

The Perception of Key Stakeholders Regarding the Impact of Economic Hardship on Dietary and Physical Activity Behaviors of Sudanese Adolescents in the School and Home Context.

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Abstract

Background Economic hardship is one of the factors that contributes to the double burden of weight-related health. Sudan is one of the countries that suffer from obesity and malnutrition problems. For a further understanding of the impact of economic hardship in Sudan, this study aimed to explore the perceptions of key stakeholders regarding its impact on dietary and physical activity behaviors of Sudanese adolescents.

Methods A qualitative study was conducted using semi-structured interviews during the period January-March 2019, a period of political and economic instability in Sudan. The interviews were conducted with 17 participants, including officials from the Ministries of Health and Education, school directors and parents. The interviews were recorded, transcribed verbatim, translated to English, and then coded and analyzed manually.

Results The participants confirmed an impact of economic hardship on the dietary and physical activity behaviors of adolescents in Khartoum state. The impact appeared to sort into three domains: community, school and home settings. Factors that were identified as contributing to the double burden of weight-related health and nutritional disorders in times of economic hardship include: migration from rural areas to big cities, increased accessibility of junk food, a decline in Physical Education classes in schools, discontinued funding of school meals and less interest of parents to establish a healthy food environment at home.

Conclusion Our findings indicate that financial hardship has an influence on nutrition and physical activity behaviors among adolescents, and its effect occurs in different settings (community, school and home), and appears to affect malnutrition, underweight and obesity among adolescents.

Background

The economic context influences health at various levels [1]. It has an impact on the quality and quantity of nutrition, access to the health services, research and medical technology, pollution and mental health [2]. Many researchers have conducted studies to investigate this impact on health, such as the spread of communicable diseases, change in health policies, mortality rate, child health and obesity [3, 4, 5, 6, 7]. Economic context is one of the contributors to the increasing prevalence of obesity in both developed and developing countries [8].

Obesity has recently emerged as a serious global health concern, including the African continent. A report from WHO in 2016 showed that more than 1.9 billion adults aged 18 years and above were overweight, with over 650 million of them being obese [9]. Globally, there is a drastic rise in the prevalence of obesity; the percentage of adults with BMI 25 kg/m² or greater increased from 28.8–36.9% and from 29.8–38.0% in men and women, respectively, in the period between 1980 and 2013 [10]. In African countries, the rise in the age-standardized mean BMI in the same period was from 21.0 kg/m² to 23.0 kg/m² in men, and

from 21.9 kg/m² to 24.9 kg/m² in women [11]. Especially in adolescents, the increase in the prevalence of overweight and obesity has been notable [12].

Sudan is one of the least developed countries in the world. In 2011 it ranked 150 out of 182 countries according to the Human Development Index; 46.5% of the estimated country population suffers from poverty. In addition, 3.5 million people live in a situation of food insecurity [13]. Although there is a lack of data on adolescent obesity in Sudan, a study that was conducted in Khartoum State found that the proportion of overweight and obese adolescents was 28.5% and 5.6%, respectively [14]. In fact, Sudan is struggling with a double burden of nutrition-related health problems. Obesity prevalence is high (15), but at the same time malnutrition during childhood is still a major public health problem; 40% of children under five are stunted, 27% are underweight, and 16% are wasted [13]. People tend to cut their food expenditure during times of financial difficulty, and this makes them depend more on high-calorie foods that lead to obesity [7]. A Sudanese study among adolescents showed that unhealthy dietary habits and lifestyle patterns such as sedentary behaviors have started to rise among adolescents in urban areas [16].

Sudan has faced severe economic challenges since the secession of South Sudan. The most critical factor contributing to these economic difficulties is the loss of oil revenue, which provided more than half of Sudan's government revenue and 95% of its exports. The financial struggle has resulted in the decline of economic growth and amplified the inflation rate, which affected food prices, which led to violent waves of protests in September 2013 and December 2018 [17]. It is still unclear how the Sudanese economic crisis has impacted health, particularly with respect to adolescent weight-related behavior. Therefore, this qualitative study aimed to investigate the perception of key stakeholders regarding the impact of economic hardship on the dietary and physical activity behaviors of Sudanese adolescents in the school and home contexts.

