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Barriers and facilitators to physical activity and healthy eating: A qualitative study among Somali women in Oslo, Norway

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Abstract

Background: In Norway, the proportion of overweight and obesity in the population is increasing with a significant social gradient and women from certain non-Western immigrant groups are particularly vulnerable. Few studies have investigated lifestyle changes related to physical activity and diet among immigrants. This study aimed to investigate the facilitators and barriers to a healthy diet and physical activity among Somali women in Norway. **Method:** This study used a qualitative design, where two focus group discussions (FGDs) were conducted among Somali women in Oslo to examine their perspectives and perceptions regarding barriers and facilitators to healthy eating and physical activity, as well as their suggestions to resolve these. **Results:** The study generated insight into several factors of potential importance for dietary habits and physical activity, including knowledge of nutrition, food culture and traditions, familial influence and challenges related to economy, religion, and language. **Discussion:** Somali women in Oslo experience several barriers to healthy eating and physical activity. The findings of this study emphasize the importance of culturally tailored and language-specific preventive health programs, designed to meet the unique needs of this group. These findings can contribute to the design and implementation of health interventions aimed at Somali and potentially other immigrant groups.

Keywords
Qualitative research, healthy diet, physical activity, lifestyle change, immigrant women

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Key findings

- Barriers to a healthy diet include high food costs, language difficulties and children's influence on the family's eating habits.
- Barriers to physical activity include low cultural sensitivity in surroundings, price, time pressure and lack of childcare.
- The country of origin's cultural perception of a healthy diet conflicts with a corresponding understanding in Norwegian society.
- Before starting a health intervention, it is important to understand what inhibits and promotes a healthy diet and physical activity among immigrants.

Introduction

In Norway, immigrant women are more overweight and obese than their Norwegian counterparts, with an increased susceptibility for diabetes and other lifestyle-related diseases. Research indicates that non-Western immigrants tend to adopt negative aspects of Western lifestyles, including poor eating habits and sedentary lifestyles (1–3). Immigrant populations in Europe are particularly affected by type-2 diabetes, which develops at increasingly younger ages and with higher rates of morbidity, mortality, and complications (4, 5). A sedentary lifestyle increases various causes of mortality and the risk of cardiovascular disease and diabetes (6). A healthy diet, rich in fruits, vegetables, and low-fat dairy and low in saturated fat reduces the risks of non-communicable diseases ranging from cardiovascular disease to cancer (7).

A recent study shows that over 80% of women of Somali background in Norway are overweight or obese, and around 70% reported physical inactivity and/or sedentary lifestyles (8). According to Walseth and Strandbu (9), culture and religion are important factors that can limit participation in physical activity-oriented public health programs among immigrants. Results from large study in Norway also reveal higher intake of added sugar and lower intake of whole grains among women of immigrant background when compared to the rest of the population (10). Few studies have examined mediators of behavior change regarding eating habits and physical activity among refugees and other immigrants in Western countries. Among those that have, a San Diego-based study showed that factors related to security, religion, and finances were primary barriers to physical activity for women of Somali background (11). Other studies from the United States suggest that barriers to physical activity include fewer hiking opportunities in the United States than in Somalia, discomfort related to exercise clothing, lack of knowledge about exercise equipment, fear of harassment, competing priorities, costs, transportation, and weather (12, 13). Obstacles to healthy eating include personal factors (taste and cravings), socio-cultural factors (easy access to junk food and food traditions), and structural factors (time and finances) (14).

In Norway, major challenges have been experienced when trying to reach parts of the immigrant population with preventive health measures, largely due to language barriers and cultural differences, as well as a lack of culturally tailored and language-specific participatory prevention programs. It is therefore necessary to produce knowledge that can inform the development of participatory public health measures that can reach minority groups. Somalis make up one of the largest immigrant group in Norway (n = 43,400) and around 36% (n = 15,000) live in Oslo (15). Women of

Somali background face a number of challenges, such as language barriers, poor understanding of the country's health system, and differences in food beliefs. This, coupled with an increase in sedentary behavior and drastic change in diet, is likely to lead to an increased risk of obesity, diabetes, and cardiovascular disease. It is therefore crucial to promote healthy lifestyle in this group as early as possible. Before implementing such interventions, it is important to understand the barriers and facilitators to healthy eating and physical activity among the target population, which in this study is women of Somali background, given the size of the Somali population in Norway and the weight-related health burdens that they face. Identifying these factors and generating insight into the perspectives and perceptions of women of Somali background can contribute to the development of an adapted intervention program.

