provide women with information about a healthy, varied diet and the prevention of food-borne diseases. Furthermore, a pregnant woman's height and weight should be measured at the first check-up, normally during weeks 8–12, in order to calculate her BMI. Thereafter, women should be weighed regularly during pregnancy. Pregnant women who are under- or over-weight should be given individual counselling on diet and physical activity (28).

The pregnancy and postpartum period is considered an important window for the promotion of a healthy diet in order to prevent overweight and diet-related diseases for mothers and their children (18, 46). Pregnancy and motherhood connect women and young families to the primary health-care system. In Norway, Mother and Child Health Centres (MCHC) play a unique role in health promotion. They increasingly provide antenatal care as well as health services for practically all young families (47). Antenatal care is provided by general practitioners and midwives, and women can choose their preferred health-care provider. Previous research suggests that pregnant women and women wishing to conceive a child can be easily reached with nutrition-related information and that they are motivated to implement dietary

changes (48, 49). However, some other studies indicate that pregnant women change their attitudes toward and motivations for healthy eating only temporarily and return to pre-pregnancy patterns after giving birth (50). There is some indication that effective communication about nutrition during pregnancy leads to healthy dietary changes that persist postpartum (46, 51-53).

Even though primary health care provides a unique opportunity for the promotion of a healthy diet, previous research suggests that health professionals may find it challenging to communicate about diet and weight management, especially when faced with a multicultural and socially diverse population (54-59). A review identified key predictors of problems in intercultural communication, and highlighted differences in cultural values and preferences for doctor-patient relationships as well as linguistic barriers (55). Some immigrant groups have been found to encounter difficulties in understanding and making use of health-promotion information (60). Beliefs and practices related to food can vary across ethnic groups, and some efforts to promote a healthy diet may meet cultural resistance due to diverse food practices and beliefs (61, 62). For instance, a study on the lived experiences of GDM among South Asian immigrant women in Australia found that women's cultural practices and beliefs about food consumption during pregnancy conflicted with the advice which they received from health professionals. Consequently, the participants had difficulties managing their diet after diagnosis (62). Therefore, the identification of possible cultural influences on health-related behaviour is important to the development of effective health-promotion efforts (63).

Few publications appear to have investigated communication about the promotion of a healthy diet in antenatal or primary health care (54, 64-68). Moreover, the majority of the existing studies have been conducted among majority populations or a specific group of patients. No studies have been found investigating perceptions of immigrant women's experiences of nutrition communication in antenatal care at the national level. A study examined pregnant women's satisfaction with the antenatal care they received, but the study's questionnaire did not include nutrition-related topics (69). This thesis aims to provide further knowledge about possible barriers to nutrition communication from the receivers' perspectives and to discuss how these barriers can be addressed in antenatal care.

2. Project framework of the thesis

The research for this thesis was conducted within the SOMAH-project (*Samtaler om Mat på Helsestasjonen*) at the Oslo and Akershus University College of Applied Sciences. The project is funded by the Norwegian Research Council (project number SHP 194547/V10) and runs from 2010 to 2013. The main objective of the SOMAH-project is 'to develop approaches to health and nutrition communication at the MCHCs aimed at improving the health of ethnic minority groups with a high risk of developing T2DM'. Figure 1 provides an overview of the SOMAH-project.

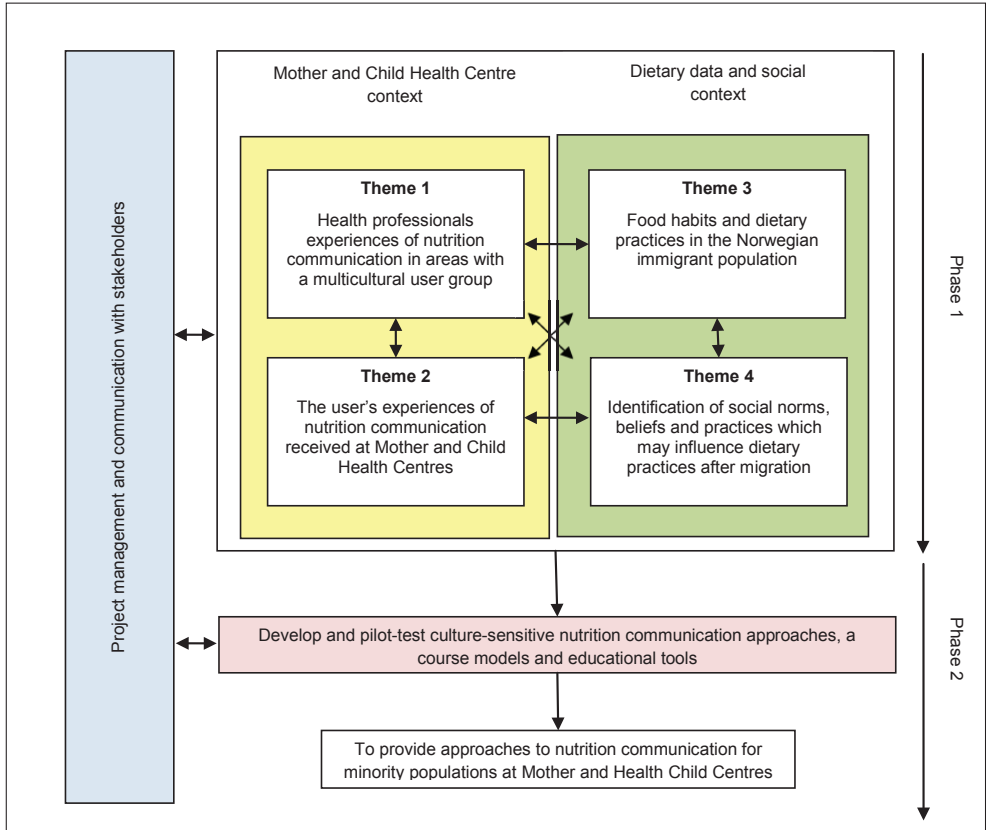


Figure 1. Overview of the SOMAH-project

The project had two phases. In the first phase, previous research was reviewed and new research performed to build a knowledge base for the later development phase. The four themes in the first phase were: 1) health professionals experiences of nutrition communication in areas with a multicultural user group; 2) the user's

experiences of nutrition communication received at MCHCs; 3) food habits and dietary practices in the Norwegian immigrant population; 4) identification of social norms, beliefs and practices which may influence dietary practices after migration.

Theme 1 was explored through qualitative focus group interviews of public health nurses. Based on these interviews, a national questionnaire survey addressed to public health nurses was conducted. Furthermore, qualitative, individual interviews among midwives were conducted. Theme 2 involved the research activities of substudy 2 in this thesis which will be presented later on. For theme 3, this project analysed the dietary data from the STORK Groruddalen project, a population-based cohort study of GDM, physical activity and obesity in pregnancy in a multiethnic population (70). Also, narratives from immigrant women and pictures of their meals and cooking practices were gathered. For theme 4, a qualitative study among female immigrants was conducted. For this thesis, this study is named substudy 1. The development and pilot-testing of nutrition communication approaches is ongoing. All parts of the project have been presented and discussed with stakeholders from the MCHC sector.

3. Aim of the thesis and individual papers

The overall aim of this thesis was to identify possible barriers to nutrition communication relevant for antenatal care, based on the experiences of women of different ethnic backgrounds.

The specific aims of this thesis were to study the following:

- 1) perceptions of the Norwegian food culture and experiences with dietary acculturation among female immigrants (paper 1)
- 2) perceptions of and experiences with verbal nutrition-related information received in antenatal care among women of different ethnic backgrounds with higher risk of diet-related diseases (paper 2)
- 3) attitudes toward and motivations for healthy eating among pregnant women of different ethnic backgrounds with higher risk of diet-related diseases (paper 3)

4. Theoretical perspectives

This section introduces the theoretical perspectives which have influenced the interpretation and discussion of the empirical material of this thesis. The findings presented in paper 1 were discussed in relation to previous research and theories of how ethnicity and migration may influence food habits (71-74). In paper 2, findings were more specifically related to relevant approaches in health and nutrition communication (61, 75-77). The findings of paper 3 were interpreted in light of the self-determination theory (SDT) (78), which was valuable in exploring individuals' motivations. The relevant literature for this thesis was reviewed through the Medline database 'pubmed.gov', 'ScienceDirect.com' and the Cochrane database of systematic reviews.

4.1 Immigration and dietary acculturation

Immigrants² and those born in Norway to immigrant parents represent 13.1% of Norway's population (79). Figure 2 gives an overview of the largest immigrant groups in Norway.

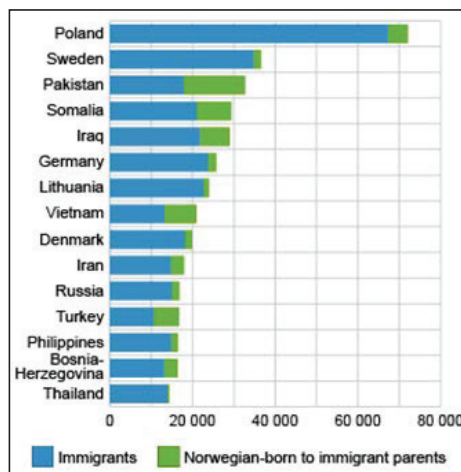


Figure 2. The 15 largest groups of immigrants and Norwegian-born to immigrant parents in Norway. 1 January 2012 (79)

² Persons who are born abroad to two foreign-born parents, and who have moved to Norway, are defined as immigrants. Those born in Norway with two immigrant parents are defined as Norwegian-born to immigrant parents (79).

Ethnicity may be defined as the social group a person belongs to, due to a shared common culture, including shared geographical origin, history, religion, language, diet, traditions and attitudes (80-82). Ethnic groups may have different food habits (26). Food habits can be seen as a culturally standardised set of behaviours of individuals within a given cultural tradition (83). However, the increased industrialisation and globalisation of the food market had led to a *nutrition transition* which is similar across many different cultures and countries. This transition is characterised by an increased supply and consumption of energy-dense foods and animal products, and a decreased consumption of fruits, vegetables and whole grains (84). The increased availability of foods with an unfavourable dietary composition may contribute to the ongoing rise in the prevalence of overweight and diet-related chronic diseases (40, 85). The nutrition transition, as well as its possible consequences for the populations' health status, is currently happening especially quickly in lower- and middle-income countries (84). Migration from a low or middle income country to a more affluent European country may represent a situation in which this transition happens even more rapidly for individuals.

A large body of literature suggests that migration may lead to dietary changes (26, 40). The nutritional significance of these changes depends on the food groups and practices involved. Koctürk-Runefors suggests that immigrants start the adaptation to the host country's dietary practices with the best-tasting food items, including sweets, nuts, snacks and drinks (Figure 3). These foods are accessories to basic foods, like carbohydrate-rich staple foods, which according to the author's theory, exhibit more resistance to change (74).

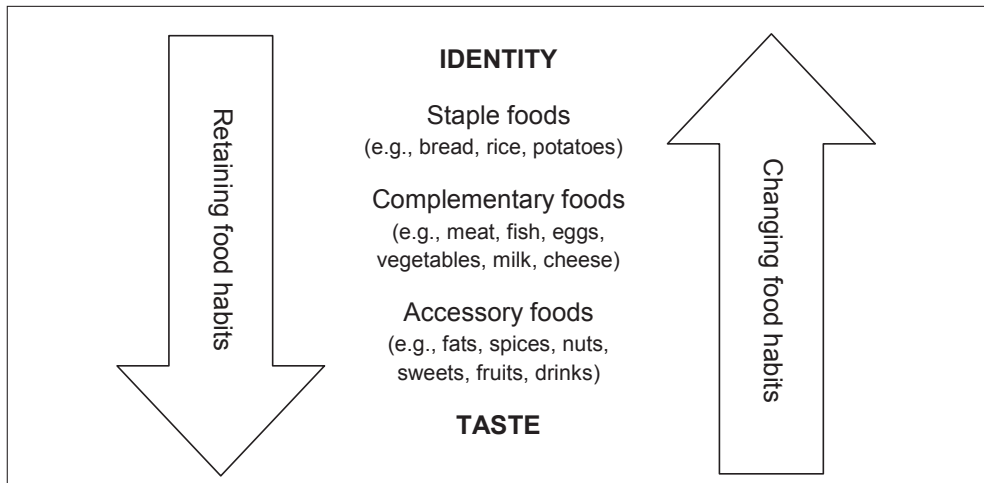


Figure 3. The process of adaptation to a new dietary pattern after migration (74)

Reviewing the literature on changes in the dietary habits of selected ethnic groups in Europe, including African Caribbean, South Asians, Turks and Moroccans, Gilbert has identified a common pattern in which immigrants replaced healthier dietary components such as fruits, legumes and grains with more processed foods, like breakfast cereals, soft drinks, sweets and snacks. Gilbert adds that some ethnic groups may have increased their intake of meat since it is more abundant in the new host country (26). These alterations indicate a shift to diets low in dietary fibre and rich in energy, fat and sugar, which may lead to a higher risk of obesity, T2DM and cardiovascular diseases. Another review of changes in dietary habits in South Asians after migration to Europe supports Gilbert's conclusions. The authors show that South Asians living in Europe tend to have adopted less healthy diets, characterized by an increased intake of energy, fat and refined carbohydrates. A shift from vegetable to animal food sources was also commonly observed (40). Most of these studies are based on the immigrants' own perceptions of dietary changes they have made after migration (43). It is important to note that immigrants may make significant changes in the relative amount of different ingredients when they prepare their original dishes in a new food environment. For instance, Turkish immigrants cooked their dishes with more meat and fat and fewer vegetables and beans after migration to Sweden (86). Still, only a few studies have compared the diet of immigrants with similar ethnic groups in the country of origin (40).

Given that migration to Europe often leads to the adoption of a less healthy diet, it is important to understand the process by which immigrants adopt the dietary practices of the host country (85). The term *acculturation* can in general be defined as the process by which immigrants adopt the attitudes, values, customs, beliefs and behaviour of a new culture (87, 88). A specific conceptualisation of the acculturation process as it concerns food habits, called *dietary acculturation*, has been suggested. Dietary acculturation refers to the process that occurs when members of an ethnic minority group adopt the dietary practices of the host country (73). The process of dietary acculturation is considered a multi-dimensional, dynamic and complex process (73, 89) rather than one where a person moves linearly from one end of the acculturation continuum (original) to the other (acculturated). The degree to which immigrants adapt to the food culture³ of the host country may vary and different patterns for dietary acculturation have been proposed (73, 74, 90). According to Satia-Abouta, possible common patterns are that immigrants may maintain their original eating patterns, adopt the host country's eating patterns or adopt bicultural eating patterns (73).

The process of dietary acculturation is influenced by several structural and individual factors (73, 74). For instance, newer data found that the prevalence of overweight and diet-related diseases among immigrants follows a socioeconomic gradient like in the main population, where the more disadvantaged groups suffer from higher rates of diet-related diseases (91). Since ethnic minority groups in European countries are often characterised by a lower socioeconomic status (79, 92), they may be especially vulnerable to the adoption of an unhealthy diet. The results of Wandel et al.'s study of dietary changes among South Asian immigrants settled in Oslo show that socioeconomic factors moderated the adverse dietary changes that occurred after migration (43). Satia-Abouta's model of the dietary acculturation process suggests that socioeconomic, demographic and cultural factors influence the degree of exposure to the host country's food culture (85). Even though the model is based on research among ethnic minority groups in the US, it may be transferable to the dietary acculturation process of ethnic minority groups in European countries. The

³ Food culture refers to traditions, practices, competences and skills belonging to a specific groups in society (90)

model suggests that the exposure to the host culture leads to changes in psychological factors, taste preferences and changes in food preparation, and thus to different patterns of dietary changes (Figure 4).