Methods

Study Design

This is a qualitative study based on semi-structured interviews with key stakeholders (officials from the Ministry of Health and Education, school directors and parents) in the context of adolescent school health. The interviews were conducted between January and March 2019. The question guide for the interview was developed and structured using the Environmental Research framework for weight Gain Prevention (EnRG). This framework applies an energy balance approach which considers the integrated study of determinants of diet and physical activity [18].

Study area

This qualitative study was conducted in Khartoum State. This state has experienced a significant shift to urbanization since the 1970s, due to an intensive rural to urban migration of the young generation. The migration was a direct effect of the civil wars with the south, desertification and drought. Poverty in the post-conflict environment has manifested itself in difficulty of access to basic needs, notably to food,

water, shelter, clothing, health, education, training and productive jobs. The city of Khartoum is placed at the junction of the White Nile and the Blue Nile and is the capital of Sudan with an area of 22,122 km². According to the last census in 2008, the population of Khartoum State was 5,274,321.

Participant selection

The participants were sent information about the study, together with a consent form to sign prior to the interview and were then recruited for individual semi-structured interviews using a purposive sampling strategy. Firstly, interviews were conducted with four experts from the School Health Department of the Ministry of Health and the Ministry of Education. Secondly, six school directors were selected to represent the public and private school sector. Thirdly, seven parents of adolescents were selected from different rural and urban areas in Khartoum State. The interviews were conducted until the saturation point was reached.

Data collection and analysis

The individual interviews with the participants were conducted in Arabic. The data was recorded, transcribed, coded manually, and then analyzed by the principle investigator (FE). Afterwards, expressive quotes were selected from the transcription, translated into English, and presented. The translation was checked by a senior researcher.

Results

Three themes emerged from the interviews: the impact of economic hardship on dietary and physical activity behaviors of Sudanese adolescents in (1) the community, (2) school context, and (3) home context. The Stakeholder Characteristics are summarized in table 1

Table 1. Characteristics of the participants.

<i>participant</i>	<i>Sector/Group</i>	<i>Institution/Setting</i>
1	Ministry	Education
2	Ministry	Health
3	Ministry	Health
4	Ministry	Health
5	School Principal	Public
6	School Principal	Public
7	School Principal	Private
8	School Principal	Public
9	School Principal	Private
10	School Principal	Private
11	Parent	Urban
12	Parent	Urban
13	Parent	Urban
14	Parent	Rural
15	Parent	Rural
16	Parent	Rural
17	Parent	Urban

Community setting

The data that emerged from our study revealed various perceptions regarding the impact of economic hardship in the community setting and its influence on obesity among adolescents. The high budget deficit continued to affect the Sudanese community members and forced many of them to depart the country to find new opportunities abroad. One parent noted (Participant 16):

There are more than six million Sudanese working abroad, to help families to cope during the economic difficulties. This makes our community vulnerable to exposure from different food cultures, and promotes fast food and sweetened sugar beverages spread among the new generation.

The ongoing economic crises led to apparent shifts in business patterns in Sudan. Many investors shifted their commercial activities (such as clothing shops) towards the food and restaurant business; they identified that Sudanese families have reallocated their budgets according to priorities (i.e. food). One parent said (Participant 2):

If you take a tour around the main streets in Khartoum, you will find that most restaurants are busy and crowded, the majority of those restaurants make unhealthy fast foods. I usually think that our food patterns are not compatible with our economic circumstances. Bookshops nowadays are closing their doors and changing their activities to restaurants and cafes.

Many participants discussed the community's responsibility for promoting an unhealthy lifestyle among the community members, because of many financial barriers to physical activity and healthy eating behaviors.

