STRATEGIC LANDMARKS IN OBESITY PREVENTION IN ROMANIAN CHILDREN AND ADOLESCENTS

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Abstract: *Given that in Romania obesity has also become a recognized public health problem and still there is not a public health policy on the broader "socio-ecological" model, we thought it useful to carry out three surveys using the Delphi method with the purpose of identifying and building a hierarchy for the optimum national intervention strategies to prevent obesity in Romanian children and adolescents. Of the 300 experts invited to join the Delphi surveys, 76 completed the two rounds of questions (25.33% response). The final number of surveys participants included: 26 school doctors (Delphi I); 25 interdisciplinary experts (DELPHI II); 25 parents (DELPHI III). The outcomes of our study were compared with those of the European project PorGrow. Responses were classified by the principle of ranks, using the average weighted ranks given of each participant in the survey for each question. For analyzing the degree of concordance between the three views expressed, Kendall's nonparametric test of rank correlation coefficient was calculated. This study shows a consensual opinion regarding the necessity of applying not just a few separate measures, but a whole package of well coordinated, well integrated measures, that are able to complete one another and to adapt to the Romanian social-economic and cultural environment in order to reverse the progressive tendency of the obesity epidemic on children and teenagers.*

Key words: *obesity, prevention, public health policy*

JEL Classification Codes: *H51, H83, I15, I18, I30, I38, J18, M54*

INTRODUCTION

"Obesity is one of the greatest public health challenges of the 21st century[1]". 'Its prevalence has tripled in many European countries since the 1980s (especially in Eastern Europe, including Romania[11]) and the number of those affected is continuing to increase at an alarming rate, particularly among children and adolescents[12]. In this situation, it has been emphasized the need for a multilevel, multisectorial approach to population-based obesity prevention, and it is recognized that children and adolescents are the priority population for intervention strategies[8]. Hence, a new paradigm was used to conceptualize the problem, and a broader "socio-ecological" model was developed, in order to conceive culturally appropriate and sensitive intervention strategies[13, 14]. This model considers the complex interplay between individual, relationship, community, and societal factors. In this context, the success in countering the epidemic of obesity requires not only the deepening of the subject from the scientific point of view, but also intelligent implementation in carrying out

public health policies in the field. Public health obesity policies have to deal with three fundamental issues (L. King et Al 2007):

- the complexity of causal determinants which imply that a broad range of potential interventions will be required;
- the lack of a well-developed body of evidence on the effectiveness of interventions;
- the fact that many of the necessary responses are outside the direct ambit or control of the health sector.

Given that in Romania too, obesity has become a recognized public health problem and still there is not a public health policy on the model mentioned above[9], we thought it useful to carry out three Delphi surveys, in order to identify and to prioritize the optimal national strategies for the prevention of obesity in the Romanian children and adolescents. The initial material on which the Delphi surveys were started has been the material resulted by finalizing the European PorGrow project. In 2006 the project "PorGrow on policy options for preventing obesity (Lobstein and Millstone) analyzed these options at national level through its 21 experts panel from 9 countries: England, France, Cyprus, Greece, Hungary, Italy, Poland, Spain, Finland[15]. The final report contains lists of the prioritized combinations of obesity prevention strategies, for each participating country and the final synthetic list.

OBJECTIVE

During the years 2007-2008, at the Institute of Public Health in Bucharest and at the Romanian Academy's Institute of Anthropology, we have conducted three surveys using the Delphi method with the purpose of identifying and building a hierarchy for the optimum national intervention strategies to prevent obesity in Romanian children and adolescents and compare them with those resulted from the European project PorGrow.

MATERIAL AND METHODS

The Delphi Surveys:

We used the Delphi method[10] in order to identify and prioritize the optimal strategies of intervention for the prevention of child and adolescent obesity. We contacted 100 people for each Delphi survey. Of the 300 experts invited to join the Delphi surveys, 76 completed the two rounds of questions (25.33% response). The final number of surveys participants included: 26 school doctors (Delphi I); 25 interdisciplinary experts: specialists in public health, diabetes, endocrinology, nutrition, management, epidemiology, family doctor, anthropology, dental medicine (DELPHI II); 25 parents (DELPHI III). A statistical analysis of concordance between the three proposed classifications was realized.