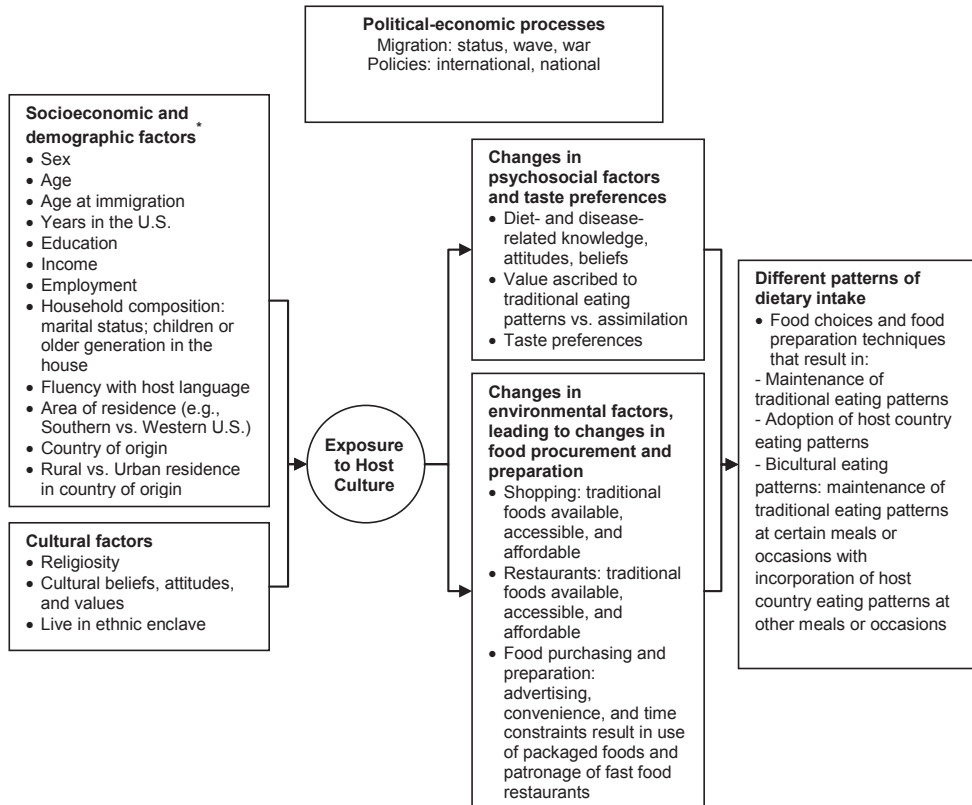


Figure 4. The process of dietary acculturation (85). *Some of these factors may also be influenced by exposure to host culture

4.2 Cultural health and food beliefs

Cultural beliefs and values, may also influence immigrants' exposure to the host culture (73). Helman suggests that these cultural factors may influence beliefs and behaviours about health (93). Health beliefs may be defined as personal convictions that influence health behaviours (94). Beliefs about health can affect self-care, risk awareness and health-care seeking behaviour (93). A study investigated beliefs about GDM and strategies to handle the disease among Swedish and Middle Eastern

women. Results show that Swedish women seemed to take initiative in battling the disease and a long-term approach to combating it, whereas women from the Middle East seemed to adapt to having GDM, and perceived it as a natural part of their lives (95).

Previous research indicates that young women appear to be strongly influenced by cultural traditions and family expectations with regard to food preparation and consumption (96-99). Cultural beliefs regarding food and health during pregnancy may be defined as subjective and cognitive constructs that influence dietary practices related to the health of the mother and the foetus, regardless of their scientific validity (98). The literature provides several examples of cultural beliefs determining what is considered safe and appropriate food in pregnancy. These cultural beliefs are related to different systems of how cultural groups perceive the relationship between health and illness (93). The naturalistic system is often characterized by the *hot and cold dichotomy* and a commonly feature of cultural groups in the Islamic world, the Indian subcontinent, Latin America and China (93). The categorisation of foods into hot and cold does not refer to actual temperature, but rather to certain symbolic values associated with each category. Health is believed to be a holistic system encompassing the hot and cold food categories, medicines and illnesses. Diseases are treated by adding hot or cold foods or medicines respectively to the diet in order to restore balance. During pregnancy, women may avoid hot foods or medications, like iron and vitamin supplements, to avoid giving birth to a child with a hot illness (93). Ahlqvist has explored cultural beliefs about food and health during pregnancy among Iranian female immigrants in Sweden. Participants discussed food items in symbolic dimensions of hot, cold and neutral. Even though pregnancy was not classified as a specifically hot or cold condition, the participants' general perceptions of foods as hot and cold influenced their food choices. Participants classified green leafy herbs and sweet and fatty food items as hot, which may influence their nutritional status. For instance tiredness during pregnancy resulted in increased consumption of hot food items, which were rich in fat and sugar and low in essential vitamins and minerals (98).

However, what foods are hot or cold varies between the cultural groups and also locally (93). A quantitative study conducted in Iran proposes that cold foods should be avoided during pregnancy (100). Different pregnancy-related health and food

beliefs are found in other cultures. For instance, pregnant women of Turkish origin may have to taste every food they smell in order to avoid harm. They may also adhere to a specific energy-rich diet in the '*Lohusa*' period 40 days after birth. These practices are related to beliefs in fate and the assumption that disease and illness is determined by God/Allah (101).

4.3 Intercultural health and nutrition communication

Health communication has long been limited to the mere dissemination of health-related information by health professionals (102), but is increasingly recognised as a scientific discipline in public health and health promotion (103, 104). Health communication may be defined as '*the study or use of communication strategies to inform and influence individual and community decisions that enhance health*', p338 (105). As a scientific discipline, health communication focuses on communication strategies to develop skills and confidence for behaviour change and compliance with perceived advice among the receivers (104). These health communication strategies are approaches that are strategically applied to achieve the objective of the communication effort (104). Strategies aiming for behaviour change may recommend specific changes or the setting of short-term goals (66, 106). Health communication strategies are influenced by different theoretical approaches and can be considered *part of a tool kit* used to respond to the receiver's informational needs (94).

According to a review, publications within health communication research focus either on self-management, public health and risk communication, or on the medical interaction (103). A growing body of literature focuses on communication strategies to change health behaviours, including diet, physical activity and smoking (103, 104, 107-109). Health communication plays an important and emerging role in the prevention of overweight and diet-related diseases and the promotion of a healthy diet (64, 104). The increased, but sometimes inconsistent nutrition-related information, may indicate a need to introduce nutrition communication as a specific subdiscipline in health communication. Nutrition communication, in the context of this thesis, may be described as the study and use of interpersonal communication strategies relevant for the promotion of a healthy diet in antenatal care. Nutrition

communication links evidence-based communication strategies together with nutritional sciences (110).

Health and nutrition communication have similar aims. They aim to improve health outcomes by sharing health-related information to increase knowledge and understanding of health-related issues (104, 111, 112). Nutrition-related information includes dietary recommendations to prevent overweight and the development of diet-related chronic diseases, as well as information about food safety issues. In this thesis, nutrition-related information is specified to information about the promotion of a healthy diet in women of childbearing age in order to prevent overweight and the development of diet-related chronic diseases. However, communication efforts aim for more than simply increasing individuals' health and nutrition knowledge and understanding. They also aim to support and help receivers to sustain behaviour change and to empower⁴ individuals in health decision-making (113, 114). These aims require specific communication skills among the providers of health and nutrition-related information.

Several areas are relevant for health and nutrition communication. The personal encounter between health professionals and their clients in primary health care is an important area to promote behaviour change (104). Only a few studies have been found on issues specifically related to nutrition communication within the health professional–client relationship⁵ in primary health care (64-66, 115, 116). However, valuable knowledge may be transferable from the increasing body of literature within health communication research on the interpersonal interactions between health professionals and their patients (108, 117, 118). Risa et al., for example, analysed antenatal consultations between midwives and their clients at four diabetes clinics in Norway. The researchers structured the consultations into three phases that were distinguished by variations in the verbal interaction (67). There is a general acknowledgment that the relationship between health professionals and their clients influences the clients' satisfaction and their compliance with the received advice (104, 118, 119). In the last decades, the health professional–client relationship has been characterised by a shift from the traditional, paternalistic way of treating clients to the

⁴ Empowerment in health promotion is defined as the process of helping people to assert control over the factors which affect their health (114).

⁵ For the purpose of this thesis, the commonly cited terms 'provider–patient relationship/communication' is specified to 'health professional–client relationship/communication'.

concept of client-centredness⁶. Client-centredness involves a mutual participation with emphasis on client involvement and autonomy, and shared decision-making between the health professionals and their clients (120-122). The individual identities of the client and the health professional are integral to the ways in which their relationship is negotiated and the communication occurs (123).

Several barriers to effective communication in the health professional–client relationship have been identified (104). Ethnic and cultural differences between health professionals and their clients are often cited as barriers to effective and satisfying health communication (55, 104, 123, 124). There is a growing awareness that efforts in health communication need to address culture (75, 124, 125). A review of observational studies on intercultural doctor–patient communication⁷ found considerable differences and difficulties in communication between doctors and patients from different cultural and ethnic backgrounds (55). Cultural differences in explanatory models of health and illness, differences in cultural values, cultural differences in patients’ preferences for doctor–patient relationships, racism/perceptual biases and linguistic barriers have been identified as key predictors of intercultural communication problems. These difficulties may place ethnic minority patients at increased risk of receiving inferior care (55). Ulrey argues that intercultural communication and health professional–client communication have to be linked together (126).

The acknowledgement of ethnic and cultural differences may also be important in nutrition communication. Several authors argue that dietary changes are more likely to be acceptable if nutrition communication takes into account the possible impact of individuals’ ethnic and cultural backgrounds on their dietary habits (43, 127, 128). However, culture-sensitive nutrition communication may imply specific challenges for health professionals. Nutritional advice is often based on food groups and practices that may be very different for each food culture. For example, bread is an important staple food in the Norwegian food culture and emphasised in national dietary

⁶ The Norwegian guidelines in antenatal care refer to ‘women–centredness’ (28).

⁷ Intercultural health professional–client consultations may be defined as consultations between health care professionals and clients having different ethnic and/or cultural backgrounds, whereas intra-cultural consultations as consultations between health care professionals and clients sharing the same ethnic and/or cultural background (55).

recommendations in order to increase the intake of fibre (129, 130). Whereas, the food culture of non-Western immigrants may be characterised by other staples rich in fibre (86, 101). It is also important to consider that the nutritional content of a dish may be quite different according to the preparation method. As for many meals, a traditional Pakistani curry can be 'healthily' prepared, with an increased content of vegetables and less oil. However, to provide nutritional advice to change the nutritional content while still maintaining the meals' cultural appropriateness requires nutritional and cultural food knowledge (43, 131).

Different approaches to conceptualising culture in health communication have been proposed (61, 75, 123). These may also be applied to nutrition communication. The culture-centred approach (CCA) (123) emphasises that communication about health involves the negotiation of shared meanings embedded in socially constructed identities, relationships, social norms, and structures (108). The culture-sensitive approach (CSA) is the dominant approach in health communication. This approach sees culture as a variable which may explain obstacles to communication in the health context. CSA has been described as a *culture-as barrier approach* and conceptualises culture as a barrier to the enactment of the proposed health behaviour (61, 125).

According to Resnicow et al., culture sensitivity is '*the extent to which ethnic and cultural characteristics, experiences, norms, values, behavioural patterns, and beliefs of a target population and relevant historical, environmental, and social forces are incorporated in the design, delivery, and evaluation of targeted health promotion materials and programs*', p11 (61). CSA is an appropriate theoretical perspective for this thesis, mainly because it focuses on the influence of culture on health behaviours on the individual level. CSA assumes that health communication theories become culturally sensitive by extracting and incorporating certain aspects of cultures into the existing theories and applications of health communication (61, 125).

Cultural barriers to health and nutrition communication can be addressed by an increased emphasis on cultural sensitivity (61, 124, 132). However, health professionals need cultural competence in order to provide culturally sensitive health and nutrition communication (131, 133). Cultural competence is defined as the '*ongoing process in which the health care provider continuously strives to achieve the*

ability to effectively work within the cultural context of the client (individual, family, community)', p181 (134). The importance of cultural competence has been increasingly recognised in health communication (104, 135, 136). Health professionals' cultural competence is a critical factor in their relationships with their clients (55, 104). According to Campinha-Bacote, cultural competence involves the following attributes: awareness of one's own biases and prejudices towards other cultures, knowledge about culture in general, the ability to conduct accurate cultural assessments and interpersonal skills in cross-cultural encounters (134). Different approaches to and models for improving multicultural communication competencies have been proposed (63, 132, 137). Foronda suggests that culture sensitivity involves health professionals' knowledge of cultural differences, consideration of their clients, understanding of cultural values, respect for culture and language and tailoring of communication to meet the client's needs (132).

Cultural ethnocentricity is often considered a barrier to culture-sensitive communication (55, 138, 139). The term refers to a person's belief that his or her culture is superior to another one. Ethnocentrism may lead health professionals to disrespect clients' cultural beliefs and values. Effective health communication needs to see and appreciate the value of different cultures. Cultural relativism posits that all cultures are of equal value and need to be studied from a neutral point of view. Thus, it may be an important aspect of culture-sensitive health and nutrition communication (140, 141).

As a scientific discipline, health communication draws upon different health behaviour theories, which aim to explain health-related behaviour and suggest ways to achieve behaviour change (104, 108). There is no consensus in the literature about which theories may be best suited to particular health behaviours or particular population groups (108). However, some of these theories may have limited applications in ethnic minority groups, because they are grounded in majority culture-based research or focus on individual cognitive processes and give limited attention to cultural contexts and social structures (123, 142, 143). According to Dutta, the conceptual theories used in health communication have most often suffered from a bias associated with the predominant value of individualism in Western countries (123). These theories may have little application to populations that practice

traditional medicine and have health beliefs at odds with Western medicine in terms of the causes and cures of illness (143). For instance, Oomen et al. have found that established health behaviour models do not adequately address the unique needs of the female Hispanic population. The authors suggest that the theory should be flexible enough to address varying degrees of acculturation (144). Dutta criticises theories that focus on the individual, like the theory of reasoned action, claiming that such theories exclude other important factors, such as cultural and structural contexts. Theories of intercultural health communication should also include factors like socioeconomic status, access to resources, shifting cultural norms and community-wide decision-making (123).

4.5 Health and nutrition literacy

Some immigrant and low-income groups have been found to encounter difficulties in understanding and making use of health-promotion information (56, 107, 145-147). An individual's ability to understand and apply health information is crucial for successful health communication (76). A relatively new concept within health communication and health promotion is health literacy. Health literacy was initially limited to basic reading, writing and numeracy skills in the medical encounter (148). Later, the concept was broadened, and now the most common definitions of health literacy in the literature involve '*individual skills to obtain, process and understand health information and services necessary to make appropriate health decisions*' (148-150). Several conceptualisations of health literacy have been proposed (148). Recent discussions suggest that a distinction must be made between public health literacy and individual health literacy (76, 148). The conceptualisation of health literacy as an individual's set of capacities suggests that increased health literacy may be an outcome of interpersonal health communication (76). An individual's increased health literacy is linked to improved knowledge and understanding of health determinants, changed attitudes and motivations in relation to health behaviour and greater empowerment in health decision-making (149).

Authors stress that individuals must not only have skills, but also be motivated to understand and apply received health messages (151, 152). Peerson et al. state that

it is important to accept motivation as an integral aspect of health literacy, because having information does not necessarily entail using it to promote health (152). After reviewing current definitions and conceptualisations of health literacy, Sørensen et al. have recently suggested the following definition: *'Health literacy is linked to literacy and entails people's knowledge, motivation and competences to access, understand, appraise, and apply health information in order to make judgments and take decisions in everyday life concerning being ill, being at risk and staying healthy'*, p3 (148).

The concept of health literacy may also be relevant for nutrition communication. Even though the term *nutrition literacy* has seldom been explained in the literature, it may be used as a subconcept of health literacy, referring specifically to nutrition-related information provided to encourage appropriate dietary decisions (153). Individual's health and nutrition literacy are modifiable factors and important moderators of the relationships between communication and its objectives (104). Providing health information appropriate to the client's level of health literacy may enhance the health professional–client relationship (76, 145, 154). Improving people's access to health and nutrition information that they have the ability to understand and make use of may be a critical factor of empowerment (149). There have been increasing efforts to develop health and nutrition communication intervention strategies, which include tool kits that health professionals can use to reach groups with low health literacy levels. For instance, the use of pictures, cartoons and videos has been shown to be valuable in promoting change in dietary habits, particularly in groups with limited language skills (153, 155).

4.6 The self-determination theory

As indicated previously, the mere provision of nutrition-related information may not automatically promote healthy eating or lead to behaviour change. Successful health and nutrition communication involves an understanding of individuals' attitudes⁸ and motivations⁹ for a specific health behaviour (104, 156). Attitudes toward and

⁸ Attitudes may be defined as a person's overall positive or negative evaluation of the target behaviour (156).