The price issue is highly crucial in countries which suffer from a difficult economic situation such as Sudan; healthy food is expensive, the cost of natural orange juice equals double the cost of soft drinks, people tend to choose the cheapest option according to their financial capability. (Participant 8)

The community can also force its members towards adopting unhealthy dietary behaviors, as the lack of access to healthy food makes it difficult to avoid junk food; even if it is available, it will cost more. (Participant 13)

If students want to join physical activities outside schools, this will increase the economic burden on the family. However, I think the cost can be reduced when a group of students share the expense and start to play together, especially in football. (Participant 2)

Sudanese community customs and habits were perceived to change during the political and economic crisis. In rural areas, they used to be productive families, and now they depend on buying fruits and vegetables, eggs, milk, and many other needs previously found easily in every household.

The community is now in a transition period. When we were students, most of the family needs were found in the households, the milk from the goat, the eggs, my mother grew vegetables at home, but now we are an unproductive family, we buy all our needs from the market, and I think this has exacerbated the financial difficulties. (Participant 16)

School setting

The lack of a budget for School health services, which include nutrition and physical activity education, was mentioned by a ministry official. (Participant 1)

The economic situation plays a vital role in the determination of the ministry' activities regarding school health. We had a budget deficit for several years, so the ministry of education tries to fill the gap via collaborations with many partners such as UNICEF and WHO, they aid various programs (i.e. school-

based nutrition services). In some schools, the Parents Board commit to providing financial support to different activities.

Some participants believed the new generation is physically inactive and spends much more time on social media such as Facebook and Instagram. The school environment can play an influential role to fill the gap, but there are many barriers facing sports activities.

In my opinion, students now are not physically active, they spend much time on social media, even my youngest son has a Facebook account. Many different factors contribute to this situation such as a lack of equipment, devices and playgrounds in schools. (Participant 2)

Physical Education classes are almost non-existent in schools, and the situation in girls' schools is even worse than in boys' schools. The School Health Department started a program in Khartoum State, called health-promoting schools: we give schools tools and experienced physical education teachers, but then the Ministry of Education told us they could not continue to support this program due to the economic difficulties. (Participant 3)

Physical activities and other types of sport in a structured and systematic form are not found in most of the public schools, but are available in some prestigious private schools.

This school is one of the best prestigious private schools. We own a distinct infrastructure for physical education, swimming pool, football playground and race track. I believe supporting physical activities in school plays a vital role in reducing health expenditure in our health system. (Participant 5)

The privatization policy which was adopted by the government of Sudan was perceived as having negative implications on school nutrition services. The supervision role of the school administration is not like it used to be, and this affects the quality of services provided by the school cafeteria.

The food services in schools are out of the school administration's control, there is no strict policy regarding food diversity or healthy diet. They just care about the profit, and the big companies like Coca-Cola give them many offers to promote their products. Without a proper policy controlled and supervised by the school administration, it is difficult for the adolescent to acquire healthy dietary behaviors. (Participant 7)

The administration of school cafeterias is achieved by tenders. Whoever succeeds in getting this tender, his only concern is the maximum profitability regardless of the concept of providing healthy food for students. From my point of view, this is wrong because students will acquire healthy eating habits only through providing healthy diets. (Participant 8)

Parents clarified that they feel the school setting is responsible for their adolescents' health. The quality of the food provided in schools is perceived to play a crucial role in their body weight, and the school directors need to respond positively with regard to this issue.

The school administration can control the cafeteria, and the rules need to be very clear about the type of food and the price. The cafeteria manager should consider the benefit of students in his menu, to ensure healthy, varied and affordable food. (Participant 15)

The availability of fruits and healthy foods in schools with a reasonable price and quality can assist adolescents to change their choices towards a healthy diet. (Participant 6)

The school administration should ensure the food variety in the cafeteria with affordable price for students. The poor adolescents should be supported with a free meal since they are unable to pay for the breakfast. This government made a big mistake when they stopped allocating financial assistance for school dietary programs. (Participant 11)

Family/home setting

As a result of the economic hardship, Sudanese families face several financial challenges to manage their expenditure. They were found to set emergency budgets to guide their prioritization for resource allocation. This influenced the quality and quantity of food in family meals.