The objectives of this study were to explore:

1. How women of Somali background perceive and experience healthy eating habits
2. How women of Somali background perceive and experience physical activity, as well as what can increase their motivation to be more physically active
3. Suggestions from women of Somali background for how to design an intervention program in ways that reduce barriers to and facilitate healthy eating and physical activity.

Methods

This study employed a qualitative design, in which focus group discussions (FGDs) were conducted among women to explore their perspectives and perceptions regarding barriers and facilitators to healthy eating and physical activity, as well as their suggestions for intervention programs. The study was conducted in conjunction with a large-scale intervention study for women of Somali background, for the purpose of generating insights to inform the development and implementation of the interventions. We used a of qualitative content analysis for coding and analysis (16, 17). Before the inception of the study, the Norwegian Centre for Research Data (NSD) approved the project and written informed consent was obtained from all participants.

Study sample

This study recruited women of Somali background who live in two districts in Oslo with the highest populations of Somali origin in the city. The study participants were recruited purposively, in the interest of achieving a diverse spectrum of age and length of stay in Norway. Participants were recruited though telephone calls and the recruitment process was facilitated by bilingual researchers of migrant background and two female representatives of the Somali community in Oslo who volunteer with their district's community engagement endeavours.

The study sample included 10 female, first generation women of Somali background, 25–67 years of age and residing in Oslo. Six were married; four were unmarried (single, divorced/separated, or widowed). Most had some level of formal education, but only one had received higher education. The duration of stay in Norway ranged from 5–25 years.

Data collection

Data was collected in May 2020. Two FGDs were conducted among five women each, at local community centers. Prior to the FGDs, the participants completed a sociodemographic questionnaire about their age, civil status, education level, Norwegian proficiency, and length of stay in Norway. A semi-structured thematic guide comprising five topics (healthy eating, physical activity, barriers/facilitators to healthy diet

and physical activity, and recommendations/suggestions for a health promotion program targeting physical activity and healthy diet) was used. The FGDs lasted 90 minutes each, were conducted in Somali, and were audio-recorded. The sessions were transcribed and translated to English by the first author and a research assistant verified the integrity of the translations. Observations, notes, and reflections were recorded by the research assistant during the FGDs.

Data Analysis

Initial data analysis began during the data collection process. Once the data collection process was complete, the transcripts were transcribed as described above. Transcripts were then read multiple times by the authors to help establish familiarity with the materials and context (18). Inspired by grounded theory, a set of initial, deductive codes was developed by the first author based on the questions asked during the FGDs (19). The last author then reviewed and coded the transcripts, building upon the themes initially identified by the first author. Inductive codes and themes were derived from multiple readings of the data and by identifying new ideas that emerged (19). The coded transcripts were then reviewed by all authors.

Results

Participant responses were thematically organized into the following 4 sections: (1) knowledge of a healthy diet (**Table 1**), (2) diet influences (**Table 2**), (3) motivators and barriers to physical activity (**Table 3**), and (4) suggestions for a culturally tailored and language-specific program for healthy eating and physical activity (**Table 4**). Quotations for each section are provided in tables (Table 1–4).

Knowledge of a Healthy Diet

Participants were asked to describe what a "healthy diet" meant to them and if there were differences in their dietary habits since they moved to Norway (Table 1, Quotes 1–6). One participant explained that differences were due to a lack of knowledge about common Norwegian foods (Table 1, Quote 2) and another explained that they do not always like healthy substitutes for traditional food (Table 1, Quotes 6). Other participants shared that recent immigrants from Somalia may not know what makes some foods healthier than others and may purchase unhealthy foods (Table 1, Quote 7).

Table 1. Knowledge of a Healthy Diet

Quotes	
1	"When I was in my home country, I used to consider healthy foods to be foods such as meat, milk, and different cereals and corn."
2	"I used to eat a lot of rice and spaghetti, but did not have knowledge about these food types. We used a lot of oil for cooking."
3	"I know what a healthy diet or food means, but when I cook, I make what I was trained to make in my home country. That is, rice and spaghetti dishes."
4	"Fresh means healthy. Every food was fresh (in Somalia) and I used to go to the market to buy the kind of food that I needed to prepare each day."
5	"In Norway, we perceive healthy diets as foods with less fat and sugar, fruit, vegetables, milk, white meat, and fiber-rich foods. Also, organic food, less salt, and lots of water drinking. In my family, we do not eat large meals. In addition, I consider the foods that are rich with vitamins and minerals (to be healthy)."
6	"Brown rice and spaghetti are healthy, but we do not like the taste."
7	"Many newcomers have little knowledge about healthy food and buy white loaves of bread and fatty foods."