The statistical analysis of concordance between the three proposed classifications:

Responses were classified by the principle of ranks, using the average weighted ranks given of each participant in the survey for each question (Table 1). For analyzing the degree of concordance between the three views expressed, Kendall's nonparametric test of rank correlation coefficient was calculated, defined by the following formula (for the common rank):

$$W = \frac{\sum\left(n_{i.} - \frac{n..}{k}\right)^2}{\frac{1}{12}\left[p^2 k\left(k^2 - 1\right)\right] - \left[p\sum\frac{\left(t^3 - t\right)}{12}\right]},$$

where t represents the number of common ranks in each column of matrix ranks.
The concordance coefficient value W = 0.638 for p = 3 and k = 16 confirms a statistically significant correlation of opinions. To test the statistical significance of W, we used the Chi-square test. Applying the test (for edf = 15), was obtained the statistic χ^2_c = 36.85, being significant for p = 0.05.
Valoarea coeficientului de concordanţă W = 0,638 pentru p = 3 şi k =16 confirmă o concordanţă semnificativă statistic a opiniilor. Pentru testarea semnificaţiei statistice a coeficientului de concordanţă s-a aplicat testul χ^2. Valoarea obţinută, χ^2_c= 36,85 pentru edf= 15 confirmă semnificaţia statistică pentru p = 0,05.

Table 1: Rankings granted by members of the three different perspectives (DELPHI I, DELPHI II, DELPHI III) and the general pattern shown for all participants combined (the average ranking) showing the final concordant opinions:

No	Preventive Strategies Proposed	DELPHI	DELPHI II	DELPHI III	Concordant Opinions
1	Control sales of foods in schools	5.5	6	2.5	4.6
2	Healthier menus in schools	2.5	9.5	2.5	4.8
3	Increase the physical activity in schools	1	7.5	5	4.5
4	Guide to improve practice of school doctors	5.5	2	11	6.1
5	Council for promoting a healthy lifestyle in schools	4	13	4	7.0
6	Improve communal sports facilities	8.5	4	9	7.1
7	Health risk behavioral monitoring system in schools	2.5	4	7	4.5
8	Increase the physical activity preschools	8.5	4	16	9.5
9	Controls on food and drink advertising	7	12	12	10.3
10	Control the use of marketing terms (‘diet’, ‘light’ etc)	13.5	1	1	5.2
11	Change urban planning and transport policies	11.5	9.5	14	11.7
12	Guide to improve practice of GPs	10	7.5	9	8.8
13	Require mandatory nutrition labeling	11.5	11	6	9.5
14	Stimulation of ecological foods producers	15	16	9	13.3
15	Less salt in foods	13.5	15	13	13.8
16	Provide subsidies on healthy foods	16	14	15	15.0

RESULTS AND DISCUSSION

The results showed some similarities, but quite a few striking differences as well.
Table 2: Comparison of rankings given by members of the three different perspectives (DELPHI I, DELPHI II, DELPHI III) in the descending order the average ranking that gives as the final consensual opinions:

No	Preventive Strategies Proposed	Average Rank	School Doctors	Interdisciplinary Experts	Parents
16	Provide subsidies on healthy foods	**15**	**16**	**14**	**15**
15	Less salt in the composition of foods	**13.8**	**13.5**	**15**	**13**
14	Stimulation of ecological foods producers	**13.3**	**15**	**16**	**9**
11	Change urban planning and transport policies	**11.7**	**11.5**	**9.5**	**14**
9	Controls on food and drink advertising	**10.3**	**7**	**12**	**12**
8	Increase the physical activity in preschools	**9.5**	**8.5**	*4*	**16**
13	Mandatory nutritional information labeling	**9.5**	**11.5**	**11**	**6**
12	Guide to improve practice of GPs	**8.8**	**10**	**7.5**	**9**
6	Improve communal sports facilities	**7.2**	**8.5**	*4*	**9**
5	Council for promoting a healthy lifestyle in schools	**7**	**4**	**13**	*4*
4	Guide to improve practice of school doctors	**6.2**	**5.5**	*2*	**11**
10	Control the use of marketing terms ('diet', 'light' etc)	**5.2**	**13.5**	*1*	*1*
2	Assuring healthy catering menus in schools	*4.8*	*2.5*	**9.5**	*2.5*
1	Controlling sales of foods in schools	*4.7*	**5.5**	**6**	*2.5*
3	Increase the physical activity in schools	*4.5*	*1*	**7.5**	*5*
7	Health risk behavioral monitoring system in schools	*4.5*	*2.5*	*4*	**7**

The code for the classification order is as follows:

