DIETICIANS’ PERSPECTIVES ON TAILORING NUTRITION INTERVENTIONS FOR ROMANIAN ADOLESCENTS

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INTRODUCTION
Focusing on healthy eating in children and adolescents is critical due to the short and long term consequences on their health and development [1]. On the short term, unhealthy eating negatively impacts physical and sexual maturation during adolescence [2]. Poor nutrition causes anaemia, osteopenia, deficiencies in vitamins, minerals, essential fatty acids and trace elements, thus impacting overall physical growth [3]. Poor nutrition also affects the timing of the adolescents’ pubertal development, as malnutrition is associated with later menarche, and obesity is associated with early sexual maturation [2]. Moreover, on the short term, poor nutrition significantly impacts the maturation of the adolescent’s brain [4]. Even though critical stages of brain maturation occur in the early stages of life, certain structures and higher cognitive functions like abstract thinking, decision making, social cognition, and problem solving develop during adolescence and early adulthood [5]. A study performed on 16 year old students from Chile showed that students having unhealthy diets at 16 were more prone to poor academic performance [6]. On the long term, unhealthy eating “affects future risk for the development of chronic diseases such as heart disease, osteoporosis, and cancer”[7]. Literature shows that adolescents suffering from overweight and obesity have an increased risk for type 2 diabetes, a condition likely to persist into adulthood [7]. Although short and long term consequences of unhealthy eating are known, overweight and obesity rates among children and adolescents have been increasing in Eastern European countries in the past years [8] and eating disorders such as bulimia and anorexia nervosa, have become more and more prevalent during early adolescence in these countries [9].
Nutrition interventions have the potential of improving adolescents’ eating behaviours, thus impacting their short and long term health [10]. Findings suggest that programs which have an effect on improving adolescents’ eating behaviours should address a broader range of factors with an emphasis on environmental factors such as increased availability and promotion of healthy foods within households, schools and restaurants and increased awareness of the benefits of healthy foods [11]. Moreover, for an intervention to be successful it needs to be based on behavioural change, use theories for developing a framework and deliver an appropriate number of lessons [10]. Dieticians’ perspective on nutrition interventions is an important aspect as they “play a key role in educating the public on matters regarding diet and health” [12]. To our knowledge, no paper presents Romanian’s

OBJECTIVES
Dieticians play a key role in educating the public on matters regarding diet and health. One intervention area that could benefit from dieticians’ perspective is the design of effective interventions addressing adolescent’ eating behaviours. This study aimed to analyse dieticians’ needs, preferences and attitudes toward nutrition interventions addressing adolescents.

METHODS
The study design involved a qualitative analysis, using semi-structured interviews in order to explore the areas of interest. We interviewed 10 dieticians having at least three years of practice in nutrition counselling, working inside a state-owned or private organization delivering nutrition related activities and implementing at least one activity addressing nutrition in children and adolescents. Interviews were audio-recorded, transcribed and analysed using thematic analysis.

RESULTS
Dieticians participating in the interviews manifested a general consensus towards the urgency of addressing adolescents’ eating habits by targeting adolescents’ attitudes towards healthy eating. Study results allowed us to describe the characteristics of effective nutrition intervention falling under six categories: methods of dissemination, nutrition knowledge, participants, trainers, intervention content and intervention time and duration.

CONCLUSIONS
Knowledge-based, behavioural and environmental interventions targeting adolescents’ dietary patterns are not sufficient in improving adolescents’ dietary patterns. Practitioners should aim at designing school-based nutrition interventions addressing adolescents’ specific needs and rely on the needs assessment process as a major component of the design.

Keywords: adolescents, dieticians, needs and preferences, school based nutrition interventions.
dieticians’ attitudes towards nutrition interventions addressing Romanian adolescents. The following paper aims to analyse health practitioners’ needs, preferences and attitudes toward nutrition interventions addressing adolescents.

**Methods**

**Setting and participants**

To recruit participants we used purposive sampling. We aimed to recruit specialists working in the field of nutrition and dietetics in Romania, having at least three years of practice in nutrition counselling, working inside an state-owned or private organization delivering nutrition related activities (i.e., nutrition counselling, nutrition training) and having at least one activity addressing nutrition in children and adolescents. Fifteen dieticians meeting these criteria were identified, and ten agreed to participate in the interview. The respondents were both male and female, working in different clinics or medical centres from Cluj-Napoca and Bucharest such as: Floresteanca Clinic, Asteco Medical Center, Queen Mary Private Health Network, CFR University’s Hospital, Tengu Dietetics – Nutrition Centre and also dieticians having private counselling rooms. The majority of the participants were specialists in diabetes, nutrition and metabolic diseases, and one of them was an expert in diabetes, nutrition and dyslipidaemias.

