



# Policy options for responding to the growing challenge of obesity in Morocco

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## Abstract

Background and aim: obesity is a chronic, progressive disease characterized by heterogeneous clinical forms, ranging from simple obesity to massive and complex obesity. The objective of this study is to examine stakeholders' perspectives on a range of policy options for tackling obesity in Morocco. Methods: we used multi-criteria mapping methodology during a structured interview with 33 stakeholders and defined 5 groups of options to address the problem of obesity. Results: The results of this study show that four options stood out all from the others: the three options in the education and training measures group (in particular, strengthening nutrition in the school curriculum and public health education) and strengthening physical activity in schools. Conclusion: research into obesity prevention therefore needs to include the points of view and perspectives of the various stakeholders involved.

**Keywords:** Multi-criteria mapping, obesity, policy options, stakeholder, Morocco.

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## 1. Introduction

Obesity is a non-communicable disease characterized by an excess of body fat derived from an energy intake from food far in excess of the individual's needs [1]. They are assessed by body mass index (BMI), from which World Health Organization (WHO) has set thresholds for overweight corresponding to a BMI between 25 and 30kg/m<sup>2</sup>, obesity a BMI between 30 and 40 and morbid obesity when the BMI exceeds 40 [2]. Obesity is on the rise worldwide, with no differentiation between wealth or poverty. Overall, nearly 13% of the world's adult population (11% of men, 15% of women) were obese in 2016. In addition, 38 million children under the age of 5 years were overweight or obese in 2019. In Africa, it was estimated that the number of overweight or obese children had grown by almost 24% since 2000 [3].

Obesity is gaining ground in Morocco. According to the Ministry of Health statistics, 20% of Moroccans are obese [4]. Indeed, according to the most recent data reported by the National Survey on Common Risk Factors for Non-Communicable Diseases [5], obesity were found in 29% of women, three times more than men (11%). On the other hand, the Ministry of Health states that the prevalence of obesity

increased by 34% between 2004 and 2017. Otherwise, a study conducted by the WHO in 2019 revealed that more than half the population (55%) is overweight [4]. This chronic, progressive disease is not the result of a single cause, but rather of a combination of various causes and individual, as well as external, interrelated factors, such as physical activity, sedentary lifestyle, eating habits, certain drugs treatments, genetics, the environment, etc. In addition to its social and psychological scope, it is directly linked to type 2 diabetes, several types of cancer and multiple cardiovascular diseases, and has become one of the world leading causes of mortality [6, 7, 8]. Obesity prevention and treatment is a major public health issue in both developed and newly industrialized countries. It involves educating people about nutrition, encouraging regular physical activity, promoting active modes of transport and modifying everyday habits such as taking the stairs rather than the elevator.

The aim of this study is to compare the performance of the various options based on the scores assigned to them by the participants, to be able to derive indications of divergences and consensus.

**2. Materials and methods**

this study conducted in Morocco between 2009 and 2010, we used the multi-criteria analysis method, which is a simple four-step structure: defining the options, implementing a set of criteria to evaluate the performance of the options, each respondent evaluates the performance of the options against each selected criterion using a numerical scoring system, and finally assigning a weighting coefficient to each criterion to represent its relative importance to the interviewee compared to other criteria [9]. Among the key principles of the MCM multi-criteria approach is the involvement of a wide range of key players representing different points of view, and for this reason they chose 37 business sectors grouped into 7 categories: A. Government; B. Agri-food; C. Health professionals; D. Education; E. Communications- Media; F. NGOs- Associations; G. Multilateral Partners (table 1). The final list of options to be evaluated included 12 predefined stock options. These options were grouped into 5 groups: 1- Action to promote exercise and physical activity; 2- Changes in food supply and demand; 3- Measures on food and nutrition information; 4-

Measures on education; 5- Institutional reforms. Finally, participants could choose their own action options and include them in the analysis as “additional options” (table 2).