During the last few years, Sudanese people suffered from the consequences of political conflict and economic difficulties. Many families reduced their food budget, and this had a significant impact on the number of meals they eat and also on the quality of the food eaten. Most families currently eat two times a day [instead of the usual three meals]. (Participant 10)

Families are now suffering enormously to cover their expenses due to the economic crisis in Sudan; they set priorities and keep tightly to the available budget; any extra money is spent according to necessity. They cannot provide the same food quantity and quality as before. Most Sudanese families are now depending on carbohydrates as their main dish because they are more affordable than fruits or vegetables. (Participant 12)

Since I am a limited income teacher and father, I usually buy milk and vegetables for my family, and when I have extra money, I can make some changes in dietary options. (Participant 6)

Parents nowadays spend more time outside the home, many of them have two or more jobs to meet their family expenses since the rise in the inflation rate has contributed to tremendous increases in the prices for essential products.

I realized that many families now depend on fast food. Especially when they are employees, the mother is tired and busy and has no time to cook for the children... so they choose to buy food instead of cook it. (Participant 3)

The difficult economic situation in Sudan forces many parents to spend more time at work, many of them cannot manage their time well, so they start to depend on fast food instead of cooking healthy food for their children. (Participant 5)

In our school, many adolescents are children of Sudanese parents working abroad, they are financially secure, and they can afford to buy different types of food regardless of the price, and from my daily observations, I realized that they are more overweight than other students in the same classes. (Participant 7)

Some of the participants stated that giving adolescents pocket money that exceeds their appropriate needs will encourage them to adopt an unhealthy lifestyle regarding food and physical activities.

As a school director, I see a lot of behaviors related to obesity and overweight among students. I am in the field of teaching for more than twenty years. I think students nowadays are addicted to many bad behaviors, they drink a lot of sugary carbonated drinks like PEPSI COLA, some of them drink it more than three times during the school day. I think some parents give their children a lot of money, and they do not know how they will spend that amount. Some fathers come to school and tell me they forgot to give money to their boys and ask me to give it to them when they are in the break; most of the time the money exceeds the daily needs for our students. Some students call the food delivery services to bring them food, and the food is unhealthy food like pizza and other processed food. (Participant 5)

I firmly believe that the responsibility of the family is crucial in decreasing the prevalence of overweight and obesity among secondary school students. Parents should act with wisdom and caution with the money they give to their children. When the family gives their children more money than they actually need, it makes it easier for them to buy unhealthy food. A working mother cannot easily make the balance between work and home, because she is busy or exhausted; she will decide to buy fast food for the family member. (Participant 9)

For adolescents, the food which they usually eat at home does not give any consideration to their health needs or diet variety, but only to satisfy what they desire, even if it leads to serious health consequences. The extended family usually live together in Sudan, which makes the ability to apply some family rules so tricky, the adolescent receives money from different family members, so they can spend it to buy junk food and sugar-sweetened beverages and spend more time playing video games and Play Station. (Participant 8)

Economic struggles are one of the most leading causes for family disintegration in Sudan that has affected the quality of diets among adolescents indirectly. The results of the separation affect communication with the parents and make the adolescents vulnerable to harmful exposures. The parents tend to compensate by giving their children more pocket money trying to strengthen the contact, and this appears to support unhealthy dietary and sedentary habits.

In cases of separation, some parents try to influence the decision of their children to stay with them by raising the financial gift without controlling the way they spend the money. I think this can play a role in increasing the bad dietary habits among their adolescents. (Participant 9)

Discussion

To improve our understanding of the impact of economic hardship on the dietary and physical activity behaviors among adolescents in Khartoum State, Sudan, this study investigated the views of key stakeholders (officials, school directors and parents). The outcomes show a general consensus on the impact of economic difficulties on the dietary and physical activity among adolescents.

While the participants expressed different perspectives regarding the impact, the majority agreed that the primary setting affected by the economic hardship is the family. These findings indicate the direct consequences of the political instability, the rise in the inflation rate, and the side effect of the privatization policies on the family budget. The economic crisis is likely to lead to an increase in the double burden of weight-related health. On the one hand, lack of finances has led to more undernutrition and less physical education for adolescents from poor families. On the other hand, privatization and being the child of a parent who works abroad are perceived to lead to lower diet quality and adolescent overweight.