**Measurement instrument**

For data collection we developed a semi-structured interview guide. The interview questions helped us determine two key areas to be examined. The first three questions of the interview guide were designed to address participants’ perspectives regarding adolescents’ dietary patterns, their attitudes toward healthy eating and the knowledge that once held could positively influence adolescents’ dietary patterns and food choices. The next ten questions helped assess participants’ perspectives towards the characteristics of effective school based nutrition interventions addressing adolescents. Participants not providing comprehensive answers for the fifth question of the interview answered three additional questions addressing the characteristics of activities having the potential to positively influence adolescents’ eating behaviours. The semi-structured format of the interview guided the research assistant conducting the interviews in addressing the research topics considered by the research team and gave participants the possibility to elaborate the information they considered important, but which might not have been considered by the research team.

**Data collection and analysis**

Data collection was performed in June 2014 and lasted for two weeks. Interviews were conducted by phone at the Department of Public Health headquarter by a Romani-an female research assistant, aged 27. Consent to participate in the study and to audio record the interviews was verbally obtained. Interviews lasted between 15 to 30 minutes. Interviews were transcribed by the research assistant conducting them. Five interviews were three pages long, three were four pages long, and two were two pages long. Data analysis was performed by a female student, aged 22, and enrolled in the BA program at the Department of Public Health and by a female research assistant, age 28, working at the Department of Public Health. Data analysis lasted two weeks. For data analysis a codebook was used developed based on the interview guide and validated by both the student and the research assistant. Transcripts were analyse using thematic analysis and following the protocol developed by Clarke and Broun [13].

**Results**

We were able to identify seven themes presenting dieticians’ perspectives towards the characteristics of effective nutrition interventions addressing adolescents: Methods of dissemination, Nutrition knowledge, Participants, Trainers, Intervention context, Intervention time and duration.

**Methods of dissemination**

Regarding the methods of dissemination, most dieticians agreed that nutrition classes such as “classes of nutritional education” or “classes of food education” are the best way of promoting healthy eating in adolescents. Participants disagreed towards the method of delivering the nutrition classes. Six of them suggested that these classes should use PowerPoint or presentations without a visual support. However, four considered that nutrition classes addressing adolescents have to be “a little different from how the activities of classical education are carried” or organized “as a competition” or “interactive games” as these methods “best stimulate” adolescents’ interest. These dieticians said that “the activity should be interactive”, that adolescents need “to be the main actors in such an activity, not just listeners”, and that the intervention should be approached in a holistic manner “because nutrition cannot be separated from physical activity, from having a healthy sleep schedule, or from anti-smoking education” and thus be “a complex activity, not necessarily focused only on nutrition”. Some dieticians mentioned workshops as a way of disseminating the information stating that they would “cook something healthy” or make the adolescents “cook something healthy, made by them and then eat what they cooked and tell the results, if they liked it or not”. Another aspect that was mentioned by two of the dieticians was mass media. One dietician suggested that nutrition courses should be advertised through mass media and another one thought that the message should be disseminated through “commercials regarding a healthy lifestyle and general recommendations in this sense”.

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One dietician mentioned that the activities for adolescents should end by rewarding them with “healthy sweets”, “fruits salad” or a fruit. Another one said that the activity should end with a “short revision to see if they remember the information”. Five of the interviewed dieticians suggested that at the end of the activities a survey should be applied in order “to see what is missing, what should be added, which was their opinion” or “to tell about how much they understood from what they were told”. Two of the respondents did not mention anything about the dissemination methods. An aspect that was mentioned as being important was the dialogue which should be “as friendly as possible, without using very sophisticated terms”. One of the dieticians said that the message should take into account “their needs” and use adolescents’ language, so “then the education will be successful”.