Diet Influences

Many participants associated changes to their dietary habits since moving to Norway with four main factors, which they also recognized as barriers to healthy eating: (1) the taste of food in Norway, (2) the influence of children on family eating habits, (3) practical barriers, and (4) cultural and religious factors.

Table 2. Diet Influences

Quotes	
1	"For me, it is the freshness. The fruits and vegetables are not fresh here. See the tomatoes; they are red, beautiful, but no good smell or taste. In Somalia, the fruits are not beautiful and have different shapes, but the taste was much better."
2	"But you have to know that fruits and vegetables were fresh (in Somalia). Here food has no taste and many food types are pre-prepared."
3	"Children decide mostly about food preparation. I have to make what the kids like."
4	"But don't forget that children decide what we purchase here in Norway. In Somalia, everybody in the family ate what you prepared, because there were not many choices."
5	"Children do not like rice and spaghetti dishes, but rather like pizza, hotdogs, French fries, and other fast food."
6	"For me, it is the price. Look at what you can but for 500 NOK (60 USD). Not even one bag of food."
7	"All our income goes to house rent and there is little money for healthy food. The family's income plays a big role of food choices. For example, I know organic foods, fish, and fruit are healthy foods, but they are very expensive in Norway and therefore I can't buy it for the whole family. Remember that we have large families."
8	"As you know that most of our income goes to house rent, it will be difficult to purchase healthy food. We therefore go to the Swedish border and buy food there."
9	"Knowing the Norwegian language plays a role in understanding food labels. For example, I never read food labels because I don't understand them."
10	"I know what a healthy diet or food means, but when I cook, I make what I was trained to make in my home country. That is, rice and spaghetti dishes."
11	"For me I prepare what I knew from before, namely traditional food. If I don't prepare traditional food, I feel that something is missing. I have to prepare dishes either with rice or spaghetti."
12	"That there is no halal meat everywhere is good because then we do not buy a lot of red meat."

(1) The taste of food in Norway

Participants described one of the barriers to healthy eating in Norway as a lack of fresh fruits and vegetables with the same "good smell or taste" as those available in Somalia (Table 2, Quotes 1 and 2).

(2) The influence of children on family eating habits

Many women described making decisions about food based on what their children like to eat (Table 2, Quote 3). This contrasted how decisions around food were made in Somalia, where there were fewer choices and where the entire family would eat the same meal (Table 2, Quote 4). Participants described their children as disliking traditional dishes and instead preferring unhealthy fast foods (Table 2, Quote 5).

(3) Practical barriers

Practical barriers included economic challenges and language difficulties. The price of food in Norway was one of the main healthy eating barriers expressed by many participants (Table 2, Quotes 6–8). Participants explained that most of their family's income goes to rent (Table 2, Quotes 7), and one woman explained that her family travels to the Swedish border to shop because the lower prices (Table 2, Quote 8). Language was described as a barrier to understanding

the ingredients in the food being purchased (Table 2, Quote 9).

(4) Cultural and religious factors
The importance of cooking traditional Somali meals was discussed by several participants. Even though the women who participated in this study knew what a healthy diet was, they preferred to cook traditional Somali meals in ways that were not aligned with these understandings (Table 2, Quotes 10 and 11). However, because halal meat is not as widely available, participants described eating less red meat (Table 2, Quote 12), which can be recognized as economical and healthy.

Motivators and Barriers to Physical Activity

The majority of participants had a good understanding of the physical, social, and mental health benefits of physical activity (Table 3, Quotes 1–6).

Table 3. Motivators and Barriers to Physical Activity

Quotes	
1	"Oh, to be active is good for the health. It is good for well-being. You are sweating and all waste goes out."
2	"It can improve your sleeping pattern and prevent overweight."
3	"Exercises makes you happy and sleep well. Being overweight is not good."
4	"I have heard that training is good for pain and musculoskeletal pain."
5	"It is social because you are with other people."
6	"It is important to lose weight in order to be healthy so that you can help yourself, your family, and society in general"
7	"Being together."
8	"Doing activities together as a group is good and positive motivation for other women."
9	"Actually, my friends motivate me to go with them, so we walk together."
10	"Motivation also comes from other people, like family members, friends, and role models. Your doctor also can motivate you, but although my doctor is always reminding me to go to do exercise, it is not easy."
11	"I think motivation comes from you. If you want do exercise, you should first decide it by yourself. You should have the will."
12	"The problem is the gym. I would like to go to the gym, but I can't go there because of the men. You know our religion. The dressing is also problem. In our culture, we can't be half naked while there are men seeing you."
13	"I like swimming, but there are no swimming pools only for women. If I for example go to the swimming pool, there are men with less clothing or even naked. Therefore, I can't go there."
14	"It also expensive. Economy plays a role for me."
15	"For me it is the time. I have children and I go to school, so when I come home, I am tired and, in addition, I have to prepare food for the family."
16	"For me, the lack of childcare is the biggest challenge. If I had someone or any other support for my children while in training, I would have done it."
17	"It is boring to go alone there; you need other women to go there with them, to encourage each other."
18	"I have never been in the gym, so I do not know where to start."
19	"The other challenge is the weather. Norway is cold most of the time. Therefore, I have to be at home. I usually go out in the summer, but, in the winter, I am always inside. In our country, it is the opposite. We are outside all the time. You don't have transport all the time; therefore, you have to walk. In Norway, I take the bus, even if I would go to the next bus stop."