⁹ SDT defines motivation as psychological energy directed at a particular goal (78).

motivations for health behaviours may be influenced by culture, ethnic background and the level of acculturation (75, 93, 157). Furthermore, both attitudes toward and motivations for food choices may vary throughout the life course (158). Attitudes and motivation are overlapping constructs within several health behaviour theories (108). The self-determination theory (SDT) focuses specifically on specific forms of individual's motivation (78).

Health behaviour theories traditionally distinguish between intrinsic and extrinsic motivations. Intrinsic motivations involve the inherent enjoyment of a specific behaviour. SDT assumes that behaviours relevant for health promotion are mainly extrinsic (78). For instance, healthy eating may not be perceived as inherently enjoyable or as more enjoyable than the unhealthy dietary practices it may be replacing (159). SDT focuses on different forms of extrinsic motivation (Figure 5) and distinguishes between autonomous and controlled forms of extrinsic motivation.

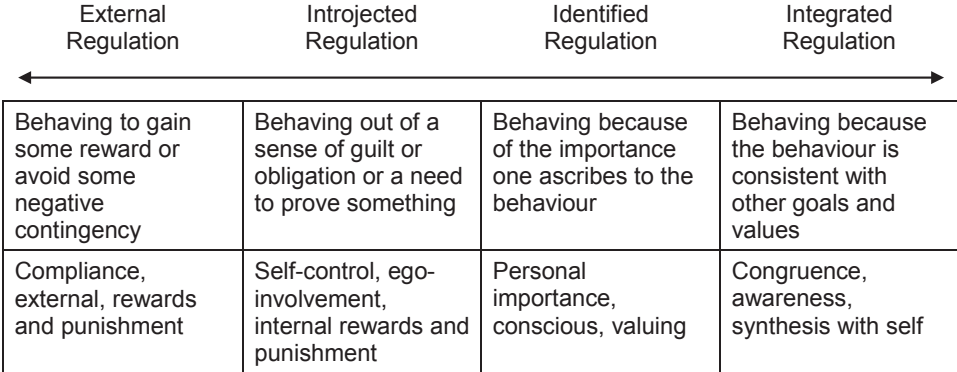


Figure 5. The extrinsic motivation continuum (160)

Autonomy implies that motivation for change is endorsed at a deep personal level and to consider behavior changes as one's own. For example, the statement '*I chose to eat healthy because it feels personally important to me to do so*' reflects autonomous motivation (161). Thus, autonomously motivated behaviours are rooted in conscious choices and personal relevance. Controlled motivations, on the other hand, originate from external forces, like social norms or family members. Internalisation describes the process by which behaviours become relatively more autonomously regulated or valued over time. For instance, the integrated motivation

for healthy eating implies that a healthy diet is part of a generally healthy lifestyle (159).

SDT may be specifically suitable to obtaining a better understanding of individuals' motivations. Whereas several theories acknowledge only the quantity of human motivation for behaviour change, SDT also emphasises their quality, which may lead to a better understanding of individuals' different forms of motivation. People whose motivations are less self-determined tend to be oriented more toward pressure and social expectations in their environment (78). Thus, SDT emphasises the role of the social environment in supporting or thwarting optional motivation (78). SDT hypothesises that in the long run people will choose to engage in those activities they perceive as self-determined, that is, as originating from their own decision rather than from external pressure. SDT suggests that change arising from integrated regulation may be more stable and enduring than change arising from external motivation (78). Thus, health communication should aim to increase the self-autonomy of individuals' motivations (160).

5. Methodology

5.1 Choice of methodology

The empirical material for this thesis derived from qualitative, individual interviews. Qualitative research is appropriate when the aims of the research are novel, not well understood and complex (162-164). Qualitative interviews were well placed to investigate participants' perceptions and experiences in regard to the aims of this thesis. For instance, little is known about immigrants' experiences with Norwegian food, and no previous studies have investigated nutrition communication in antenatal care in Norway. Previous studies based on qualitative interviews have provided valuable insights into cultural and social factors related to food behaviour (165-167). Qualitative interviews are also increasingly applied and acknowledged in health communication research (168, 169). Findings from qualitative research can provide useful explanations of associations between attitudes, behaviours and experiences and can aid the development and testing of strategies in health communication (169).

Individual interviews are commonly applied in study populations for which information is sparse and difficult to obtain (162). Individual interviews gave me the opportunity to gather sensitive and nonverbal information, which may be unattainable through quantitative methods (170). Additionally, participants considered hard to reach could be included in the studies. Participants with immigrant backgrounds and limited language skills are often excluded from research projects and national dietary surveys due to methodological challenges or recruitment problems (171-173). However, it is important to obtain experiences from ethnic minority groups in order to realise cultural sensitivity in health-promotion initiatives (128).

Figure 6 gives an overview of the two substudies conducted for this thesis. The first paper of this thesis derives from substudy 1, in which participants were interviewed once. Papers 2 and 3 stem from substudy 2, which followed a longitudinal approach in order to investigate participants' experiences throughout their pregnancies. Paper 2 (n=17) derives from the two interviews conducted during pregnancy, whereas paper 3 (n=16) additionally included the postpartum interviews.

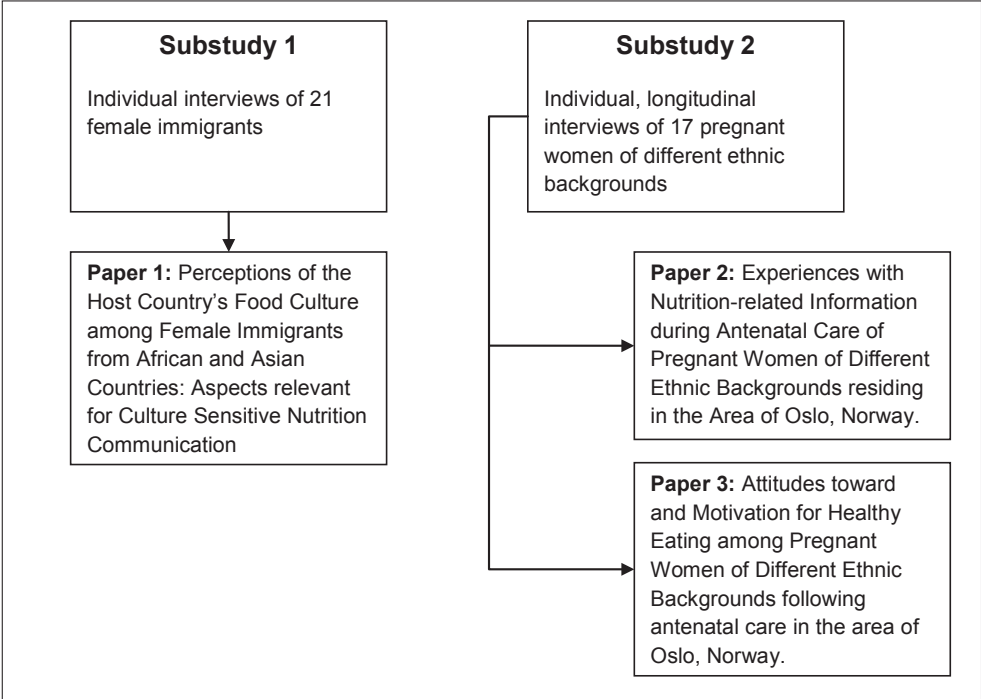


Figure 6. Overview of the thesis' substudies

The research process was inspired by a phenomenological approach (164, 174). This approach is suitable and valuable for exploring individuals' experiences and perceptions (164, 175). Previous authors have used a phenomenological approach to understand how adults construct food-choice decisions and to study the complex interaction between attitudes toward healthy eating and associated behaviours (50, 176-179).

Phenomenology, as a philosophical perspective, acknowledges human experience as a valuable source of knowledge and holds that understanding can emerge from people's lived experiences (163, 174). Van Manen describes the value of phenomenology as follows: '*to borrow experiences from others allows us to become more experienced ourselves*' p62, (180).

A phenomenological perspective may imply that the researcher sets aside prior assumptions about and personal interpretations of the phenomena under investigation (181). This approach, called *bracketing*, aims to provide an objective description of individuals' experiences. Researchers using a hermeneutic phenomenological approach interpret the participants' constructions of their world. This approach acknowledges the active role of the researcher in the research process (182). Throughout this thesis, I have remained aware my active role in the research process. For example, my educational background as a nutritional scientist influenced the interview questions. Thus, it was difficult to give an entirely objective description of the experiences of the study participants. I became inspired by interpretative phenomenological analysis (IPA), a recently developed and rapidly growing approach in qualitative research (164). IPA is considered valuable for investigating how individuals perceive particular situations and how they make sense of their personal and social world (164). IPA is phenomenological in that it seeks an insider perspective on the lived experiences of individuals. The other underpinning of IPA comes from hermeneutics, the theory of interpretation, which suggests that IPA acknowledges the researcher's personal beliefs and standpoints and embraces the view that understanding requires interpretation (164). IPA acknowledges the active role of the researcher in making sense of the participants' experiences (179). With respect to health communication research, Britten states that an interpretative orientation of qualitative research emphasises '*investigating the meanings that*

different participants in communication bring to and take away from a particular conversation or consultation' p385 (169).

5.2 Participant recruitment and characteristics

The recruitment aimed to include participants who have had experiences relevant for the aims of the substudies (183). The recruitment strategy varied during both substudies (175). Participants in substudy 1 were recruited by a researcher colleague (LT, sociologist) and myself at women's centres run by nongovernmental organisations, and at open kindergartens. The recruitment was carried out from June 2010 to February 2011. We started with a relatively flexible recruitment strategy. The predetermined criteria were women who had immigrated to Norway from non-Western countries and who could remember their original food practices. After some interviews, recruitment was conducted with the stricter purpose of elaborating some of the emerging themes. For instance, in order to investigate the impact of participants' family members on their perceptions of Norwegian food, only mothers living with children were included in the final phase of the study. Recruitment was carried out until the interviews achieved replication of response.

A total of 21 participants from 11 African and Asian countries were included in substudy 1. They varied in age (25 to 60 years), years of residence, employment status and marital status (see Table 1). Most of the study participants (n=17) lived with their children. Only one study participant did not have children. The majority of the participants (n=15) were in a relationship or lived together with their husband. The participants and their partners had the same country of origin. The partners often had arrived in Norway before the participants. Information on participants' socioeconomic status was not obtained. However, the recruitment sites and participants' areas of residence in Oslo, which were characterised by a population having a low-to-middle socioeconomic status, indicated their lower socioeconomic status.

Table 1 Characteristics of the participants in substudy 1

Characteristics	Number of participants
Country of origin	
Algeria	1
Egypt	1
Iran	1
Iraq	3
Lebanon	1
Morocco	1
Pakistan	4
Somalia	4
Sri Lanka	3
Turkey	2
Years of residence in Norway (years)	
0 – 5	2
5 – 10	8
10 – 20	6
> 20	5
Employment status	
Housewife	2
Full or part-time employment	9
Internship related to language training	3
Job seeker	1
Student	3
Retired	3
Marital status	
Unmarried	1
Married	15
Divorced	4
Widow	1

The participants in substudy 2 were recruited by midwives at eight MCHCs in Oslo and Akershus. Recruitment started in October 2010 and lasted until July 2011. The last interview was conducted in April 2012. Participants were purposively recruited according to the following criteria: ethnic background from the largest immigrant groups or ethnic Norwegian background, first pregnancy, pregnancy < 20th week, age > 16 years and pre-pregnancy overweight status. The pre-pregnancy overweight status was self-reported and based on BMI > 25 kg/m² (184). Women with diagnosed diseases, like diabetes type 1 or allergic diseases that could influence their diet were not included in the study. One of the main problems encountered relative to the planned study design was, that the first consultation with the midwife was after the 20th week of pregnancy. In addition, several midwives experienced difficulties telling their clients that they would be suitable for the study because of

their overweight status. Due to these recruitment problems, inclusion criteria became more flexible and women later in their pregnancy (pregnancy < 30th week) were included. Primarily, participants should originate from the largest non-Western immigrant groups. However, due to initial results from substudy 1, in which similar themes emerged across participants' ethnic backgrounds, women originating from other developing non-Western countries were included. Recruitment was carried out until researchers achieved a detailed and information-rich description of the phenomena under investigation (164).

Substudy 2 was conducted among 17 participants. Participants varied in age (19 to 38 years) and ethnic background. They were either ethnic Norwegian (n=5), foreign born and immigrants to Norway (n=10) or Norwegian born with immigrant parents (n=2). As illustrated in Table 2, some of the participants with immigrant backgrounds had resided in Norway for only a short time (< 1 year) and had limited Norwegian language skills. One participant was a refugee. The majority of the participants (n=10) had higher education (3 to 5 years educated at a University College or University). Most of the participants (n=12) were employed full- or part-time. Participants with immigrant backgrounds varied in terms of years of residence in Norway. Participants were either married or in a relationship. The partners of the participants had either immigration backgrounds from the same country of birth (n=10) or were ethnic Norwegian (n=7). Information about participants' socioeconomic background was not obtained in this study. However, the researcher observed varied socioeconomic status among the participants. The majority of the study participants (n=11) received shared antenatal care from their general practitioner and a midwife. Six study participants consulted a midwife only. Participants met the midwife about four times during the study period. All the participants had at least one of the risk factors for the development of GDM as outlined in the national guidelines for antenatal care. Fifteen participants had a pre-pregnancy overweight status (BMI 25-29 kg/m²), and 3 participants were obese (BMI ≥ 30 kg/m²) (184). All had been screened for GDM by an oral 75 g glucose load test, but only one participant was diagnosed with GDM. For further details about participants' background see Table 2.

Table 2 Characteristics of the participants in substudy 2

Characteristics	Number of participants
Ethnicity	
Ethnic Norwegian	5
Norwegian-born to Pakistani born parents	2
Foreign born and moved to Norway*	
Albania	1
Algeria	1
Pakistan	1
Russia	1
Sri Lanka	1
Somalia	3
Thailand	1
Turkey	1
Years of residence in Norway (n=10)	
0-1 year	2
1-5 years	3
5-10 years	4
> 10 years	1
Education	
Primary school (1-7 years) or less	2
Lower secondary school (8-10 years)	2
Upper secondary school (11-13 years)	3
Higher education (3 to 5 years at University or College)	10
Employment status	
Unemployed	2
Full or part time employed	12
Language training course/education	3

5.3 Interviewing

Semi-structured interview guides were used in both substudies (see Appendices 1, 2). A semi-structured interview may be described as having a framework of planned themes with flexibility for their order and for new themes to arise during the interview (164). In line with the study's phenomenological approach, participants were asked to describe their perspectives and experiences related to the specific aims of the substudies (174, 180, 185). The themes in the interview guides were discussed with research colleagues within the SOMAH-project and further developed throughout the research project. The interview guides for all substudies were pilot-tested.

In substudy 1, the individual interviews were conducted by my colleague and co-author (LT, sociologist). I participated in all of the interviews and conducted the last

interview alone. The interviews were conducted at the recruitment sites. As mentioned above, some changes were made in the interview guide during the research process. For instance, after the first interviews, the interview guide became more focused on possible markers for culturally appropriate foods. Interviews were conducted in Norwegian. English was spoken in some situations when language difficulties arose.

I conducted the longitudinal interviews of substudy 2 at MCHCs, and at participants' work sites or homes. Fifteen participants were interviewed twice during their pregnancy. Two participants were only interviewed once during their pregnancy due to pre-term delivery. The interviews conducted during pregnancy were used for paper 2. The postpartum interviews were included in paper 3. Sixteen participants were interviewed approximately three months after giving birth. Sadly, one participant died due to pregnancy complications, resulting in 48 interviews (paper 3). Initially, the first interview should have been conducted in the 11th to 20th week of pregnancy, allowing for at least three months between interview 1 and 2 in order to study changes during the pregnancy. However, many women started antenatal care at MCHCs later in their pregnancy. Participants' first visit to the MCHC fell between the 13th and 25th week of pregnancy (average: 19th week). The interview guides of the three interview rounds were similar. Most of the interviews were conducted mainly in Norwegian and only a few were conducted entirely in English. I aimed to ask open-ended questions in order to let participants describe their experiences in their own words (164, 174). This approach was also useful for gathering information about themes that were not included in the initial interview guide. Interviews usually started with introductory questions like '*Can you tell me what you ate yesterday?*'. Participants sometimes introduced themes that were not included in the interview guides. Questions on the specific themes of interest were sometimes asked in order to direct the interview towards the main topics in the interview guide. Throughout the interviews, questions calling for elaboration, such as '*Could you say something more about that?*' were asked to achieve a better understanding of the participants' experiences.