Nutrition Knowledge
Most dieticians had a common opinion regarding required food knowledge in adolescents, stating that they should know “some basic principles, in the sense that they should know what foods are made of, which are harmful and which are good for health. Which ones should be avoided and which ones they should eat more often.”, and also “it should be argued why are those foods healthy or unhealthy”. Some of them thought that adolescents should know “which are the long term disadvantages of the consumption of fast food” and the “negative effects of their actual behaviour”. An aspect that was mentioned by one of the dietician was teaching adolescents “how to respect the meal program, how much water to drink, how to combine diet with exercise”. Moreover, participants thought that nutrition classes addressing adolescents “should address basic concepts, and should not be loaded with too much information, they won’t remember”. Two of the interviewed dieticians did not mention anything regarding the required food knowledge that adolescents should have.

Participants
Asked to mention the participants that should be targeted by nutrition intervention, eight out of ten dieticians agreed that parents should be involved because “well, the best method is to first educate the parent and after, the child, otherwise, it is useless to educate the child while parents continue cooking unhealthy foods and snacks.” Some of them thought that it would be a good idea to involve grandparents as well as “anyone who has a role in educating the child”, “the one who cooks the meals in the house”, “in other words a kind of training the trainers. At the same time, at school level too, there should be done something similar.” Moreover dieticians agreed teachers should take part “if it would be an intervention within the school” because adolescents “are very reluctant to strangers”. One dietician suggested “including the sports teacher or biology teacher, the school principal, because there are schools which have their own cafeteria where they serve food which is not ok for children.” One of the dieticians had a different opinion stating that parents and teachers should not participate within the activity because “pupils open up easier if there isn’t someone else in the classroom”.

Trainers
From the dieticians perspective, the person delivering the intervention “should be a young person, freshly graduated, mainly, closer in age”, “who could identify with the target population, with the adolescents” because adolescents “would perceive the trainer as a friend, and not necessarily as a teacher or educator”. Although most dieticians agreed the mediator should be young, one said that age doesn’t matter as long as it is “a person who eats healthy”. Only one respondent mentioned gender as a characteristic of the mediator, stating that gender is not important as long as the person is young and “easily approachable”. Regarding the trainer’s titles, most of the dieticians agreed that it should be a dietitian, a physician or a specialist even though they used different terminology to describe them.

Intervention context
The dieticians all agreed that the best context where a nutrition intervention should be held is the school. Half of the dieticians interviewed mentioned “private institutions, schools, kindergartens and public institutions”, “parents and then to continue with schools and the Ministry of Education”, or only “the school, and the school should appeal to specialists”. Two of the dieticians thought that if the intervention could take place “during counselling class would be perfect”. Also, one of them mentioned that “in a classroom it would be ok” because “another context is harder to organize for school as well and it is less comfortable for them (adolescents)”. One of them stated that “it can also be extracurricular”, for example by organizing “nutrition day for adolescents”. One dietician first had a contrary opinion stating that adolescents “nowadays don’t see school as a very pleasant place to go. And then the context should be one which is very favourable for them”, but then he mentioned that with this age group it is still ok to have an intervention in schools.

Timing
Most dieticians believed that the best time to implement an intervention is “during school time” and only one of them said that it would best delivered “after school”. It was also mentioned that if the activity is “a recreational activity with educational purpose” it should be held “during the weekend or sometime during the last weeks of school or in the first day of holiday”. Regarding the length of the classes, the majority recommended that activities “should not surpass one school hour” or it should last “even less” because “if it lasts longer they lose their interest and patience”. One of them mentioned that “as a recreational activity, it can extend with a small
party or moments of recreation or games”. Also, another opinion was that “if it is a onetime intervention, a single activity” then it should last “at least two hours. If it would be an intervention which would have repeated meetings, at least 2 or 3 meetings, 50 minutes would be sufficient”. Regarding the frequency on nutrition classes, participants said that it should take place once a week and others that “it is possible in one session, but it would be indicated to take place several times”, for example “two up to four classes per semester”.

**DISCUSSION**

This paper aimed to analyse dieticians’ needs, preferences and attitudes towards nutrition interventions addressing adolescents. Dieticians participating in the interviews manifested a general consensus towards the urgency of addressing adolescents’ eating habits by targeting adolescents’ attitudes towards healthy eating and by delivering an effective nutrition intervention.