**3. Results**

Tables 3 and 4 is intended to provide a list of the options preferred by participants, according to their overall ranking. Firstly, based on the “optimistic” score, then on the basis of the average of the two scores for each option; in the latter case, two scenarios, optimistic and pessimistic, are “neutralized”, which is why we will speak of ranking under neutral conditions. Overall, the three measures in the education and training option group, - Improvement public health education, -Reinforcement of food and nutrition themes in the school curriculum, -Improving obesity training for health professionals, and one of the options is to modify people’s environment, -Reinforcing physical activity at school; are the highest ranked of all the options; with very little divergence between the different categories of stakeholders.

**Table 1: Stakeholder interviewed in this study**

Categories	Business sectors
A. Government	<ul style="list-style-type: none"> <li>- Ministry of health</li> <li>- Ministry of the interior</li> <li>- Ministry of agriculture and fisheries</li> <li>- Ministry of housing, urban planning and spatial development</li> <li>- Ministry of youth and sports</li> <li>- Ministry of social development , family and solidarities</li> <li>- Ministry of communication</li> <li>- Ministry of culture</li> <li>- High commission for planning</li> <li>- Ministry of the economy and finance</li> </ul>
B. Agri-food	<ul style="list-style-type: none"> <li>- Restoration cell</li> <li>- Farmers</li> <li>- Agri-food industries</li> <li>- Mass distribution</li> </ul>
C. Health professionals	<ul style="list-style-type: none"> <li>- obesity specialists</li> <li>- Nutritionists dieticians</li> <li>- Primary care physicians</li> <li>- Primary health care nurses</li> <li>- Private physicians</li> </ul>
D. Education	<ul style="list-style-type: none"> <li>- Public primary school teachers</li> <li>- Public secondary school teachers</li> <li>- Private school teachers</li> <li>- Universities</li> </ul>
E. Communications- Media	<ul style="list-style-type: none"> <li>- Advertising</li> <li>- Print media health journalists</li> <li>- Radio /TV health journalists</li> <li>- Women’s press journalists</li> </ul>
F. NGOs- Associations	<ul style="list-style-type: none"> <li>- Consumers</li> <li>- Health promotion, physical activity, sport</li> <li>- Children’s rights associations</li> <li>- Women’s associations</li> </ul>
G. Multilateral Partners	<ul style="list-style-type: none"> <li>- Unicef</li> <li>- WHO</li> </ul>

**Table 2:** Policy options

Option cluster	Policy options
1-Actions to promote exercise and physical activity	-improve the availability, access and use of community sports facilities. -promote physical activity through changes in planning and transportation policies. -strengthen the integration of physical activity in schools.
2- Modifying the supply of, and demand for, foodstuffs,	-develop nutritional standards and recommendations, and encourage food service professionals to provide healthier menus. -encourage improvement in food composition. -control the supply and sale of snacks, sweets and sugary drinks in schools.
3-Measures concerning food and nutritional information	-provide nutrition labelling for all processed and packaged foods, as proposed in the codex recommendations. -control food and beverage advertising and promotional messages, particularly those targeting children.
4-Measures related to education	-improve training of health professionals in obesity prevention, diagnosis and counseling for those at risk. -improve health education to enable people to make informed choices. -strengthen and revise food and nutrition topics in the school curriculum.
5-Institutional reforms	-reform agricultural policies to make them consistent with prevention and health promotion policies.

**Table 3:** Ranking of options in the optimistic or neutral scenarios according to their score

Rank	Option	Group of options
Performance in "optimistic" scenario		
1	Reinforce and revise food and nutrition topics in the school curriculum	Educational measures
2	Improve health education to enable people to make informed choices	Educational measures
3	Reinforcing the integration of physical activity at school	Actions to improve physical activity
4	Improve training for healthcare professionals in obesity prevention, diagnosis and advice for people at risk	Educational measures
5	Control food and drink advertising and promotional messages, particularly those targeting children	Food and nutritional information
6	Improve the availability, access and use and sports and leisure facilities	Actions to improve physical activity
7	Reform agricultural policies to bring them into line with prevention and health promotion policies	Institutional reforms
8	Provide nutritional labeling for all processed and packaged foods, as proposed in the codex recommendations	Food and nutritional information
9	Control the supply and sale of snacks, confectionery and sugary drinks in schools	Changes in supply and demand
10	Encourage improvements in food composition	Changes in supply and demand
11	Develop nutritional standards and recommendations, encourage catering professionals to provide healthier menus	Changes in supply and demand
12	Promote physical activity through changes in planning and transport policies	Actions to improve physical activity