5.4 Interview transcription and analysis

I tape-recorded and transcribed all of the 69 interviews and 3 pilot interviews. The interviews were transcribed verbatim. All words spoken by the interviewer (M for moderator) and the participants (I for interviewee) were transcribed (see Figure 7). During the interviews, notes were taken about participants' body language, their clothing, foods served during and after interviews, and other circumstances surrounding the interviews. Significant pauses and emotional expressions like '*(laughing)*', '*(almost crying)*' were indicated in the transcripts. Insecurities about the right understanding of participants' accounts due to poor language skills or disturbances on the tape records were indicated with '*(...?)*'.

7.1
[Notes on background information and interview setting]
40 min 32 sec
...
M: Are there differences between Pakistan and Norway when it comes to overweight?
I: Hm, like when you come to Norway it is normal for you to gain almost 5-6 kg, because there is much difference in the diet and temperature. And in the seasons, you don't get any sweat here. Specially, if you don't exercise, Hm, but in Pakistan like it is much summer season there and you are always sweating (?), but that is, Hm, like very much easier there to lose weight. But Norway, it is much easier to gain weight and very difficult to lose.
M: Ja, so did you experience the same, that you've gained weight in?
I: Now, ja. I have experienced. It was almost 5 kg I've gained after coming here, before pregnancy.
M: before pregnancy, ja. And what do you think about it? Did you like it or?
I: No. No I don't like it. (laughs) like I, now, I was saying that after having my baby I shall lose my weight.
...

Figure 7. Example of interview transcript substudy 2.

The interviews were transcribed within a few days after being conducted. After the interviews were transcribed, I listened again to the tapes in their entirety in order to identify discrepancies or mishearings (174). Other researchers compared a random section of the audio-tapes with the transcripts to ensure the accuracy of the transcription.

Conducting interviews, transcription and analysis proceeded in parallel throughout the entire research process. Three researchers (the co-authors of the papers) were involved in data analysis and interpretation of the findings. Data analysis for the three papers was inspired by an (interpretative) phenomenological approach (164, 174, 179, 186). Analysis for paper 1 was guided by Kvale's descriptions of a phenomenologically inspired method (174, 186). Analysis for paper 2 and paper 3 was inspired by IPA (164).

The analytical procedure for the three papers started with an initial reading of each participant's transcripts. From my point of view, the repeated reading of each participants' interviews gave me a holistic impression of the participants that was valuable for the more detailed analytical steps. For instance, it may be difficult to obtain the meaning of isolated phrases or sentences without further knowledge of the participants. The initial reading was followed by a generation of themes at three ascending levels. Different analytical language for the level of themes was used: the terms 'meaning unit', 'codes' and 'categories' in paper 1 are comparable to the terms 'themes', 'sub-themes' and 'super-ordinated themes' in paper 2 and 3.

In the following, the analytical steps of paper three will be described. Analysis for paper 3 included the interviews during and after pregnancy. Two participants were interviewed only once during pregnancy due to a pre-term birth, resulting in a total of 46 interviews. Analysis was inspired by the principles of the interpretative phenomenological analysis and Fade's description of its application in public health nutrition and dietetic research (164, 179, 182).

Due to the larger scale, analysis for paper 3 included an additional step in the beginning of the analysis. A summary with initial notes was written for each participant. This summary included important themes to follow up on throughout the three interview rounds, preliminary interpretations or notes on connections between participants' statements from the follow-up interviews (164).

The following detailed case-by-case analyses and interpretations of each participant's interviews involved to:

- 1) Identify and name the themes:

In this step the initial notes were transformed into themes and new themes were identified. A qualitative software program, Atlas.ti (version 6.2.15) was used to identify and manage the themes. Smith suggests that it is important at this step for the researcher to check one’s own sense-making against what the participants actually said (164). Whereas the preliminary list of themes was developed across all the transcripts in paper 2, this analytical step was now performed for each participant separately. Themes were words or short phrases which were either abstracted directly from the transcripts or phrases that represented an initial interpretation by the researcher (see Figure 8).

Theme: Husband wants her to eat more fruits (2-0)

P19: 7.1-240211.docx - 19:13 [I: ja I mean my husband wants me...] (126:126) (Super)

I: ja I mean my husband. He says so. Ja mainly he is. Ja, he also stresses that I should eat, hm, more fruits. He doesn’t want me to get too big. (laughs)

Figure 8. Example of identifying themes in paper 3

2) Create a preliminary list of themes for each participant:

The themes for each participant were transferred from Atlas.ti to a Word document (see Table 3).

Table 3. Example of summary of themes for one participant in paper 3

<hr/> <p>HU: AnalyseA3 File: [C:\Users\Lisa\Documents\Lisa\THCH\DP4\Artikel3\AnalyseA3.hpr6] Edited by: Super Date/Time: 2012-06-08 14:16:45</p> <hr/>		
Interview 1	Interview 2	Interview 3
<p>Started to eat healthier My husband doesn’t want me to get too big I don’t know Norwegian food Later I want to eat healthy to look smart Husband wants me to eat more fruits, so I do it. You get a healthy baby when you eat healthy I want to be as thin as Norwegians My mother in law doesn’t want me to eat fish [...]</p>	<p>I am afraid of my mother in law My husband wants me to lose weight after pregnancy I should eat healthy I feel that I eat healthy enough Everything is more difficult in the first pregnancy I would need some more knowledge of healthy food I’ve hided some fish at home Prefers Pakistani food I always forget my doctor to ask what I should eat [...]</p>	<p>My mother in law gave me some kind of creamy foods after giving birth I tried to eat healthy during pregnancy I eat everything I want now My husband wants me to lose weight Overweight is more common in Pakistan [...]</p>

3) Look for connections between the themes and cluster them accordingly:

This step was guided by the specific research questions in paper three. For instance, all themes that could be related to the participants' attitudes (e.g. *'started to eat healthier'*, *'I should eat healthy'*) or motivations (e.g. *'my husband wants me to eat more fruits, so I do it'*) toward healthy eating were grouped together.

4) Name the clusters representing sub-themes and create a list of subthemes for each participant:

The clusters of themes were named representing sub-themes. The sub-themes either represented participants' phrases in the interviews or the researcher's interpretations. For example, the themes *'my husband wants me to eat more fruits, so I do it'* and *'I want to be as thin as Norwegians'* were clustered together, representing the sub-themes *'strives to fulfil expectations from her social surroundings'*. At this step, sub-themes concerning participants' motivations for healthy eating were interpreted and clustered in light of SDT. Thus, *'strives to fulfil expectations from her social surroundings'* was interpreted as externally regulated motivation. The interpretations of the sub-themes were discussed with the co-authors.

5) Look for connections between the sub-themes:

After creating a list of sub-themes for each participant, the sub-themes concerning their attitudes and motivations were related to each other. For instance, *'strives to fulfil expectations from her social surroundings'* was related to *'should eat healthily during pregnancy'*.

After looking for connection between each participant's sub-themes individually, the sub-themes of all of the participants were related to each other and summarized. The lists of sub-themes were discussed with the co-authors.

In contrast to the analysis in the other papers, the analysis for paper 3 was conducted for each participant separately up to this analytical step. Conducting the analysis was inspired by the IPA case-by-case study approach (179). This approach helped me to focus with greater specificity on individuals' experiences before I related the identified sub-themes to those from other participants.

6) Arrange the sub-themes into super-ordinate themes:

The three super-ordinated themes which were identified were: 1) pregnancy as a reason to turn to healthier eating behaviours (*the healthy changers*); 2) healthy eating only during pregnancy (*the temporary healthy forcers*); and 3) pregnancy as a ‘time-off’ from healthy eating (*the unhealthy vacationers*). The super-ordinated themes presented sub-themes shared across all of the respondent’s data (164, 179).

Back to the example described in the previous steps, the sub-themes ‘*strives to fulfill expectations from her social surroundings*’ and ‘*should eat healthily during pregnancy*’ characterised this participant as a ‘*temporary healthy forcer*’, see Table 4. The detailed list for all the super-ordinated themes and sub-themes is attached in paper 3.

Table 4. Example of list of super-ordinate themes and sub-themes in paper 3

Super-ordinated theme: Healthy eating only during pregnancy	Sub-themes related to attitudes	Sub-themes related to motivations
The Temporary Healthy forcers	Relaxed towards unhealthy eating behaviors prior to pregnancy Taste preferences determined eating behaviors prior to pregnancy “Forces” herself to eat healthy “Should” eat healthy during pregnancy “Free” after pregnancy Concerned about weight during pregnancy Differentiates herself from “Norwegian” pregnant women (thin) Adjusts her eating habits to oral glucose tests [...]	The health of the offspring Adheres to advice from health professionals Concerned about gestational diabetes Strives to fulfill expectations from her social environment Weight management to avoid a too big baby Difficult to plan a healthy diet after given birth Healthy eating to avoid weight gain during pregnancy [...]

5.5 Ethical considerations

The empirical material of this thesis derived from participants' accounts of their personal experiences (180). In order to ensure confidentiality, ethical issues were considered throughout the entire research process (174, 187).

Substudy 1 was subject for notification to the Norwegian Social Science Data Services (NSD), the data protection official for research for Norwegian universities and university colleges, in accordance with the Personal Data Act (188). See Appendix 3 for a copy of the approval in Norwegian. Person-identifying information, such as participants' names or place of residence, was removed during the transcription process in order to anonymise the transcripts.

Substudy 2 was under the scope of the Act on Medical and Health Research (189) and required approval from the Regional Committee for Medical and Health Research Ethics of East-Norway (REC South East). See Appendix 4 for a copy of the approval in Norwegian. The different application procedures were necessary because of the studies' aims and settings (substudy 2 was conducted within the primary health-care system and concerned human health-related behaviour), the characteristics of the studies' participants (substudy 2 was conducted among pregnant immigrant women) and the background data collected (in substudy 2 personal health data, such as BMI, was collected). Data in substudy 2 was de-identified in order to arrange subsequent interviews. The participants' names were replaced by numbers and the connection code was kept on paper in a locked drawer. Transcripts did not contain directly person-identifiable data. A code number linked the participant to the data through a list of names. This list was stored separately from other information gathered during the study process. According to the approval, this list will be deleted at the end of 2013. The study participants in substudy 2 received 500,- NOK as reimbursement for their participation. According to the Council for International Organisations of Medical Sciences (190), participants may be reimbursed for lost earnings, travel costs and other expenses incurred in taking part in the study.

Participants in both substudies received oral and written information about the purpose of the studies as well as what the studies entailed (see Appendices 5, 6). All of the study participants gave their informed (oral or written) consent to participate in the study. The informed consent for substudy 2 was also available in English, Urdu, Arabic and Somali. Participants were informed of their right to withdraw from the study at any time and that they were not required to respond to questions with which they felt uncomfortable.

Some participants of this thesis may be considered as members of vulnerable groups due to their ethnic and racial minority background, unemployment or refugee status. Sensitive data, like health information and racial and ethnic background (188, 190), was obtained during the interviews. In substudy 2, it was important to protect not only the confidentiality of the participants, but also that of the midwives involved in the recruitment process. Thus, information about the specific MCHCs where participants were recruited was anonymised and no information was stored that could link the participant to a specific midwife. The ethical requirements of the researcher also involve an accurate and representative publishing of the findings (174).

6. Findings

Summary of the findings of the papers

Paper 1: Perceptions of the Host Country's Food Culture among Female Immigrants from Africa and Asia: Aspects relevant for Cultural Sensitivity in Nutrition Communication.

Individual interviews were conducted with the 21 participants with immigration backgrounds from African and Asian countries who varied in age, years of residence, employment status and marital status. Participants perceived the Norwegian food culture as '*tasteless and boring*', '*simple and time-saving*', '*not filling or proper meals*', but also '*healthy*' and sometimes '*healthier*' than their original food culture. Most participants emphasised that continuity with their original food culture was of utmost importance. Three patterns of dietary acculturation were found. *Strict continuity*

pertained when participants preserved their original food culture at every eating event, irrespective of time of day, day of week or special occasion. Participants following *flexible continuity* adhered less strictly to their original food culture while simultaneously adopting some of the host country's food culture. *Limited continuity* involved adoption of the host country's food culture and maintenance of their original food culture for special occasions only. Examples were given in which migration led to either less healthy or healthier dietary practices. Religious dietary rules, taste, and food preparation effort and method were identified as important markers for culturally appropriate meals. Participants' strategies for preserving important aspects of their original food culture included the use of food items similar to those in their original food culture. In this context, participants valued the increased availability of ethnic foods. Furthermore, participants transformed novel ingredients and previously unknown dishes or dishes regarded as tasteless into culturally appropriate meals by adding spices. The uncertainty about whether the food in the host country was halal led some participants to avoid food items that could be affected by religious rules.

Paper 2: Experiences with nutrition-related information during antenatal care of pregnant women of different ethnic backgrounds residing in the area of Oslo, Norway.

This paper included individual interviews with 17 pregnant women interviewed twice during pregnancy. Participants varied in age, educational and ethnic background. They were either ethnic Norwegian (n=5), foreign born and immigrants to Norway (n=10) or Norwegian born with immigrant parents (n=2). Participants often experienced the nutrition-related information received during antenatal care as unspecific and presented in very general terms. Another emerging theme throughout the interviews was that participants perceived that they received nutrition-related information too late in their pregnancy. Even though participants had a higher risk for the development of diet-related chronic diseases, the information received focused more on food safety rather than weight management and the long-term prevention of diet-related chronic diseases. In this context, the researchers observed a lack of awareness among the participants that overweight and excessive gestational weight gain during pregnancy may increase the women's and the offspring's future risk of

diet-related chronic diseases. Some participants perceived conversations about dietary habits and weight status as sensitive topics. With regard to experiences of nutrition-related information during antenatal care, researchers observed some possible differences related to the participants' ethnic backgrounds. For instance, participants with immigrant backgrounds appeared to be confused about information given by the midwife that was incongruent with their original food culture and experienced contradictory advice as challenging.

The participants appeared to be receptive to nutrition-related information received during antenatal care. They were actively seeking nutrition-related information elsewhere, especially in the beginning of the pregnancy. Analysis of participants' nutrition-information seeking behaviours showed that they navigated between different sources of nutrition-related information: information provided in antenatal care settings, information retrieved from the Internet and information received from their social surroundings, that is, from friends, colleagues or family members. The latter was especially common among participants with immigrant backgrounds. Towards the end of pregnancy, participants often experienced an information overload as they were provided with a great deal of information on different topics. Some stated that they experienced difficulties remembering the health-related information received.

Paper 3: Attitudes toward and motivations for healthy eating among pregnant women of different ethnic backgrounds following antenatal care in the area of Oslo, Norway.

This paper included individual interviews with 16 pregnant women interviewed twice during pregnancy and once three months after giving birth. Participants varied in age and in educational and ethnic background. They were either ethnic Norwegian (n=5), foreign born and immigrants to Norway (n=9) or Norwegian born with immigrant parents (n=2). This paper illustrated that pregnant women can be heterogeneous in terms of their attitudes toward and motivations for healthy eating. All the participants reported changes in their attitudes toward and motivations for healthy eating during pregnancy. Participants appeared to be concerned about healthy eating at some stage, but pregnancy itself did not necessarily become a motivation for healthier

eating. Three groups of participants with different attitudes toward and motivations for healthy eating emerged from the data and were named as follows: *the healthy changers* became more concerned about healthy eating and aimed to continue with healthy eating after pregnancy; *the temporary healthy forcers* tried to eat healthily only during their pregnancy; and *the unhealthy vacationers* perceived pregnancy as a 'time-off' from healthy eating. Ethnic Norwegians and participants with immigrant backgrounds were represented in all of the groups, and no patterns regarding participants' ethnic backgrounds were observed. Immigrant women emphasised a wish to continue, to a varying degree, with dietary habits and foods from their country of origin. They perceived their pre-pregnancy weight gain as a consequence of moving to a more affluent country.

The three groups could be interpreted as having motivations with varying degrees of self-autonomy. *The healthy changers* often mentioned an interest in their own health as a motivation for healthy eating, whereas *the temporary healthy forcers* tended to relate their motivations for healthy eating only to the pregnancy. They were often influenced by their family members or health professionals and strove to fulfil social expectations. *The unhealthy vacationers* lacked any motivation to eat healthily during pregnancy. They were characterised by episodes of dieting prior to pregnancy and expressed dissatisfaction with their pre-pregnancy body weight.