I	II	III	IV	V	VI	VII	VIII	IX	*X*	*XI*	*XII*	*XIII*	*XIV*	*XV*

For a country with agricultural potential in which the purchasing power of the population greatly decreased, it is not surprising that the first ranked option between consensual views was to provide subsidies to lower the prices of healthy foods, making them more affordable or to stimulate the ecological food production. Between the consensual options which were granted with the highest scores were also changing urban plans in order to provide more green spaces, playgrounds for children, the changes in town planning and transport policies which could limit the use of motorized transport and provide improved facilities for playing, walking and cycling, having regulations for setting national health-focused composition standards

for processed foods by stipulating the maximum limits on the amounts of added salt in foods, or more physical activity since preschools. Among the worst ranked choices was the one referring to "passing of a legislation that bans the sale of sweets and soft drinks in schools", which during the realization of these Delphi surveys has already been put into practice. Quite low in the rankings are also options concerning the action of "increasing the number of hours of physical education in schools", and surprisingly, "creating a system to monitor the behavioral risk factors in schools".
The table above also makes it possible to compare the marked differences between the three perspectives. An example is the option number 5 (create councils -by teachers, school doctors, parents, etc. - for promoting a healthy lifestyle in schools), number 2 (assuring healthier menus in schools) and number 10 (regulations to restrict the conditions under which terms such as 'diet' and 'light' may be used in the marketing and for labeling of food products), highly ranked in terms of interdisciplinary specialists, but ranked poorly in the other two perspectives.

Table 3: Comparison of average rankings, in the descending order, given by members of the PorGrow project and Romanian Delphi surveys (different options of the two standings are marked in bold):

PorGrow Project Options	Romanian Delphi Surveys Options
More sanitary education in schools	Provide subsidies on healthy foods
Sanitary education for the adult population	Less salt in the composition of foods
Mandatory nutritional information labeling	Stimulation of ecological foods producers
Controls on the composition of processed foods	Change urban planning and transport policies
Controls on food and drink advertising	Controls on food and drink advertising
Change urban planning and transport policies	Increase the physical activity in preschools
Courses on this theme for doctors and nurses	Mandatory nutritional information labeling
Control the use of marketing terms ('diet', 'light' etc)	Guide to improve practice of GPs
Increasing research on obesity	Improve communal sports facilities
Renewal in the agricultural policy	**Council for promoting a healthy lifestyle in schools**
Controlling sales of foods in public institutions	Guide to improve practice of school doctors
Provide subsidies on healthy foods	Control the use of marketing terms ('diet', 'light' etc.)
Communal sports facilities	Assuring healthy catering menus in schools
Improve communal sports facilities	Controlling sales of foods in schools
Taxes on obesogenic foods	Increase the physical activity in schools
New governmental structure for coordinating policies tackcling obesity	**Health risk behavioral monitoring system in schools**

Assuring healthy catering menus
Instruments for monitoring physical activity
Medication for weight control
Sugar and fat substitues

The comparative analysis of the final consensual opinions lists (Romanian final list and PorGrow final list) reveals not only the different priority that are given, but also the different existing options between the two classifications. The first ranked options from the PorGrow perspective, regarding the raising of the educational level of the population regardless their age, do not exist in the classification given by the Delphi investigations in Romania. Another option that is not present in the final Romanian list, although being very highly regarded, especially in the Mediterranean countries participating in the PorGrow project, and also in Hungary, is the one that proposes to advance a policy coordinating structure to counter the obesity epidemic. The following options are also not considered a priority: the stimulation of research on obesity, changing the agricultural policy, stimulating the production of physical activity monitoring instruments (e.g. pedometer etc.), stimulating the production of weight control medicine, or sugar and fat substitutes. The new options from the Romanian point of view, given the target population formed of children and adolescents, are: establishing school councils to promote a healthy life style, in which parents and as well as teachers should take part, and the founding of a national risk factor monitoring system through the medical school network.
In order to organize and structure the analysis, the sanitary policy and public health options have been combined into five similar action direction groups (Table 4)

Table 4: Average ranks accorded by groups of similar directions of action (the highest ranked options in each group are marked in bold):

Preventive Strategies Proposed	Average Rank School Doctors	Average Rank Interdisciplinary Experts	Average Rank Parents	Romanian Consensual Opinions
Modifying the supply of, and demand for, foodstuffs				
1. Control sales of foods in schools				
16. Provide subsidies on healthy foods				
2. Healthier menus in schools	**10.50**	**12.10**	**9.27**	**10.62**
15. Less salt in foods				
14. Stimulation of ecological foods producers				