Our study reflects the negative impact of economic hardship on nutritional and physical activity behavior. The findings obtained are in agreement with other results indicating the possibility of weight gain and the affected quality of food in Spain during the economic crisis [19].

Many of the participants reported that adolescent health in Sudan experiences critical challenges, and this is due to significant changes happening to the entire community, due to the migration from rural to urban areas and from inside the country to working abroad. This situation continues to shape different food habits and behavior among the new generation, especially among adolescents. The relocation from rural areas to the big cities also plays a vital role in adopting unhealthy dietary behavior. In rural areas, families were often productive and grew their own vegetables and fruits themselves, but in urban areas, most of them tend to buy their food from restaurants and are more exposed to fast-food culture. This is consistent with findings from India, where the rural to urban migration has been shown to be associated with a higher level of high-calorie intake and reduction in physical activity among men and women. This contributed to the higher level of obesity and diabetes among migrants [20].

Junk food is more accessible in Sudanese communities than healthy food. This makes it more difficult for adolescents to choose healthy food options. Fast food chains promote high-calorie foods in the community with low price in comparison to healthy foods. Adopting privatization has thus made the situation even more difficult for adolescents. Previous studies have reported similar associations between the access to unhealthy food outlets in the community and obesity, while others have shown an inverse association between obesity and easy access to farmers' markets and grocery stores [21, 22, 23].

Physical education has declined in the education system, and the main factors are financial barriers. Officials clarify that it is becoming more challenging to meet the ongoing school needs; the budget cuts have increasingly impacted the ability to provide efficient physical education. The diminishing resources for physical education in schools accompanied by a lack of community-level infrastructure (such as open playgrounds, parks and bike paths) increase the financial burden on families to join private facilities and programs that promote physical activities [24].

Since the Sudanese government has adopted a privatization policy, the Ministry of Education discontinued funding of school meals and physical education programs. Several international and national non-governmental organizations (such as World Food Program and MOJADIDON) are working to fill this gap, mostly in the impoverished areas. In most Khartoum schools, the cafeterias are managed by the private sector. This influences the standards of the meals, from both the quality and quantity perspective. Privatization and commercialization have taken the lead and promote high-calorie foods and sweetened beverages inside the cafeteria. The high consumption of an unhealthy diet along with a decreased amount of physical education have initiated an alarming trend towards a double burden of weight-related health and nutritional disorders (i.e. malnutrition and obesity) among adolescents. Parents clearly stated that the school administration should take responsibility for the food environment inside schools [25].

Family settings play an essential role in shaping adolescent eating habits and nutritional knowledge, and family meals help parents to establish a healthy food environment [26, 27, 28]. The economic challenges have forced Sudanese parents to spend more time working. This complicated situation appeared to negatively affect adolescent eating behaviors. They have started to eat more outside the home, leading to a higher consumption of fast foods.

One strength of our study was that the study participants represent heterogeneous stakeholder groups (officials, school directors and parents). Our findings are unique because they cover different contexts, i.e. community, school and home settings. We believe that this is the first study to explore key stakeholders' perceptions regarding the role of economic hardship in shaping dietary and physical activity habits in Sudan. Furthermore, the study investigated an emerging issue and was conducted during the Sudanese revolution, which was triggered by the economic hardship in Sudan.

Our research also has several limitations. Firstly, this study was located in Khartoum state. Therefore, the findings from this study may not be generalizable to other areas in Sudan. Moreover, our study did not involve the adolescent's opinions. The adolescents may have provided relevant additional information.

Conclusions

Our main aim of this study was to explore the impact of economic hardship on dietary and physical activity behaviors among Sudanese adolescents. The findings revealed that financial suffering has an influence on adolescent nutrition and physical activity behaviors. This effect occurs in different settings (community, school and home) and appears to affect malnutrition, underweight and obesity among adolescents. Further studies could extend our research to investigate the effect of adopting privatization policies by the government on school health services and its direct impact on the food environment and physical activities in public and private schools.

Abbreviations

Declarations

Ethics approval and consent to participate

The study was approved by National Health Research Ethics Committee at the Federal Ministry of Health in Sudan (Proposal No. 6-10-2018).

Consent for publication

Not applicable

Availability of data and materials

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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