7. Discussion

7.1 Methodological considerations and limitations

Qualitative individual interviews were a suitable and valuable approach to investigating the overall aim of this thesis and the specific aims of the three papers. This approach was useful to investigate rarely explored phenomena, like immigrants' perceptions of the Norwegian food culture and the meanings they attributed to their food habits. The phenomenological focus on participants' experiences provided new insights into topics which had not been investigated in the same context, in this case, the nutrition communication in antenatal care at MCHCs.

Qualitative research aims to investigate and to provide an understanding of participants' experiences in the settings where they occur (191). Studying experiences, inspired by a phenomenological approach, is about *being there* (192). Interviewing gave me the opportunity to meet participants at their job sites, women's cafes or homes and provided insight into their everyday lives. Notes were taken on participants' body language and clothing and the food served during or after the interview. Being present at MCHCs and meeting midwives gave valuable impressions about antenatal care that were not obtained in the interviews. Thus, even though no observation studies were conducted within this thesis, important nonverbal information was gathered during the research process. This information and my personal impressions may have influenced the interpretation of participants' accounts (164).

Qualitative research does not aim to eliminate the researcher's personal bias (164). Instead, researchers should account for how their background influenced the research process (193). The personal and educational of the researchers involved in the substudies influenced the research process. For instance, the naming of themes reflected personal interpretations of participants' statements. The described barriers to nutrition communication in this thesis were either directly mentioned by the participants or interpreted by the researchers as possible barriers. A limitation of the findings of the substudies may be that other researchers could have come to different interpretations of the participants' accounts. The theoretical perspectives of this thesis have influenced the interpretation of the participants' accounts. Whereas phenomenological analysis is often solely descriptive (194), the aim of my analysis was to go beyond a description of what was directly said to work out structures and relations of meanings not immediately apparent in the text (174, 195). It has been argued that a text never has only one meaning (196), and that a definitive interpretation is likely impossible (197). Others may not share an interpretation, but they should be able to understand how the researcher arrived at it (198). Green and Thorogood relate the reliability, or consistency (174), of the findings to the repeatability of the interpretation (195). This issue was addressed by involving other researchers in the interpretation of the participants' accounts.

There is an ongoing discussion about the application and generalisability of qualitative research findings (199, 200). Van Manen, for instance, states that the only generalisation allowed in phenomenology is to '*never generalise*' (180). The generalisability of qualitative research results may be described as transferability (201), meaning the extent to which findings from the data can be transferred to the wider population and other situations (195). The findings of this thesis may be transferable only to groups with similar characteristics and in a comparable context, but not to the population at large. However, the aim of the thesis was not to generalise, but to provide a contextualised understanding of individual experiences (199). This aim may be comparable to Campbell's proximal similarity model (202), which supports transferability to those people with similar characteristics to the study participants and to settings similar to where the study was conducted. For instance, findings from substudy 1 on the perceptions of Norwegian food may be applicable to women with similar immigration backgrounds, but not for the entire immigrant population in Norway. A detailed description of the research setting, characteristics of the participants, analysis and interpretation of the findings (201) is important in order to allow for context-specific generalisation and to let the reader evaluate the transferability of the findings (199). In the previous section, I aimed to provide sufficient background information about the study participants while protecting their personality. In the papers, it was challenging to provide sufficient background information about the participants due to the word limitations of the journals in which they were published.

The wider application of qualitative research results is often questioned due to the small sample sizes (203). Determining the adequate sample size in qualitative research depends on the aim of the study and the quality of the information obtained during the interviews (193, 203). The latter may be described as sampling adequacy, which means that sufficient data to account for important aspects of the phenomenon have been obtained (183). Both substudies had sample sizes typical and appropriate for qualitative individual interviews (164, 204). In substudy 1, recruitment was carried out until we observed replication of response and no new themes emerged from the interviews. This approach is comparable to what Lincoln and Guba describe as informational redundancy, and requires that sampling is continued until no new information is forthcoming (201). In substudy 2, recruitment was carried out until a

richness of individual cases was reached (164). This means that we did not experience informational redundancy or a meaning saturation point. On the contrary, we felt to have obtained a lot of valuable information from participants and that interviews with new informants revealed even more relevant themes. The quality of information obtained from the interviews is more important than the number of participants (203, 205). Thus, after interviewing 17 participants, we decided to terminate the recruitment process so that I could analyse the participants' interviews in detail. This different experience I have made in the sampling process of the two substudies may be a result of the broader research aim, the study design and the openness of the study participant in substudy 2.

Whether or not information can be applied beyond the study setting may depend on the trustworthiness of the results. The trustworthiness of an interview depends on several factors, and there is no consensus regarding the criteria for assessing the quality of qualitative research findings (200). In this thesis, efforts were made to establish the trustworthiness of the findings throughout the entire research process. First of all, a research design appropriate for the aim of the study was chosen. Furthermore, an important attribute of trustworthiness is credibility. Credibility refers to whether the researcher's interpretation and presentation of the participants' accounts are credible (201). We addressed credibility using the following techniques: researcher triangulation (205), which refers to the discussion of themes with the other authors; external auditing with colleagues with backgrounds in midwifery (201); and member checking, in which identified themes were discussed with the participants' peer groups at the recruitment sites (201, 206). For instance, participants in substudy 2 were directly asked about their perceived barriers to nutrition communication in antenatal care. Additionally, researchers also identified possible barriers from the interviews. Thus, participants were informed of the researcher's interpreted barriers in the postpartum interviews. Furthermore, the prolonged engagement and repeated meetings with the subjects helped to enhance the credibility of the findings. Transparency of the research process, including information on how the researcher influenced the research process, was another factor that strengthened the trustworthiness of the findings of this thesis (175, 193, 200). In this regard, it is also important to provide the reader with detailed information about the interview guides (see Appendices 1 and 2) and the analytical process. The latter is particularly

important since there is no standard method for analysis of qualitative interviews (174, 185, 204). A step-by-step description of the analytical process is presented in every paper and further elaborated in this thesis.

A possible limitation of this thesis is that the participants in both substudies were very heterogeneous in terms of their ethnic backgrounds. Intercultural communication and intervention studies are often conducted with a single ethnic minority group (123, 207, 208). In order to obtain rich descriptions of how women from different cultures perceive the interrelationships between diet, weight gain/obesity and health, ethnic Norwegian women were included in this substudy 2. It is, however, important to note that interviews conducted with a specific ethnic group may have revealed more culturally specific core values in this group. Focusing on a specific ethnic group is comparable to what Dutta describes as a culture-centred approach to studying culture in health communication (123). This approach aims to identify the characteristics of a cultural group that would best support the development of successful health messages (125). Successful interventions following this approach are reported in the literature (208-211). However, the heterogeneous ethnic and educational backgrounds of the participants in this thesis may represent the clients of the health professionals in antenatal care. Another important factor, which will be discussed later, is that groups within a specific culture may vary in the extent to which they value and live according to their culture.

Language difficulties certainly influenced the quality and interpretation of the interviews. The interviews of both projects were conducted in English or Norwegian and without the help of an interpreter. Collecting data across several languages and cultures may be challenging. It may be assumed that the limited language skills of some participants' might have limited the richness of their expressions. Squires states that phenomenological studies are not amenable to cross-language designs that use interpreters, because participants' use of language to describe their experiences is an integral part of their identities (212). Thus, the use of an interpreter implies an additional step of interpretation and may give rise to methodological challenges in qualitative research (213, 214). Inconsistent or inappropriate use of translators or interpreters can compromise the trustworthiness of qualitative data (212). The longitudinal approach in substudy 2 helped to clarify language problems.

Additionally, I experienced that the prolonged and repeated engagement with the participants in substudy 2 provided deeper insights due to a strengthened relationship with the participants.

A final limitation of this thesis was the lack of participant triangulation (205). Interviews among health professionals may identify other barriers to nutrition communication in antenatal care. Interviews among health professionals were conducted by other researchers in the SOMAH-project, but have not yet been published. Previous studies in which both health-care professionals and the receivers of health communication were interviewed have provided valuable results (54, 67, 115, 207).

7.2 Discussion of findings

In this section the possible barriers to nutrition communication as presented in the three papers will be discussed collectively. The section ends with a discussion of how these barriers can be addressed by nutrition communication approaches in antenatal care.

7.2.1 Barriers related to participants' preferred food culture

Participants with immigrant backgrounds in both substudies valued continuing with their original food culture. The importance of continuing with the original food culture in a new food environment has been found in previous studies, highlighting food as an important marker for ethnicity and cultural belonging among immigrants (72, 158, 215, 216). For instance, in a study of Hmong mothers in a low-income community in the US, participants stated that '*Hmong food describes who we are, what we eat, what we do and where we are from*', p201 (217). Interestingly, participants in substudy 2 who were born in Norway to two Pakistani-born parents also emphasised continuing with food practices from their parents' original food culture. This wish has likewise been found among young adults born in the Netherlands to Turkish and Moroccan parents (127).

However, participants in both substudies adhered to their original food culture to varying degrees. The most commonly observed dietary acculturation pattern in both substudies could be described as '*flexible continuity*'. This pattern was characterised by adhering less strictly to the original food culture by adopting some of the host country's food culture. Examples were given in which practices from the original and the host's food culture were combined during the day and even in the same meal. Several other studies have investigated this flexible, or bi-cultural, approach to food practices after migration (43, 127, 218). Also, participants in the Oslo Immigrant Health Study who originated from Pakistan and Sri Lanka described their food patterns as a combination of original and Norwegian foods (43). Still, some meals and food practices may be more culturally loaded and resistant to change than others. Previous research has suggested that immigrants adapt quickly to the breakfast habits of the host's food culture, while they more strongly maintain the original food culture for dinner meals (74, 96). These flexible patterns may involve barriers to the provision of appropriate nutritional advice. Authors have asserted that nutrition-related information should be compatible with cultural food preferences and values (43, 73, 131). Thus, nutritional advice based on the host country's food culture may be appropriate only for food practices and meals in which immigrants have adapted to the host food culture.

Some participants in both substudies strictly avoided encounters with the Norwegian food culture. The findings in substudy 1 pointed to the possibility that nutrition-related advice based on the host country's food culture may suggest food perceived as tasteless, boring, insufficiently filling and inconsistent with religious dietary rules. Mead points to several attributes that may explain an individual's resistance to changing food habits, such as fears of unknown foods or unwillingness to accept food which is differently prepared (83). The importance of adhering to religious dietary rules, as outlined in paper 1 and several previous studies (72, 127, 128), may further contribute to this resistance. Participants in substudy 1 with longer immigration backgrounds valued that they could easier pursue their original food habits nowadays due to the increased availability of ethnic foods. Related to the resistance to change, participants in both substudies often appeared to have limited knowledge about how to prepare traditional Norwegian dishes. For these women,

receiving nutrition-related information based on the unfamiliar host country's food culture may be a specific barrier when trying to follow the advice.

Substudy 2 investigated participants' experiences with nutrition-related information in the health-care setting. These findings may be more directly interpreted as possible barriers to nutrition communication relevant for antenatal care. Interviews among participants with immigrant backgrounds revealed that nutrition-related information received was sometimes experienced as incongruent with their preferred food culture. Participants experienced challenges and confusion when receiving advice that differed from the food practices of the country of origin. Similar findings have been investigated among Pakistani-born T2DM patients in Norway. These participants reported difficulties in implementing advice based on Norwegian food items (54). The same study indicates that health professionals were afraid of insulting the patient when they provided the patients with dietary advice (115).

Participants in substudy 2 expressed that it was challenging to receive nutrition-related information from various and divergent sources. Interviews revealed that participants commonly received advice from their family members that included lay and culture-specific beliefs about safe and appropriate food in pregnancy. This theme was particularly prevalent in interviews with participants with immigrant backgrounds. As elaborated previously, cultural beliefs about food and health may contradict messages from health professionals (219). A review has identified differences in cultural values and explanatory models of health as key predictors for culture-related communication problems (55). Studies of immigrant women from African and Asian countries have found that participants' food practices and health behaviours during pregnancy were strongly influenced by cultural beliefs that contradicted Western scientific medical knowledge (62, 95, 98). In the earlier mentioned study, Middle-Eastern-born women in Sweden related the cause of GDM to supernatural factors (95).

In this thesis, participants' accounts of the influence of cultural beliefs on their food practices were sometimes difficult to interpret. Analysis indicated that participants valued continuing with their original food practices, such as eating original dinners. At the same time, participants showed resistance to cultural beliefs about safe and appropriate food in pregnancy received from their family members. For example, one

study participant stated that she had to hide when eating fish spreads because her mother-in-law did not want her to consume fish during pregnancy. She explained that *'the elders categorise fish as a warm food that may overheat the body during pregnancy and thus had to be avoided'* (Woman originating from Pakistan). This finding is contrary to other studies examining the beliefs concerning dietary practices during pregnancy in women with different ethnic backgrounds (98, 99, 220). Thornton, for instance, has found that Latino Women in the US continued to follow cultural beliefs concerning safe and appropriate food during pregnancy (99). However, given the different context and backgrounds of participants in these studies, variations in the findings have to be expected.

As illustrated in the statement above, participants often described cultural food beliefs as *'advice from the elders'*. Ahlqvist states that cultural beliefs about health and food vary across different generations (98). Thus, women's attitudes to cultural beliefs about diet and health may be part of the dietary acculturation process and may diminish when women are more exposed to the host culture (73).

7.2.2 Experiences of receiving unspecific nutrition-related information

The interviews in substudy 2 indicated that conversations about healthy eating for weight management and the prevention of diet-related chronic diseases were sparse in antenatal care. As presented in paper 2, participants often perceived the nutrition-related information as unspecific and presented in very general terms. Only a few participants stated that they were asked about their personal food habits or their concerns about healthy eating. A qualitative analysis of audio-taped consultations within a randomised controlled trial investigating counselling for dietary change has identified a lack of consistency and clarity in the advice about healthy eating that clinicians' gave to their clients (221). Collectively, these findings may be related to participants' limited awareness that their overweight status and dietary habits during pregnancy may influence their own and their offspring's future risk of diet-related chronic diseases. Divergent from the findings of substudy 2, women in Furber's and Nyman's studies expressed a strong awareness of the risk associated with being overweight during pregnancy (222, 223). The UK women in Furber's study also felt

that being overweight meant that health professionals would classify them as '*high risk*' (223).

It is generally acknowledged that insufficient risk and disease awareness are barriers to healthy behaviours and behavioural change that need to be addressed in health education programs (108, 209). The health belief model, a commonly used behaviour change theory, assumes that, in order to engage in healthy behaviours, individuals need to be aware of their risk for disease and perceive that the benefits of behaviour change outweigh potential barriers to recommended actions (94). Even though knowledge may not automatically translate into effective dietary change, it may be assumed that more specific information about participants' risk for the development of diet-related diseases and the future consequences might have motivated participants in substudy 2 to be more concerned about healthy eating.

There might be several explanations for why the participants experienced that they received unspecific nutrition-related information. Firstly, antenatal care has to deal with many health-related issues (67), and pregnant women are often provided with a vast amount of information (224). In line with previous studies, participants appeared to be most receptive to and interested in obtaining nutrition-related information in the beginning of their pregnancy (48, 225, 226). An emerging theme towards the end of pregnancy was that participants experienced an overload of health-related information and had problems recalling all the information received during antenatal care. Participants in substudy 2 were asked if they perceived that there was sufficient time for conversations about nutrition and weight during antenatal care. They indicated that they did not experience any limitations due to time, but interviews of health professionals may have shown different results. In a previous qualitative study, midwives in Australian maternity hospitals considered lack of time and resources as the main limitation for addressing healthy gestational weight gain and lifestyle issues in antenatal care (227). Risa et al. analysed consultations at antenatal diabetes clinics in Norway. The 10 consultations included in the analyses lasted for a mean of 25 minutes (67). Although antenatal care has to address many important aspects related to the woman's health, the health professionals' own nutritional knowledge may determine their confidence in providing nutritional advice as well as their willingness to do so. Koster et al. stress that sufficient nutritional knowledge and

communication skills among health professionals are important for providing women with more specific nutrition-related information (64).