**Table 4:** Performance in "neutral" conditions

Sr. No.	Activity	Measure
1	Reinforce and revise food and nutrition topics in the school curriculum	Educational measures
2	Improve health education to enable people to make informed choices	Educational measures
3	Reinforcing the integration of physical activity at school	Actions to improve physical activity
4	Improve training for healthcare professionals in obesity prevention, diagnosis and advice for people at risk	Educational measures
5	Reform agricultural policies to bring them into line with prevention and health promotion policies	Institutional reforms
6	Control food and drink advertising and promotional messages, particularly those targeting children	Food and nutritional information
7	Improve the availability, access and use of sports and leisure facilities	Actions to improve physical activity
8	Control the supply and sale of snacks, sweets and sugary drinks at school	Changes in supply and demand
9	Provide nutritional labelling for all processed and packaged foods as proposed in the codex recommendations	Food and nutritional information
10	Encourage improvements in food composition	Changes in supply and demand
11	Develop nutritional standards and recommendations, encourage catering professionals to provide healthier menus	Changes in supply and demand
12	Promote physical activity through changes in planning and transport policies	Actions to improve physical activity

#### 4. Discussion

The results of this study showed that overall, the three measures in the education and training option group, -Improvement public health education, -Reinforcement of food and nutrition themes in the school curriculum, -Improving obesity training for health professionals, and one of the options is to modify people's environment, -Reinforcing physical activity at school; are the highest ranked of all the options; with very little divergence between the different categories of stakeholders. All the other options in the groups of measures aimed to modify people's environment, namely those relating to 1-exercise and physical activity, 2-food supply and demand, 3-food and nutritional information, received good or fairly good scores in optimistic scenarios, from this point of view, no option is rejected. However, as the evaluations are marked by a high degree of uncertainty, all these options scored low or very low in pessimistic scenarios. The interviewees thus considered that the implementation and performance of these actions would very largely depend on existing socio-economic, political and cultural conditions: funding, literacy, legislation, and inequalities of access whether in geographical, economic or gender terms, cultural norms.

The options that received the highest scores in these different option groups are:

-actions to promote exercise and physical activity: 'strengthen the integration of physical activity in schools' was the preferred option in this group, and the first of all options for changing people's environment. In contrast, *Abdelhakim et al., 2023*

modifying planning and transport policies was ranked last of the twelve options proposed to interviewees.

-changes in food supply and demand: the option to 'control the supply and sales of snacks, sweets and sugary drinks in schools', was the highest ranked option in this group, but with a fairly wide divergence between stakeholder categories. The other two options in this group were ranked in the last positions.

-Measures relating to food and nutritional information : 'control food and drink advertising and promotional messages, particularly those targeting children ' was the option with the most support in this group, but with some divergence, since government sector stakeholders ranked it last of all the options.

A study conducted in Poland [10] showed that compared with options aimed to modify the environment to prevent obesity for example; options concerning physical activity, changes in food supply and demand, and information choices; options linked to health education, particularly in schools, received the highest level of agreement.

Another study conducted in Finland [11] showed that the policy options concerning education have received favorable reviews. Strengthening and improving health education is a traditional means of health promotion, and it is a generally felt that strengthening health education remains necessary and effective. Similarly, improving the training of healthcare professionals was also deemed important in the future; with several participants, stressing that training must be improved.

Options to improve food information initiatives also ranked well on average, although there was more variation between respondents. Policy options aimed to increase physical activity and facility access to healthy food were also relatively well ranked, but with wide variations and doubts in the assessments. Options promoting institutional reform were mostly poorly ranked, and have not been seen as solutions to the problem of obesity. In the same sense, the results of a study carried out in Greece showed that the educational options, improving community facilities and certain information related options (food labeling, advertising) were systematically ranked highly, with particular support for policies targeting young people [12].

## 5. Conclusions

The results of this study show that four options stood out all from the others: the three options in the education and training measures group (in particular, strengthening nutrition in the school curriculum and public health education) and strengthening physical activity in schools. The performance of many options was deemed to depend on education, but also on Moroccan society's prior awareness of the problem of overweight and obesity.

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