The motivators for physical activity were related to spending time together with other women (Table 3, Quotes 1–3) and receiving encouragement from others, such as family and other role models, such as their doctors (Table 3, Quote 10), or to finding motivation from within oneself (Table 3, Quote 11).

Participants also described mixed-gender gyms as a barrier to physical activity in Norway, explaining that, because of their religion, they are unable to go to facilities where men also exercise (Table 3, Quotes 12 and 13).

Women also described practical barriers to physical activity in Norway, such as the cost of a gym membership, not feeling like there was time for exercise after a full day of caring for their families, lack of childcare, not wanting to go to a gym alone, not knowing what to do at the gym, and the colder climate (Table 3, Quotes 14–19).

Suggestions for a Culturally Tailored and Language-Specific Program for Healthy Eating and Physical Activity

Participants described their preferences for the design of a program that addresses healthy eating habits and physical activity among women of Somali background in Norway (Table 4, Quotes 1–6). Participants also described what they would want for a physical activity program that was tailored to meet their needs (Table 4, Quotes 7–10).

Table 4. Suggestions for a Culturally Tailored and Language-Specific Program for Healthy Eating and Physical Activity

Quotes	
1	"We want more knowledge about what is a healthy and good diet for health. More information about compositions about different foods. How much we can eat (quantities) and the composition of food."
2	"I like to learn more about fats and sugar and the consequences for health."
3	"For me, smart shopping will be important, how I can buy cheap food and healthy."
4	"Cooking courses. Actually, I would like to learn more about cooking. Can you arrange cooking courses for us?"
5	"We want also to learn more about Norwegian dishes."
6	"Healthy traditional meals: We want to learn more on how to incorporate the same ingredients but in healthier ways, so that we do not change the traditional diet entirely."
7	"For us, organized training with a female trainer/instructor who gives us motivation would be very good. It should be organized only for women and during our own gym hours."
8	"If it is closed training room or gym, it will be very good for us."
9	"The training should be 1–2 times per week. For some, it suits in the morning while others in the afternoons. I know it can be difficult, but try it."
10	"The training should be interesting and varied, such as aerobics, dancing, weights, cycling, cardio, swimming"

Discussion

Our findings show that, for many participants, their diet changed when they moved to Norway. Some attributed this change to the unfamiliar taste of food in Norway, or to other cultural and religious factors. Participants also had a good understanding of the benefits of physical activity, but experienced barriers to exercise including the weather, mixed-gender gyms, the cost of a gym membership, and family responsibilities. At the end of the FGDs, participants offered suggestions for culturally tailored and language-specific programs for healthy eating and physical activity to help address barriers identified in this study.

Some participants accredited the change in their understanding of a healthy diet to increased information about the food that they eat. Despite this, some participants

shared that they continue to make traditional foods that they now perceive as unhealthy. For some, this raised questions about healthy adaptions of traditional foods. A study in Sweden found, similarly, that participants described traditional Somali food as a barrier to a healthy lifestyle (20).

The study participants experienced dietary changes since coming to Norway, which they linked to four main factors: taste of food in Norway, children's influence on family eating habits, practical barriers, and cultural and religious factors. Other studies that have explored dietary changes of female immigrants in Norway and have identified similar factors impacting food habits of immigrants who have moved to Norway (21, 22). Regarding the difference in taste and freshness of produce in Norway versus Somalia, the women in this study reported that the fruit and vegetables in Norway tasted different and were not as fresh as in Somalia. The lack of familiar scent and appearance has been noted in previous research as making it difficult for women of Somali background in Sweden to recognize food when grocery shopping (20).

Children were the second factor that participants described as impacting their diets in Norway. Participants explained that, in Somalia, everyone in the family would eat the same meal. Now, in Norway, participants elaborated that they tended to cook what their children would eat, and their children often wanted to eat Western-style fast food. In previous studies from the United States and Sweden, it was similarly found that women of Somali background reported that their children were starting to request Western-style fast foods instead of traditional meals (23, 24). This echoes previous research that has described dietary changes among some immigrant communities following their moves from non-Western to Western countries (1–3).