Secondly, the kind of nutrition-related information participants received might have been influenced by the participants' beliefs about what information they needed to receive. Some participants in substudy 2 did not perceive a need for further nutrition-related information in antenatal care, either because they had already found sufficient information on the Internet prior to antenatal care, or because they stated that '*everybody knows what is healthy*'. This perception that they did not need further information about healthy eating was also identified in *the unhealthy vacationers* who were unconcerned about healthy eating during pregnancy. Similarly, Szwajcer et al. found that Dutch pregnant women perceived information about a healthy diet as common knowledge (225). In this context, it is important to consider the women's understandings and interpretations of a healthy diet. Women may not perceive a need for further nutrition-related information if they perceive their diet as already healthy. A study of women's interpretations of dietary recommendations has shown that participants' understandings did not conform with the recommendations (177).

Lastly, whether and to what extent the women received nutrition-related information might have been influenced by the fact that some participants perceived their dietary habits and weight as sensitive issues. Mills et al. have found that overweight pregnant women felt that health professionals' personal feelings about women's weight had an impact on the care they received (220). A growing body of literature highlights that health professionals experience several challenges and feel uncomfortable when providing care for overweight and obese women (58, 59, 219, 228, 229). A focus group study among midwives in Northeast England found that they were uncertain about effective obesity communication and management (46). Midwives in maternity hospitals in Australia were concerned about victimising the women and causing them psychological harm when they provided them with weight and lifestyle behaviour advice (227).

7.2.3 Divergent attitudes toward and motivations for healthy eating

Paper 3 indicated that the women midwives meet in antenatal care may be quite heterogeneous in terms of their attitudes toward and motivations for healthy eating during pregnancy. These divergent attitudes toward and motivations for healthy eating may indicate that participants had different informational needs for an effective promotion of healthy eating. For instance, women who are unconcerned about healthy eating during pregnancy may need specific nutrition-related information about the possible health consequences of their dietary habits. However, participants in substudy 2 were very rarely asked about their attitudes toward or motivations for healthy eating.

The interpretation of women's accounts in light of SDT has indicated that their motivations for healthy eating may vary in the degree of self-autonomy. Self-autonomy refers to the extent to which behaviours originate from the women themselves, without the influence of external pressure from their social surroundings or feelings of guilt (78). Szwajcer et al. consider the mother's interest in her own health as the most autonomously regulated motivation (49). According to SDT, this autonomous form of motivation is called integrated motivation. This form of motivation entails that the person is aware of the importance of behavioural change (78). In substudy 2, *the healthy changers* often reported concerns for their own health as an important motivational factor. However, this motivation was reported primarily when participants had been confronted with their increased health risks. This finding may underline the importance of specific nutrition-related information during antenatal care.

As mentioned in the introduction, pregnancy may be an important window of opportunity for the promotion of dietary changes that last throughout the pregnancy and possibly beyond. More self-autonomous forms of motivation imply further that healthy eating practices become integrated into the person's life (230). Olson et al. studied the dietary patterns of pregnant women in different social locations in New York until 2 years postpartum. The authors concluded that the transition to motherhood was associated with positive dietary changes, like an increased consumption of fruits and eating breakfast every day, even 2 years postpartum (231). Devine, on the other hand, found that although pregnant women changed their

attitudes toward healthy eating and physical activity, they tended to return to pre-pregnancy patterns after giving birth (50). The interpretation of participants' motivation from the perspective of SDT, as presented in paper 3, indicated that participants' motivations might be only temporarily. Given the divergent results, more studies on the long-term influence of becoming a mother on the attitudes and motivations toward healthy eating should be conducted.

SDT emphasises the possible influence of the social environment on the individual's motivation (78, 160, 232). Less self-autonomous motivations may be driven by a sense of guilt or obligation to achieve social acceptance and may therefore be less enduring (160). Both substudies indicated the role of participants' social environment on their food choices and motivations for healthy eating. For instance, several participants in substudy 1 reported that their husbands did not want them to serve Norwegian food at home, whereas *the temporary healthy forcers* were encouraged to eat healthily from their family members. Support from family members and the social network is a key facilitator for the adoption of healthy eating (233). However, the postpartum interviews indicated that family members encouraged the participants to eat healthy only during pregnancy. This might indicate that women with less self-autonomous motivations for healthy eating during pregnancy may have difficulties to maintain healthy eating after pregnancy due to the lack of social support.

Attitudes toward and motivations for health behaviours can be influenced by culture, ethnic background and, for immigrants, level of acculturation (75, 93, 157). More self-autonomous motivations are in line with the individual's core values and beliefs (78). In the context of this thesis, an integrated regulated motivation for healthy eating would also be consistent with the women's preferred food culture. Given the findings of paper 1, it may be argued that motivations to eat healthily would be in accordance with the identified markers of culturally appropriate food, such as those prescribed by religious dietary rules. Even though participants' attitudes toward healthy eating were observed across different ethnic backgrounds, participants with immigrant backgrounds reported different motivations for weight management related to their ethnic background: participants were either more motivated for weight management in order to *be like Norwegian women* or they stated that they did not have to lose weight after pregnancy *because they are not Norwegian*.

Some participants originated from countries where being overweight may be less stigmatised or seen as an unfortunate condition, as in Western countries (93). Cultural differences in women's body-image ideals have been investigated previously (157, 234). An Australian study found that women of South Asian origin were less concerned about excessive weight gain during pregnancy compared to women with Australian majority background. However, influences by place and time may be important, as dissatisfaction with being overweight has been identified among women of South Asian immigrant background living in Oslo (235).

Chang et al. have investigated motivators for healthful eating among low-income overweight and obese mothers of different ethnic backgrounds in the US (236). Their study was guided by the social cognitive learning theory, which addresses interactions among personal factors, environmental factors and healthful lifestyle behaviours (237). Chang et al.'s study found several barriers to healthful eating in the women's physical environment, such as food prices and the increased availability of unhealthy food. Paper 3 emphasised SDT, which may have limited the focus on physical factors that could influence women's attitudes and motivations. Social-cognitive learning theory emphasises that individual behaviour change needs the involvement of the social environment and changes in the physical environment (237). Even though it is not particularly investigated and discussed in this thesis, the primary health-care system can play an important role by involving the whole family and considering the family's physical environment in health promotion efforts (238).

7.3 Addressing the barriers with tailored nutrition communication

This thesis identified possible barriers to nutrition communication from the receiver's perspective that may be addressed by communication approaches in antenatal care.

Efforts in health and nutrition communication vary in the degree to which they address individual characteristics (degree of customisation), and in the degree to which the audience is divided into increasingly more defined, homogenous groups (degree of audience segmentation) (Figure 9) (239).

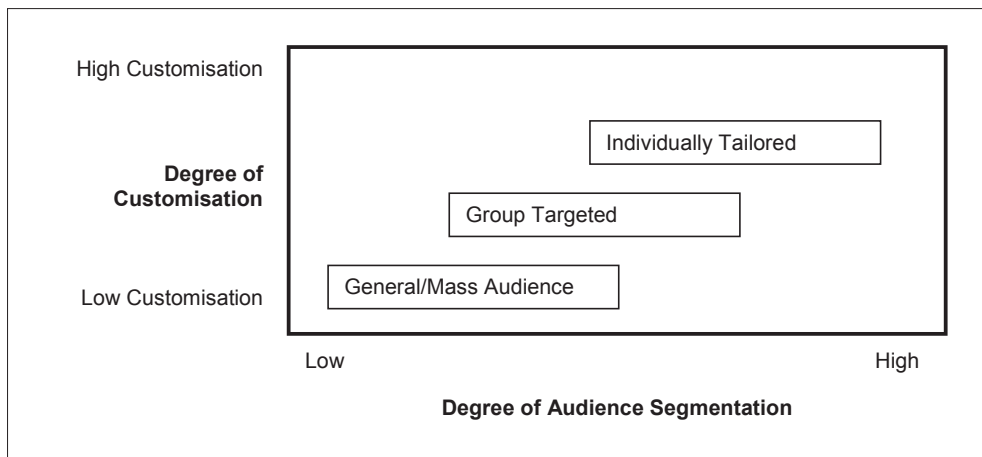


Figure 9. The tailoring continua (239)

The term *targeted* is commonly used to describe health and nutrition communication interventions (77, 208). There is no mutually agreed-upon definition of the term, but targeting typically refers to the development of a single intervention approach for a defined population subgroup that takes into account characteristics shared by the subgroup's members (77). A targeted approach assumes a certain homogeneity within the target population (77). Both substudies showed a great variation in how migration and ethnicity may influence participants' food habits. Findings in substudy 2 further indicated that participants varied in their nutritional knowledge and risk awareness, as well as attitudes and motivations toward healthy eating practices. This variety in participants' accounts may be due to the heterogeneity of the participants. For instance, participants in both substudies varied in their ethnic, educational and socioeconomic background. The phenomenological principle of focusing on individual experiences may also have contributed to the obtaining of detailed and multifaceted descriptions of the phenomena under investigation. However, given this variety, it may be assumed that nutrition communication in antenatal care has to be highly individualised in order to meet participants' informational needs. In this regards, there is growing acknowledgment in the literature that health and nutrition communication should be tailored to individuals' characteristics (63).

Kreuter defines tailored communication as *'any combination of strategies and information intended to reach one specific person, based on characteristics that are unique to that person, related to the outcome of interest, and derived from an*

individual assessment (77, 240). Tailored communication aims to enhance the relevance of the information, based on the assumption that individuals are more likely to actively process information if they perceive the information as personally relevant (63, 239). A study by Gans et al. in the US has found that tailored interventions to improve dietary behaviours of low income, ethnically diverse participants were more effective than non-tailored interventions (241). Participants who received individualised feedback on their fruit and vegetable intake had by the end of the intervention, a significantly increased fruit and vegetable intake compared to the control group. Although Gans' study used computer-tailored written nutrition materials, tailored approaches are also relevant in interpersonal, oral communication (241). The context in which substudy 2 was conducted, the interpersonal setting of women's antenatal care, provides an opportunity for communication approaches with an increased level of customisation. This implies that the content of the information provided by the health professionals may address individuals' characteristics.

However, the findings of this thesis, together with Kreuter's definition of tailoring (240), indicated that health professionals must take into account several individual factors in order to effectively communicate about healthy eating and weight management. Hawkings et al. propose contextualisation as a tactic to identify the most important aspects to address when tailoring information (239). This strategy involves framing messages in a context that is meaningful to the receiver. Family structure, residential status, ethnicity and culture are proposed as contextualisation variables (239). The barriers identified in the participants' experiences may be important factors to consider when tailoring nutrition communication. Rosal's patient-centred counselling model for facilitating dietary change (242) addresses some of the barriers identified in substudy 2 and discussed in the earlier sections. Rosal's approach maintains that advice should be individualised based on an assessment of the client's knowledge of risk associated with current eating patterns as well as the client's concerns and feelings about changing dietary habits and personal preferences. Other authors also argue that health professionals in primary health-care need to make a more detailed assessment of their patients' eating habits in order to provide more personalised nutrition communication (64, 243).

7.3.1 Culture-sensitive nutrition communication in antenatal care

Both substudies revealed barriers to nutrition communication that may be related to participants' preferred food culture. As previously mentioned, cultural sensitivity may be an important concept in nutrition communication. Krumeich, for instance, states that behavioural change is more likely to occur if provided in a culture-sensitive context (209). The majority of culture-sensitive communication efforts for health promotion found in the literature target a specific ethnic minority group (137, 208). This approach involves the in-depth study of a specific cultural group and may be comparable to the culture-centred approach to conceptualising culture in health communication (123). However, there is some evidence that group-targeted interventions fail to account for individual diversity within a cultural group (61, 77). It has been shown that tailoring to individual behavioural and cultural factors, such as personal preferences, beliefs and religiosity, was more effective than culturally tailored approaches (244-246). Kreuter proposes the concept of *cultural tailoring*, which is directed toward individuals instead of targeting common group characteristics (75, 77). This thesis indicated that the extent to which ethnicity and culture influence individuals' food choices and attitudes toward and motivations for healthy eating may vary. Since culture may be experienced and manifested differently within cultural groups, the extent to which individuals value and identify themselves with their cultural background may be a valuable parameter to consider (63, 77).

Devine has studied the role of ethnicity in shaping food choices among three ethnic groups in the US (72). Even though ethnicity influenced food choices, identification with particular ethnic groups was dynamic, becoming more or less important in particular situations and at different times over a person's life course. This *situational ethnicity* may occur for food choices in which the expression of ethnicity is encouraged or constrained in particular settings or situations. Since dietary acculturation does not appear to be a simple process in which a person linearly adopts the food culture of the host country (73, 74), it may be important to consider how ethnicity and culture influence receivers' food choices (72, 133).

In this regards, Resnicow et al. suggest tailoring health communication to ethnic identity, which is defined as '*the extent to which individuals psychologically and*

socially identify themselves with and gravitate toward their ethnic group, p13 (61). Resnicow et al.'s approach may be transferable to nutrition communication. However, the complexity of the dietary acculturation process and the individual intracultural variations may pose a challenge to culture-sensitive nutrition communication. Thus, a salient question is how health professionals can achieve cultural sensitivity in nutrition communication. As described previously, cultural competence includes health professionals' cultural awareness, knowledge and respect for other cultures (132, 135). Harris-Davis' model of cultural competence is specified for nutrition communication and also involves awareness of cultural differences and knowledge of variations in food practices between cultures (247).

Cultural awareness may be a useful approach to consider the comparable concepts of *situational ethnicity* and *ethnic identity* in an individual's food choices. It requires that health professionals examine their own cultural backgrounds and ask their clients questions about values, beliefs and practices related to their food habits (132, 135). Health professionals should be aware of the extent to which ethnicity and culture can influence their client's dietary habits. Cultural awareness may imply that health professionals are aware about possible differences related to their client's immigration background, but that they do not take them for granted. As investigated in previous research, immigrants may fully adapt to the food practices of the host country (85). To provide culturally sensitive advice may involve assessing both possible markers for culturally proper meals and when these markers are important for individuals' food choices. The findings of substudy 1 regarding participants' strategies for enhancing the cultural acceptability of meals, like making unfamiliar food more familiar through spices or combinations of food items from both cultures, may also be useful for improving nutrition communication in antenatal care.

Another important attribute of culture-sensitive nutrition communication is cultural knowledge. Cultural knowledge involves an understanding of different cultural food practices and health beliefs (133, 247). Participants with immigrant backgrounds in substudy 2 experienced to receive nutrition-related information that was incongruent with their original food culture. However, they did not specifically mention a perception that health professionals lacked sufficient knowledge about their preferred food culture. Contrarily, Pakistani immigrants in Oslo diagnosed with T2DM stated

that health professionals lacked sufficient knowledge about the cross-cultural variation in dietary practices of ethnic minority patients (54). Several authors argue that health professionals must possess knowledge about food practices and preferences in ethnic minority groups in order to provide culturally appropriate nutrition-related information (43, 131, 133, 247). The finding that participants in both substudies often had limited knowledge about Norwegian food practices outlines the importance of health professionals' knowledge about their client's food culture. Norway's immigrant population consists of people from 219 different countries and independent regions (79), and health professionals cannot have detailed knowledge about each food culture they encounter. However, awareness and some knowledge about core cultural values may be helpful. For example, core values of many Asian groups may be the hot–cold food dichotomy (133). Previous studies indicated that immigrants make significant changes in the relative amounts of ingredients when they prepare their original dishes in a new food environment (86). Health professionals having basic knowledge about typical dishes of other food cultures can provide advice about changes in the composition of the ingredients to make the dish healthier without changing the cultural appropriateness of the dish. According to Foronda, cultural knowledge does not entail a detailed knowledge of each culture, but having a knowledge of and considering cultural differences and values (132). For instance, knowledge and consideration of possible markers of culturally appropriate meals, as described in paper 1, may lead to culturally sensitive nutrition-related information.

It is suggested that if people know more about different cultures, they will not see some cultures as superior to others (248). Thus, cultural knowledge may be related to other attributes important to culture-sensitivity discussed in this thesis, namely cultural respect and the avoidance of stigmatisation. As mentioned previously, health professionals' ethnocentrism may negatively impact on their relationships with their clients (125, 132, 139). Ethnocentrism in nutrition communication may imply that health professionals consider their own food culture healthier than that of their clients. Migration to a Western and more affluent country is often associated with the adoption of less healthy dietary habits (26, 40). However, it is important that health professionals do not automatically assume that the diet of their clients from non-

Western ethnic minority groups is unhealthy, nor that the original practices from their clients' food culture are unhealthy.