All participants described adolescents’ eating habits as being “mostly chaotic mainly because of their schedule”, “unhealthy”, “rich in saturated fats, sweets, sodas and fast food”. Three of the dieticians stated that “breakfast is nonexistent or its existence consists in croissants, generally fast-food”. This is similar with other studies showing that breakfast skipping among adolescents is highly prevalent both in the USA and in Europe [14]. One of the dieticians described adolescents’ eating habits as being “guided by enjoyment tastes”. There was one interesting observation made by one of the participants who in order to describe the adolescents’ eating habits, divided adolescents in two categories, pupils and students: “I would split adolescents in two: pupils and students. Pupils have a certain food discipline, while students have none”. This dietician argued that “food discipline in pupils comes from the fact that at least they are protected by the anti-fast food law in schools”.

Attitudes were consider a driver of adolescents’ unhealthy eating habits and thus considered a main aspect to target in nutrition interventions addressing adolescents. Participants shared a common view on adolescents’ attitudes towards nutrition considering that they are dealing with “a very heterogeneous the population” and that “some are interested in nutrition and to know what and how to eat. (...) Some are totally indifferent.” An interesting aspect mentioned by many dieticians was the fact that adolescents’ attitudes depend on “their social class and on the education received at home”. Another interesting aspect which was mentioned by two of the dieticians was the fact that “the vast majorities are uninterested and have no interest only when there is a visible problem, which is affecting their health. Then it becomes a concern.”

When it comes to the characteristics of efficient nutrition interventions, there was a general consensus that these should be interactive, that they should contain basic concepts and the dialog with adolescents should be friendly and the message should be tailored and spoken in their language. Some of them recommended that the intervention should be approached in a holistic manner, tackling not only nutrition but also physical activity and other healthy behaviours. Besides these aspects, in order for a nutrition intervention to be effective not only adolescents should be involved but also parents, the people who cooks the meals in the household and teachers because especially parents have an important impact on adolescents’ eating habits. The most appropriate person to deliver the nutrition intervention ought to be a young person, close to the adolescents’ age and easily approachable. Even though the person should be young, all dieticians agreed that the trainer on nutrition should be specialized in the nutrition field whether it is a dietician or a physician. Dieticians commonly stated that adolescents need to know some basic information about which foods are harmful and which are good for their health and also the short and long term negative effects of consuming unhealthy foods. In order for adolescents to acquire that information, dieticians suggested that adolescents should attend nutrition courses delivered via presentations, competitions and workshops where adolescents could learn how to cook something healthy. Most dieticians suggested that these activities should benefit from a formative evaluation focusing on adolescent’s feedback and level of improved knowledge.

All dieticians agreed that nutrition courses should be delivered inside the school setting during school hours in a timely manner as adolescents will lose their attention. Our findings are supported by the literature showing that “families and schools represent the most important foci for preventive efforts in children and adolescents” [15].

Besides offering guidelines for an effective nutrition intervention, dieticians also mentioned several obstacles which may impede the success of the intervention. Regarding this matter, there were several different opinions. Some of them considered the financial obstacle as being “the most serious problem”. Others mentioned teachers and school principals’ reluctance or “the parents who do not agree” with this kind of interventions. Other obstacles which could affect the intervention were the lack of interest and involvement, the “lack of action”, of the stakeholders and representative institutions, stigma from other children, “access to healthy food” and the bureaucracy. Our findings are supported by findings from other studies. 25 structured focus groups addressing 203 adolescents showed that barriers to healthy eating included lack of time, lack of healthy foods in schools and lack of interest regarding healthy eating recommendations [16].

Unhealthy eating imposes a great burden for individuals, their families, the communities they live in and the entire health care system [8]. Healthy Eating is an important factor influencing the health status and quality of life in every Member State in the WHO European Region, according to the Global Burden of Disease Study 2010 [8]. Thus, focusing on promoting healthy eating during childhood
and adolescence can have a major impact not only on adolescents’ health but also on the health status and quality of life of the future adults in the Member States. Our findings suggest public health practitioners need to design nutrition interventions that consider multiple aspects such as context, time and duration, persons involved, trainers and adolescents’ literacy and nutrition literacy levels and methods of delivery.

Ethical concerns
The study protocol received the institutional review board approval from Centre for Health Research, Protocol number GTC 34067/01.11.2013 from the Babes-Bolyai University Cluj-Napoca. The content is solely the responsibility of the authors and does not necessarily represent the official views of the Babes-Bolyai University Cluj-Napoca.

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References