Preventive Strategies Proposed	Average Rank School Doctors	Average Rank Interdisciplinary Experts	Average Rank Parents	Romanian Consensual Opinions
Exercise and physical activity-oriented initiatives				
11. Change urban planning and transport policies				
8. Increase the physical activity preschools				
3. Increase the physical activity in schools	**7.38**	**6.25**	**11.88**	**8.50**
6. Improve communal sports facilities				
Educational initiatives				
4. Guide to improve practice of school doctors				
12. Guide to improve practice of GPs	**7.75**	**4.75**	**10.98**	**7.83**
Information-related initiatives				
13. Require mandatory nutrition labeling				
9. Controls on food and drink advertising	**10.67**	**8.00**	**7.60**	**8.76**
10. Control the use of marketing terms ('diet', 'light' etc)				
Institutional reforms				
5. Council for promoting a Healthy Lifestyle in Schools				
7. Health Risk Behavioral Monitoring System in Schools	**3.25**	**8.50**	**7.38**	**6.38**

Regarding the consensual opinions, the best ranked in Romania were the ones regarding supply and demand change, among which the favorite option targeted the

insurance of subsidies for healthy foods. The second ranked option among the consensual opinions in Romania (but also in the PorGrow project), are the initiatives that increase the level of informing and as a consequence the ability to make healthier choices. Among these, the preferred option in Romania is commercial control regarding foods and drinks. In the PorGrow project labeling foods and commercial control regarding foods and drinks came out ahead. Remarkable is the fact that among the participant countries at the PorGrow project, the new entrants in the European Union were less confident regarding the possibility of controlling this market segment. On third place in the same ranking, with really close scores, are the options regarding physical activity, especially through the change of urban plans and public transport policy in order to discourage motorized transport and stimulate walking, or cycling etc. The last placed in Romania are the options regarding medical practice improvement guides in preventing and treating obesity, especially for GP's, and the ones regarding institutional reforms.

The comparative analysis of the differences between the three perspectives on the importance given to each group of solutions with a similar approach shows the fact that:

- Interdisciplinary specialists consider that changing the supply of foods on the market has the largest impact. Next ranked are institutional reforms, and on third placed are the initiatives that will ensure the population to take an informed decision and also the control of commercial and marketing policies.
- Parents give priority to the initiatives that allow a lifestyle change through the creation of a favorable environment and the supply of cheaper, healthier food. The improvement of the school doctor's and GP's practice regarding obesity prevention is another prioritized action direction in parents' view.
- School doctors consider the proposed reforms for the institutions that they work in to be the least important, also regarding available food supply change and the facilitation and development of the population's ability to distinguish the quality of the products as being the most important.

These results should be taken into consideration at the time of organizing the implementation of the accomplishment politics and the mentioned institutional reforms.

CONCLUSIONS

Is Romania ready for a coherent obesity prevention policy? This study shows a consensual opinion regarding the necessity of applying not just a few separate measures, but a whole package of well coordinated, well integrated measures, that are able to complete one another and to adapt to the Romanian social-economic and cultural environment in order to reverse the progressive tendency of the obesity epidemic on children and teenagers. Romania still does not have such a public health policy. As a consequence, we have to notice the lack of the option to create, in Romania, as well as in other countries, a new policy coordination structure regarding obesity prevention, a body that could set a few coherent, synergic objectives to reduce obesity levels, to monitor, report and evaluate recorded progress as well as the efficiency of political initiatives. This could also prove useful

to improve communication and synergy among the implied sectors, having in mind that most obesity determinants are the responsibility sectors other than the healthcare one. Otherwise, the value of the concordance coefficient, W=0,638, among the participating categories to this Delphi project is good enough to start to put together a package of priority countermeasures against the obesity epidemic in Romanian children and adolescents; but it is not good enough to ensure a well articulated implementation of these policies. The analysis of the divergent points facilitates in turn the implementation of public health policies. The needed transformation in thinking on transport, environment, work facilities, education, health and food policies and perhaps on social and economic policies is unlikely when governments are wedded to individualism; but without these changes to enhance physical activity and alter food quality societies are doomed to escalating obesity rates.

Research stimulation in the obesity prevention and treatment in children and adolescents domain has not been mentioned among the priority solutions. A sustained effort is desirable towards the awareness of the efficiency resulted from the connection between research in the field not only with the medical practice, but also with the managerial one. Such studies could be accomplished dynamically and could lead to additional information regarding obesity prevention from an individual perspective (the motivations for behavioral change, especially in children and adolescents), and eventually regarding the relative efficiency of the proposed solutions.

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