Resnicow et al. define cultural sensitivity by reference to two dimensions (61). The first is surface structure, which involves matching intervention materials and messages to observable characteristics of a target population. For culture-sensitive nutrition communication, this may involve the use of familiar and preferred food items in printed materials. The second dimension, deep structure, involves incorporating the cultural, social, historical, environmental and psychological forces that influence the target health behaviour in the proposed target population. Whereas surface structure increases the receptivity to or acceptance of messages, deep structure conveys salience (61). Health professionals' personal encounters with their clients provide opportunities to address individuals' deep-structure characteristics, such as the influence of their ethnic background on their dietary practices. Still, several barriers might have to be overcome in order to achieve a deep-structure level in antenatal care, as described in this thesis.

7.3.2 Nutrition literacy-based communication in antenatal care

Another important concept relevant to tailoring nutrition communication in antenatal care is nutrition literacy. According to Nutbeam, health professionals can achieve more tailored communication if they assess and recognise their audiences' knowledge and capability to process information (76). Even though several instruments (249, 250) are available to measure people's health literacy, the levels of participants' health and nutrition literacy were not assessed in this thesis. However, participants' limited risk awareness combined with their experience of an overload of health information may indicate that the nutrition-related information received was not tailored to their prior nutritional knowledge and capability to process this information.

The findings in substudy 2 further indicated that participants had difficulties remembering the nutrition-related information they received. This may be related either to the overload of other pregnancy-related health information or to participants' difficulties in understanding the information. Previous research indicates that patients may have problems recalling and comprehending the information provided by health

professionals (251). Pakistani-born T2DM patients in Oslo experienced difficulties following the advice received from health professionals because it was not adjusted to their levels of knowledge (54). Even though the empirical material of this thesis could not be applied to estimate the participants' health and nutrition literacy levels, efforts to promote healthy eating in multiethnic populations have to consider and address the possible lower literacy levels among immigrants (252, 253).

Within the literature, there is some emphasis on the importance of patients' understanding of the information they receive. Health professionals' assessment of patients' recall and comprehension may be important in identifying knowledge gaps (251). In a Canadian study of health literacy, first-time pregnant women also struggled with an information overload during pregnancy (224). Taken together, these findings indicate that health professionals may need to consider the amount of information they distribute (226). Thus, communication adapted to the nutrition literacy level may require that health professionals consider the clients' capability to understand and apply the information they provide. The information should focus on the development of the skills and confidence necessary to make choices that improve individual health outcomes (224).

Even though health professionals involved in antenatal care may not have the opportunity to measure their clients' level of health and nutrition literacy, awareness of different levels of health and nutrition literacy among their clients is important. The consideration of clients' prior nutritional knowledge and understanding of the information they receive may be especially important when communicating with some immigrant and low-educated groups, which have been found to have difficulties in understanding and making use of health-promotion information (56, 254). Schiavo states that many barriers to effective communication may be addressed by simplified information (104). Communication tools which do not require good language proficiency levels, such as pictures or charts, may be useful in the promotion of a healthy diet in antenatal care (153, 155).

It is important to note that women's level of nutrition literacy in antenatal care may be not only an aspect to tailor to, but also an outcome of successful nutrition communication. In addition to having skills, individuals must also be motivated to understand and apply the health messages they receive (151). Appropriate and

understandable nutrition-related information in antenatal care may enhance women's motivation for healthy eating.

7.3.3 Strengthening women's motivations for healthy eating

The association between health and nutrition literacy and individuals' motivations was mentioned previously. Health literacy may entail either '*people's knowledge, motivation and competences to access, understand, appraise, and apply health information in order to make judgments and take decisions in everyday life concerning being ill, being at risk and staying healthy*' p3 (148), or '*the cognitive and social skills which determine motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health*', p11 (113). The empirical material of this thesis does not allow for assumptions about the participants' skills and competencies that could determine their motivation and capabilities for healthy eating. However, interviews revealed some kind of discrepancy between participants' motivation to gather nutrition-related information and their motivation to eat healthy. For example, participants actively sought nutrition-related information. Since not all of the participants were motivated to eat healthily, the information they were seeking could have been more related to what was safe to eat during pregnancy rather than about the prevention of diet-related chronic diseases, such as GDM.

Efforts to promote a healthy diet during pregnancy may aim to motivate women to adopt healthier eating practices that will become integrated into their daily practices after giving birth. It is assumed that tailored information that addresses the unique needs of individuals will be useful in helping them become and stay motivated (160, 239). A consideration of whether women's motivations are more autonomously regulated or controlled may be an important part of this tailoring (255). Health professionals should recognise their clients' lack of motivation and support their competencies in order to help them feel capable of achieving the desired behaviour change (160). Motivational interviewing (MI) is an autonomy-supporting communication method (256, 257). MI relies on understanding an individual's motivation in order to enhance personal motivation for change, and it has conceptual

overlap with SDT(160). Both MI and SDT emphasise that health professionals should not be controlling with patients (232).

The principles of MI (258), which emphasise exploring the clients' motivations and empathically listening to clients before providing advice, could be considered part of tailored communication. This thesis identified a lack of awareness among participants concerning their overweight status. An autonomy-supporting way to communicate risk would require health professionals to elicit the client's understanding and need for information before providing new information (230). Risa et al. analysed communication patterns in antenatal diabetes care in Norway. Their study revealed that midwives commonly asked closed questions, which limited the mother's contributions to the dialogue (67). Parallels may also be drawn to attributes of culture-sensitive communication. Asking open discovery questions, which is a central aspect of MI, may help health professionals to obtain knowledge about their clients' preferred food culture. Expressing empathy may be comparable to cultural respect and awareness (132).

There is evidence that client-centred and autonomy-supporting communication styles are preferred by the clients (255). However, substudy 2 indicated that there may be differences in participants' preferred communication styles. *The temporary healthy forcers*, for example, stated that they wanted their midwives to tell them exactly what to eat without explaining the reasons for the nutritional advice. Other participants expressed that they would prefer a more active role during the consultations. On the other hand, some individuals may prefer and benefit from a more directive communication style (230, 259). In a previous study, African immigrant women in the US experienced MI consultations as too patient-centred. Many participants requested a more practitioner-centred, directive approach, in which the health-care provider did most of the talking and offered unsolicited advice (260). Client-centredness, which involves shared decision-making between the health professionals and their clients, may be novel for immigrants from African and Asian countries who are used to another health professional-client relationship (261, 262). Differences in participant's preferred communication style related to their ethnical backgrounds were not observed in substudy 2. Even though MI's cultural compatibility may be a topic for further discussions (142, 209), some studies suggest that MI's emphasis on the clients' values may be especially appropriate for applications in ethnic minority

groups (263, 264). In order to address the clients' preferred communication styles, Fagerli suggests that health workers should apply their patient-centredness in an exploratory manner (207).

Even though there may be little time during antenatal care sessions to address behaviour change (67, 265), health professionals' communication skills may be even more important. A recently published study reports that midwives felt that they were '*missing the thing that triggers behaviour change*' in their encounter with obese clients (59). Lessons may be drawn from examples of brief behaviour change interventions that are modified for limited encounters (266-268). Sim argues that brief interventions may be easily incorporated into routine care. The author suggests that health professionals may quickly provide autonomy-supporting advice by asking their clients about their attitudes toward a specific behaviour (268). Health professionals may also use strategies such as mental contrasting (e.g., comparing present reality to a desired future) or action planning (e.g., making specific plans about how and when a goal will be implemented). These strategies are considered to address the individual's cognitive processes for behavioural change (161, 269, 270).

8. Concluding remarks

Possible barriers to nutrition communication as interpreted from the participants' accounts may be addressed by an individually tailored communication approach. Based on the empirical findings in this thesis, this may involve considering 1) the possible influence of individuals' ethnical and cultural background on food practices, 2) individuals' prior nutritional knowledge and capability for understanding the nutrition-related information and 3) individuals' attitudes toward and motivations for healthy eating. Tailored nutrition communication emphasizing cultural sensitivity as well as the individual's nutrition literacy may be important strategies in antenatal care (Figure 10).

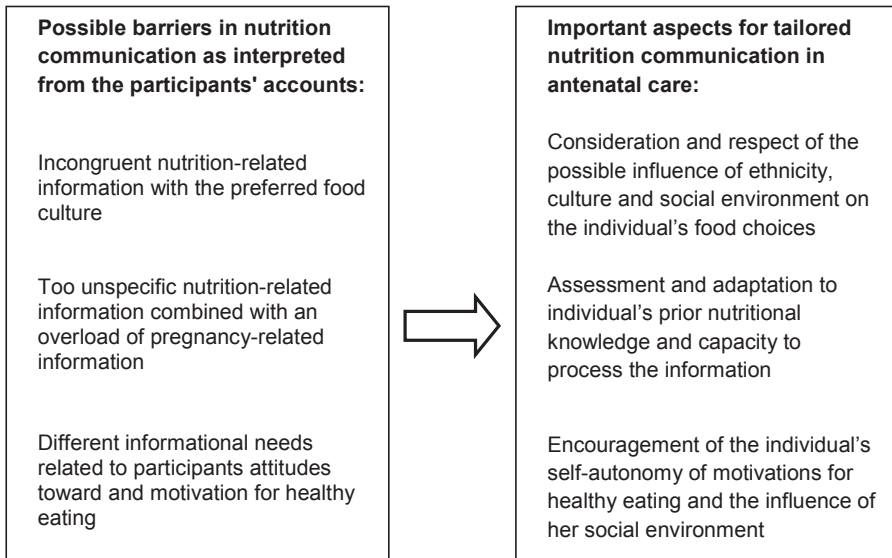


Figure 10. Important aspects for tailored nutrition communication in antenatal care based on the empirical findings in this thesis

In addition to the barriers as interpreted from the participants' interviews, my personal experience during the research process was that not much emphasis was placed on communicating about nutritional issues during the consultations. Concerning women's diet, the present WHO guidelines for antenatal care (271), which guide the antenatal care of health professionals in many countries, focus most strongly on the prevention of food-borne diseases and adequate nutrient requirements, with less emphasis on the long-term prevention of diet-related chronic diseases in the mother and her offspring. Given the rise in the number of women who are overweight pre-pregnancy and develop GDM, successful efforts to promote healthy eating before, during and after pregnancy are urgently needed.

However, this thesis indicates that efforts to promote healthy eating in a multicultural population require that health professionals have nutritional and cultural knowledge as well as specific communication skills. As suggested by Lie et al., in order to meet the dual challenges of cultural differences and limited health literacy, the curricula of health-care professionals should contain the theories of health literacy and cultural competence combined.

Finally, a salient question is how the promotion of a healthy diet to prevent diet-related diseases in a multicultural and socially diverse population can be achieved in an actual antenatal care setting. The findings of this thesis, taken together with the results from the interviews conducted among health professionals (theme 1 in the SOMAH-project) may provide valuable information for the design of a tailored intervention for promoting healthy eating in antenatal care. Even though specific efforts to promote a healthy diet in ethnic minority and low-income groups have been found in the literature (211, 272, 273), there is an ongoing debate about how to design efficacious culturally sensitive health interventions (208, 274). Hyman's review of theory and health-promotion strategies for immigrant women has found that the most successful health-promotion interventions use strategies that focus on reducing informational, cultural, linguistic, economic and systemic barriers to care. However, there is a lack of knowledge about interventions at the national level, especially at MCHCs.

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10. Paper 1-3

11. Appendices

Appendix 1: Interview guide and example questions substudy 1

Appendix 2: Interview guides and example questions substudy 2

Appendix 3: Approval of substudy 1 by the Norwegian Social Science Data Services (in Norwegian)

Appendix 4: Approval of substudy 2 by the Regional Committee for Medical and Health Research Ethics of East-Norway (REC South East)

Appendix 5: Informed consent sheet substudy 1 (in Norwegian)

Appendix 6: Informed consent sheet substudy 2 (in English)

Appendix 1: Interview guide substudy 1 (main themes with example questions)

1. Present food practices and former food practices in the country of origin

Example: What did you eat for dinner yesterday? Was it comparable to a typical dinner in your country of birth?

2. Experiences regarding the process of changing food habits after migration

Example: What are your first memories regarding food when you arrived in Norway?

3. Experiences with changes in a new food environment

Example: Can you tell me how it was to visit a Norwegian food store for the first time?

4. Perceptions of the host country's food culture

Example: What is Norwegian food for you?

5. Food items, dishes and food practices from the original food culture which are important to pursue

Example: Can you describe your favorite food?

6. Organisation of daily eating events, including shopping routines, time of food consumption and social setting

Example: Can you describe a typical breakfast situation at your home?

7. Influences on food choices

Example: Do you decide what your family eats?

Appendix 2: Interview guides substudy 2

1st Interview round (< week 30th week of pregnancy)

Introduction of the study:

Presentation of the interviewer, presentation of the overall project, information about the study's aims and research ethics, informed consent, information about tape recording and transcription process.

Main themes (with example questions):

- Present eating habits and healthy eating

Can you tell me what you ate yesterday?

What is your favorite food?

Descriptions of typical dinner and food purchasing situations

Perceptions of healthy eating (e.g. "*What is healthy eating?*")

Attitudes toward eat healthy (e.g. "*What does healthy eating mean to you?*")

Motivations to eat healthy (e.g. "*What motivates you to eat healthy?*")

Possible influence of pregnancy on eating habits

- Healthy eating prior to pregnancy

Attitudes toward healthy eating prior to pregnancy

(e.g. "*What did healthy eating mean to you prior to pregnancy?*")

Motivations for healthy eating prior to pregnancy

Perceptions of weight management prior to pregnancy

- Changes during the pregnancy

Perceived changes in eating habits after becoming pregnant? (e.g. "*Can you tell me more about your shopping routines? Have they changed after becoming pregnant?*")

- Nutrition-related information during antenatal care

General experiences and satisfaction with antenatal care

Nutrition-related information received during antenatal care

Experiences and importance of conversations about diet and weight management during antenatal care

Barriers to nutrition communication during antenatal care (e.g. *“Can you tell me about any difficulties you have experienced when you talked about healthy eating to your midwife?”*)

Motivations and possible barriers to follow received advice

Other sources of nutrition-related information

- Perceptions of being overweight

Perceptions of own weight status

Experiences with weight management prior to and during pregnancy

Motivations for weight management

- Future perspectives on healthy eating

During pregnancy (e.g. *“Do you have any plans to change your diet until the end of pregnancy; If so, why?”*)

After pregnancy

2nd interview round (> week 30th week of pregnancy)

- Present eating habits and healthy eating

Can you tell me what you ate yesterday?

Changes in eating habits after interview 1

The importance of healthy eating

Motivations for healthy eating

- Changes during the pregnancy

Perceived changes in eating habits after the last interview

- Nutrition-related information during antenatal care

General experiences and satisfaction with antenatal care

(Further/new) Nutrition-related information received during antenatal care

(Further/new) Experiences and importance of conversations about diet and weight management during antenatal care

Motivations and possible barriers to adhere to the information received

Questions about other sources of nutrition-related information

- Gestational diabetes mellitus (GDM)

Beliefs and knowledge about GDM (e.g. *“What do you think about the test you had to take concerning diabetes?”*)

Concerns about GDM

Experience of conversation about gestational diabetes

- Perceptions of being overweight

Perceptions of own weight status

Experiences with weight management during pregnancy

Motivations for weight management (after giving birth)

- Future perspectives on healthy eating

3rd interview round (> 3 months postpartum)

- Present eating habits and healthy eating

Can you tell me what you ate yesterday?

Changes in eating habits after interview 2

The importance of healthy eating

Motivations for healthy eating

Changes in eating behavior after pregnancy

Descriptions of daily eating and food purchasing

- Changes throughout the period of pregnancy

Attitudes toward healthy eating (e.g. *“Can you tell me about your concerns regarding healthy eating before pregnancy and now?”*)

- Nutrition-related information during antenatal care

Experiences and importance of conversations about diet and weight management during antenatal care

Recall of nutrition-related information received during antenatal care

Present importance of nutrition-related information (e.g. *“Do you perceive a need for nutritional advice?”*)

Other sources of nutrition-related information

- Lactation

Experiences of breastfeeding (if the woman is breastfeeding)

Importance of breastfeeding

- Perceptions of being overweight

Perceptions of own weight status

Experiences with weight management after pregnancy

Future motivations for weight management

- Future perspectives on healthy eating



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Vår dato: 31.05.2010

Vår ref: 24178 / 2 / IBH

Deres dato:

Deres ref:

TILRÅDING AV BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 08.04.2010. All nødvendig informasjon om prosjektet forelå i sin helhet 27.05.2010. Meldingen gjelder prosjektet:

24178 *Food between Two Cultures: A qualitative Study on how Immigration changes Food Habits*
Behandlingsansvarlig *Høgskolen i Akershus, ved institusjonens overste leder*
Daglig ansvarlig *Laura Terragni*

Personvernombudet har vurdert prosjektet, og finner at behandlingen av personopplysninger vil være regulert av § 7-27 i personopplysningsforskriften. Personvernombudet tilrår at prosjektet gjennomføres.