This study also found that the participants faced practical barriers, such as economic and language difficulties, when grocery shopping. Language barriers, along with unfamiliar food choices, can impact access to nutritious and healthy food (25). The high cost of healthy food is a structural barrier that has been commented upon not only by the Somali women living in Norway in this study, but also, in a wider body of research, among other immigrant communities, including asylum seekers in Norway, and in other countries (14, 26, 27). Combined, these practical barriers become structural barriers for individuals who are new to a country and whose dietary choices are potentially constrained by a lack of familiarity with the available foods, language barriers, and high costs.

Participants also described a desire to cook traditional Somali foods, which previous research has suggested can be representative of home and contribute to a sense of normalcy when one is in a new county (28). But, while the women who participated in this study continued to make traditional Somali foods and expressed a wish do to so, they also sometimes found this to conflict with their changing understandings of healthy eating or with what their children wanted to eat. A study that explored experiences of cooking and meals after immigrating to Sweden among women of Somali background found a similar tension between the traditional Somali food that the women wanted to cook and the fast food that their children preferred to eat (24). Some participants in our study did note that, because of the lack of availability of halal meat, they experienced a decrease in their consumption of meat, which can be recognized as health positive. Previous research has described a cultural association between food and wealth, with vegetables and fruits being seen as cheap and easily available foods associated with poverty in Somali, in contrast to meat, associated with special occasions or for the wealthy (27); our study found that, although women still had a desire to prepare traditional foods, they were limited by the availability of halal meat and their efforts to accommodate their children's food preferences.

The women of Somali background who participated in this study understood the

health benefits of physical activity and described several motivating factors, including how well they felt when physically active, the social aspects, and encouragement from friends, family, and doctors. Access to culturally tailored and language-specific programs, as well as to health information specifically curated for the community in question, may help to increase participation in healthy eating and physical activity (29, 30).

The barriers to physical activity participants of this study discussed have been described in other studies. These include a lack of culturally tailored and language-specific programs (20, 29), financial constraints (14, 29), time pressure (20), lack of childcare (29), and cold weather (20, 31). The participants experienced additional barriers as well, such as not wanting to exercise alone and a lack of experience with exercising in a gym. Studies have demonstrated that gender-specific exercise programs, with active involvement from Somali advocates in planning, can help meet the preferences of the Somali community (20, 32). In addition, participants wanted physical activity classes led by a female instructor and organized to meet their needs and lifestyles, including providing a private exercise space for women only and offering varied classes that accommodate different levels of fitness. Women wanted the classes to be available at a range of times, as well as childcare provisions.

This study also generated insight into what could make a health promotion program focused on healthy eating and physical activity accessible, beneficial, and enjoyable for women of Somali background in Norway. Other projects, such as "A Healthy Start", have also worked to develop culturally sensitive nutritional education to help newly resettled immigrants and refugees in Norway transition to a new "food environment" (33). Participants reported interest in classes that offered information about a healthy, balanced diet, buying and preparing inexpensive, healthy meals, learning to cook more Norwegian food, and making healthy adaptions to traditional Somali meals. Women in this study also pointed out that the changes in their eating habits were not only a concern for the women but were affected by their children's wishes for unhealthy fast food. Understanding that their children's wish for fast food is a barrier to healthy eating means that changes to healthy eating habits must be seen in a family perspective. Based on these findings, a hypothesis could be to include children in the process of changing eating habits, such as inviting children to take part in the cooking course with their mothers. In doing such, a child and their mother would work together achieve common experiences, raised awareness, and strengthened motivation for change. Several mothers and their children could inspire each other in how to choose and cook both healthier traditional dishes and food in general. This harmonizes with "Social Learning Theory" which promotes the importance of observation of role models and learning in a fellowship where one experiences commonalities (34).

Conclusion

Participants experience a range of barriers to healthy eating and physical activity. With Norway having a high rate of overweight and obesity among women of Somali background, it is important to have culturally tailored and language-specific programs designed to meet their specific needs. The findings from this study can be used to implement healthy lifestyle programs for Somali women in Oslo and more widely in Norway and can potentially be used in other immigrant populations as well.

Author Contributions

AAM, MCW and HGR. designed the study. AAM carried out the data collection, AAM and AT performed data analysis and prepared the manuscript. NLE, MCW, CMB and HGR critically reviewed the draft, contributed to the interpretation of the findings and all authors approved the final version of the manuscript.

The authors declare no conflict of interest.

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