Personvernombudets tilråding forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, vedlagte prosjektvurdering - kommentarer samt personopplysningsloven/-helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, http://www.nsd.uib.no/personvern/forsk_stud/skjema.html. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, <http://www.nsd.uib.no/personvern/prosjektoversikt.jsp>.

Personvernombudet vil ved prosjektets avslutning, 30.04.2011, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen


Bjørn Henriksen


Ingvild Bergan

Kontaktperson: Ingvild Bergan tlf: 55 58 32 32
Vedlegg: Prosjektvurdering



Prosjektvurdering - Kommentar

24178

Utvalget består av ca. 30 personer, hvorav ca. 20 er er førstegenerasjons innvandrere, og ca.10 er annengenerasjons innvandrere.

Prosjektet vil kunne innebære behandling av sensitive personopplysninger om etnisk bakgrunn, jf. personopplysningsloven § 2 nr 8 bokstav a.

Førstegangskontakt opprettes ved bruk av snøballmetoden. Datamaterialet samles inn ved personlig intervju, som det gjøres lydopptak av. Lydopptakene vil bli behandlet elektronisk.

Utvalget mottar muntlig og skriftlig informasjon, og det innhentes skriftlig samtykke, jf. informasjonsskriv registrert 27. mai 2010.

Ved prosjektslutt, og senest innen 30. april 2011, anonymiseres datamaterialet. Ombudet minner om at med anonyme opplysninger forstås opplysninger som ikke på noe vis kan identifisere enkeltpersoner i et datamateriale, verken direkte eller indirekte.



Appendix 4: Approval of substudy 2 by the REC South East

UNIVERSITETET I OSLO

DET MEDISINSKE FAKULTET

Stipendiat Lisa Garnweidner
Høgskolen i Akershus
Postboks 423
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Regional komité for medisinsk og helsefaglig
forskningsetikk Sør-Øst C (REK Sør-Øst C)
Postboks 1130 Blindern
NO-0318 Oslo

Telefon: 22 84 46 67

Dato: 04.08.2010

Deres ref.:

Vår ref.: 2010/1289 (oppgis ved henvendelse)

E-post: post@helseforskning.etikkom.no

Nettadresse: <http://helseforskning.etikkom.no>

Kommunikasjon om mat og helse på helsestasjonen

Vi viser til tilbakemelding på komiteens merknader til ovennevnte prosjekt, slik de fremkom i vedtaksbrev av 15.06.2010. Komiteen behandlet prosjektet første gang i møte 27.05.2010, og fattet følgende vedtak: *Vedtak utsettes i påvente av at ovennevnte merknader besvares. Når svar foreligger vil komiteens leder og fagkyndige i psykologi ta stilling til spørsmålet om godkjenning.* Konkret var merknadene knyttet til spørsmål om bruk av tolk, presisering av studiens hensikt i møte med deltakerne, avklaring av forskningsansvaret i studien, samt enkelte korrigeringer av informasjonsskrivet til deltakerne.

Prosjektleders tilbakemelding til komiteen ble mottatt 29.06.2010.

Tilbakemeldingen ble behandlet på delegert fullmakt 12.07.2010. Prosjektet er blitt vurdert i henhold til lov av 20. juni 2008 nr. 44, om medisinsk og helsefaglig forskning (helseforskningsloven) kapittel 3, med tilhørende forskrift om organisering av medisinsk og helsefaglig forskning av 1. juli 2009 nr 0955.

En multikulturell befolkning byr på utfordringer i forhold til kommunikasjon i primærhelsetjenesten. I denne studien vil man undersøke hvordan gravide og mødre fra ulike kulturer opplever kommunikasjon om mat og helse, og hva som påvirker dem i forhold til å implementere gode kostholdsvaner i daglig praksis. Studien er basert på kvalitative intervjuer, hvor kvinnene intervjues to ganger i løpet av svangerskap og en gang etter fødsel.

Prosjektleder: Lisa Garnweidner
Forskningsansvarlig: Høgskolen i Akershus

Forskningsetisk vurdering

Komiteen kommer til at prosjektleder i sin tilbakemelding besvarer merknadene på en god måte. Det vil benyttes tolk i de tilfellene hvor dette anses som nødvendig, og informasjonsskrivet vil oversettes til respektive språk.

Når det gjelder en presisering av studiens hensikt, slik at denne formidles på en tydeligere måte til deltakerne, har prosjektleder revidert informasjonsskriv. Det nye skrivet oppleves som mer utførlig.

Prosjektleder bekrefter at forskningsansvarlig institusjon for prosjektet vil være Høgskolen i Akershus.

Vedtak:

Prosjektet godkjennes.

Tillatelsen er gitt under forutsetning av at prosjektet gjennomføres slik det er beskrevet i søknaden og protokollen, i tråd med prosjektleders tilbakemelding av 29.06.2010, og de bestemmelser som følger av helseforskningsloven med forskrifter.

Tillatelsen gjelder til 31.12.2013. Opplysningene skal deretter slettes eller anonymiseres, senest innen et halvt år fra denne dato. Prosjektet skal sende sluttmelding på eget skjema, jf. helseforskningsloven § 12, senest et halvt år etter prosjektslutt.

Komiteens vedtak kan påklages til Den nasjonale forskningsetiske komité for medisin og helsefag, jf. Forvaltningslovens § 28 flg. Eventuell klage sendes til REK Sør-Øst. Klagefristen er tre uker fra mottak av dette brevet.

Forskningsprosjektets data skal oppbevares forsvarlig, se personopplysningsforskriften kapittel 2, og Helsedirektoratets veileder for *Personvern og informasjonssikkerhet i forskningsprosjekter innenfor helse- og omsorgssektoren*:

http://www.helsedirektoratet.no/samspill/informasjonsikkerhet/norm_for_informasjonsikkerhet_i_helsesektoren_232354

Med vennlig hilsen

Arvid Heiberg (sign.)
professor dr. med.
leder

Tor Even Svanes
seniorrådgiver

Kopi: Høgskolen i Akershus, Studie- og forskningsavdelingen, postboks 42, 2001 Lillestrøm

Vi ber om at alle henvendelser sendes inn via vår saksportal:
<http://helseforskning.etikkom.no> eller på e-post til: post@helseforskning.etikkom.no. Vennligst oppgi vårt saksnummer/referansenummer i korrespondansen.



UNIVERSITETET I OSLO

DET MEDISINSKE FAKULTET



MAT MELLOM TO KULTURER

Vil du være med på et spennende og nyttig forskningsprosjekt?

Ved Høgskolen i Akershus holder vi nå på med et forskningsprosjekt om matkultur i familier med flerkulturell bakgrunn. Vi skal undersøke hvilken betydning det har å oppleve mat fra ulike kulturer: **Hvordan forandrer matvaner seg når man flytter fra et land til et annet? Hvilke matvaner er viktigst å beholde? Hva synes man om norsks mat?**

For å finne ut av dette ønsker vi å gjennomføre intervjuer med kvinner og menn som er født i **ulike land utenfor Europa** og som har flyttet til Norge.

Intervjuet vil være ca en time, blir tatt opp på bånd og vil senere skrives ned og anonymiseres. Intervjuet er på norsk, men man trenger ikke å være flytende i språket. Personlige opplysninger vil bli behandlet konfidensielt og slettes, samme med lydfilen, ved slutt av prosjektet (april 2011). Det er frivillig å være med, og du har mulighet til å trekke deg når som helst underveis, uten å måtte begrunne dette nærmere. Dersom du trekker deg vil alle innsamlede data om deg bli slettet.

Dersom du har lyst til å være med på intervjuet er det fint om du skriver under på den vedlagte samtykkeerklæringen, slik at vi kan kontakte deg.

Hvis det er noe du lurer på, kan du ringe oss (Laura: 648 49 608, Lisa 48091956) eller sende en post: laura.terragni@hiak.no eller lisa.garnweidner@hiak.no

Studiet er meldt til Personvernombudet for forskning og Norsk samfunnsvitenskapelig datatjeneste. Studiet er finansiert av Det Norske Forskningsrådet..

Med vennlig hilsen og TUSEN TAKK PÅ FORHÅND

Laura Terragni og Lisa Garnweidner

Førsteamanuensis og stipendiat ved avdeling helse, ernæring og ledelse

Jeg har lest opplysning og ønsker å delta på intervju

Mitt navn er: _____

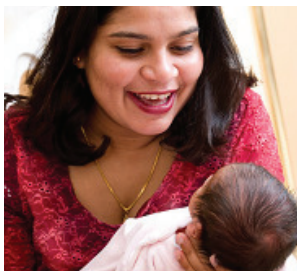
Telefonnummer: _____

Adresse: _____

Land: _____

Request for participation in the SOMAH-research project

Are you pregnant and willing to participate in a research project about food and health?



What kind of advice have you received about what to eat when you are pregnant? How have you perceived these advices? What do you think about the changes in your body during your pregnancy? Are you concerned about how your diet might influence your health and the health of your child?

Our project group at the Akershus University College is interested in your experiences. The project is called SOMAH, which stands for “**S**amtaler om **M**at på **H**elsestasjon” (Communication about food at Mother and Child centres).

This is a request for you to participate in a research study that intends to investigate communication about food and health in primary health care. During pregnancy one may have many questions about what to eat. You might have received advises from your medical practitioner or midwife. You might also experience that many people around you have opinions about what is healthy food for pregnant women and infants. We would like to know more about how women experience these advices. Participants in this study will be asked about their usual eating habits and what influences their food choices. Study participants will also be asked about their opinions on diet, weight and health, and what they think about their own weight. It is important to get further knowledge on these issues in order to improve health personnel’s communication skills about food habits, weight and health towards pregnant women and new parents from different ethnical backgrounds.

Who are we looking for?

We are looking for women in the beginning of their first pregnancy. Study participants should be slightly overweight.

What does the study entail?

Participation in this study involves taking part in two interviews during pregnancy and one interview approximately three months after given birth. The interviews will be conducted by Lisa Garnweidner who is a research fellow at the Akershus University College. It is estimated that each interview will last for around one hour and you can choose the time that suits you. Interviews can be conducted with the help of an interpreter if you wish so.

The participation in this study might lead you into new ways of thinking about what you eat and why you chose to do so. You do not have to answer questions which you feel uncomfortable with. We will

cover travel expenses related to the study participation. You will get a voucher worth 500 NOK if you participate in all of the three interview rounds.

What will happen to the information about you?

The interview will be tape recorded. Your name or other information which could make it possible to identify you will not be on the tapes. All information you provide us will be treated with confidentiality.

Voluntary participation

Participation in the study is voluntary. You can withdraw your consent to participate in the study at any time and without stating any particular reason. If you wish to participate, sign the declaration of consent on the final page. If you later on wish to withdraw your consent or have questions concerning the study, you may contact Lisa Garnweidner, University College of Akershus, tel 480 91 956.

The study is approved by the National Committee for Medical and Health Research Ethics.

Further information on the study can be found in Chapter A – *Further elaboration of what the study entails.*

Further information about privacy can be found in Chapter B – *Privacy and funding.*

The declaration of consent follows Chapter B.

Chapter A – Further elaboration of what the study entails

Background information about the study

This study is part of the research project called “SOMAH”- Samtaler om mat på helsestasjonen (Communication about food at Mother and Child Centres). The aim of this project is to develop methods and learning tools that can be used by health personnel to improve the communication about eating habits, weight and health towards pregnant women and new parents. This is important in order to answer the questions of pregnant women from different ethnical backgrounds related to their own diet or the diet of the infant and other family members. Mother and Child Health Centres intend to help women to reduce the risk of diabetes during and after pregnancy and wish to assure the health of the infants. Diet, physical activity and weight can influence the development of diabetes and other diseases.

Health personnel at Mother and Child Health Centres experience certain difficulties when talking about eating habits and weight, especially when the client originates from another food culture than the Norwegian. Norwegian food does not have to be healthier than for instance food from Pakistan, Vietnam or Somalia. It depends on how the food is prepared and how much of certain foods one consumes. It is important to get further knowledge on what clients of Mother and Child Health Centres think about their eating habits, weight and health, and how they perceive advices concerning healthy food. This study will focus on cultural differences related to these questions. This might help health personnel when talking about women’s food habits and to adapt to women’s individual needs.

This study will be conducted in form of interviews with pregnant women. The study consists of three interviews with each woman, two during pregnancy and one approximately three months after given birth. The study participants will be women from different ethnical backgrounds living in Norway, as well as ethnic Norwegian women. The participants should be slightly overweight. In the context of this study, overweight is defined as body mass index above 25. The body mass index is measure of body weight based on your weight and height. Participants have to be above 18 years old and shall not have any kind of disease which requires a special diet, like celiac disease or diabetes, before pregnancy.

The interviews will be conducted by Lisa Garnweidner who is a researcher and PhD fellow at the University College of Akershus. Each interview will last for about 1 to 1 ½ hours. The interviews will focus on the following themes:

- Dietary habits before, during and after pregnancy.
- What influences what you are eating.
- Perceptions about food, nutrition, weight and health relevant for mothers and infants.
- Experiences of communication about food, weight and health during consultations at the Mother and Child Centres.
- Has the consultations caused you to change behaviour.
- How motivated are you to change your eating habits and what influences your motivation.

You will be asked about your age, family composition, country of birth and preferred language, week of pregnancy, education, profession, and your weight and height. Women who have immigrated to Norway from another country will be asked about how long they have been in Norway and about their country of origin. The study does not include medical examinations or measurements.

Communication about food and health in primary health care

Time period

We wish to conduct the interviews when you are in the beginning of your pregnancy (11-25th week of gestation), towards the end of your pregnancy (31-40th week of gestation) and about three months after given birth.

Possible benefits

If you decide to participate in this study you might get more conscious about what how your eating habits and the diet of your child and other family members influences health.

Possible disadvantages

One may find it challenging or private to talk about themes like diet, weight and health. Study participants only need to answer questions they feel comfortable with. You do not have to explain why you do not wish to answer certain questions and it will not influence the further process of the study.

Reimbursement

Study participants will get reimbursement for travel expenses related to the study participation. If you participate in all of the three interview rounds you will receive a voucher worth 500 NOK.

Other

Study participants will be informed about any changes in the study as soon as possible. You might then have the opportunity to consider if you still wish to participate in the study.

Chapter B – Privacy and funding

Privacy

Information that is registered about you is age, family composition, country of birth, preferred language, week of pregnancy, height and weight, education, employment and, if relevant, how long you have lived in Norway. The information will be stored at the Akershus University College. The information about you will not be linked to other registries which can have access to information about you. The research director at the Akershus University College will be responsible for data processing.

The information that is registered about you will only be used in accordance with the purpose of the study as described above. All the data will be processed without name, ID number or other directly recognisable type of information. A code number links you to your data through a list of names. There will be a list of names to connect these codes to your name. This list will be stored in a fireproof safe and separated from other information gathered during the study process. Only authorised project personnel will have access to the list of names and be able to identify you. The list with the names will be deleted after all the three interview rounds have been conducted. Study participants will be asked about their phone number at the first interview in order to schedule the second and third interview. The list with the phone numbers will also be deleted by the end of the third interview. The audio tapes will be stored de-identified until 2013.

It will not be possible to identify you in the results of the study when these are published. If specific quotes from study participants will be outlined, fictive names or numbers will be linked to the quotes. The name of the Mother and Child Health Centres, the general practitioner practices or the place where the interview was conducted will not be visible. Anyone who has access to this data is bound to secrecy.

Right to access and right to delete your data and given information

If you agree to participate in the study, you are entitled to have access to what information is registered about you. You are further entitled to correct any mistakes in the information we have registered. If you withdraw from the study, you are entitled to demand that the collected samples and data are deleted, unless the data have already been incorporated in analyses or used in scientific publications.

Other

The study is funded by the Research Council of Norway. The Akershus University College is the project leader and responsible for data storage and processing. It is not considered relevant to insure the study participants. The results of this study will be published. Study participants are entitled to get information about where the results are presented and published.

Consent for participation in the study

I am willing to participate in the study.

(Signed by the project participant, date)

I confirm that I have given information about the study.

(Signed, role in the study, date)

