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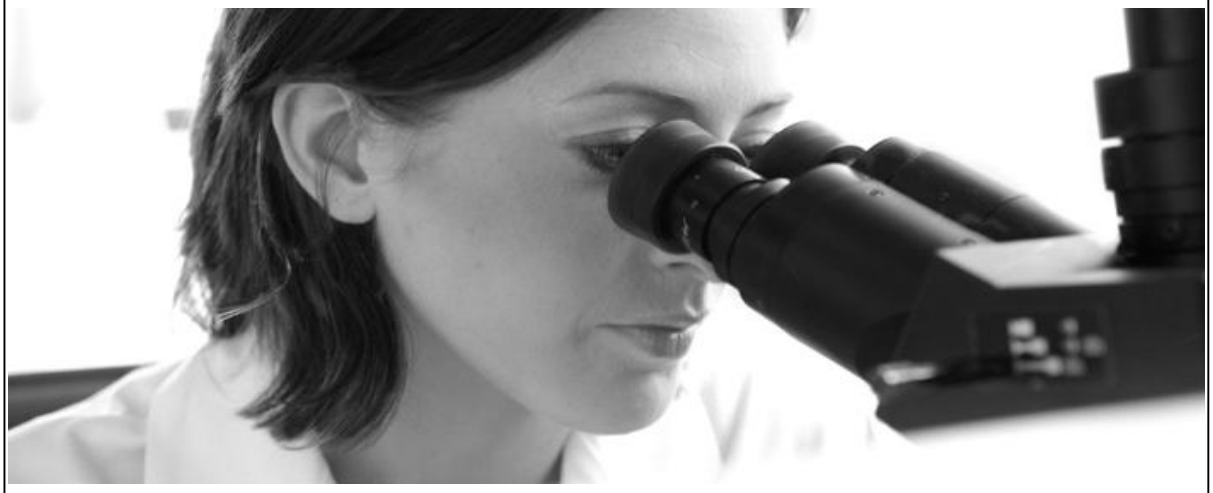

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RESEARCH ARTICLE

HEALTH LESSONS AND THEIR TEACHING SEQUENCES FOR NUTRITION TOPIC IN A LEBANESE SCHOOL AND A PALESTINIAN SCHOOL

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ABSTRACT

Through the analysis of some health lessons in national textbooks and their teaching sequences, this research critically analyzed health education in Lebanon according to the World Health Organization (WHO) recent definitions of "comprehensive health education curriculum". Two classroom observations for nutrition lessons were conducted in two neighboring schools, a Lebanese Public School and a Palestinian one, to test the hypothesis of possible differences between them. Two grids were established to collect data. The results were recorded in tables and then commented. The results indicated that the nutrition health lessons and teaching sequences were directed toward disease prevention more than health promotion, ignored the focus on personal perception of risk, and poorly addressed social influences and skills. Teachers used strategies that do not engage students. The study concluded the need to adapt the national textbooks and improve the teaching sequences according to WHO definition of comprehensive health education.

INTRODUCTION

The last global health risks report, issued by the World Health Organization (WHO) in 2009, indicated that the major cause of death and disability shifted from infectious diseases to the chronic and non-communicable diseases. The report specified that physical inactivity (5.5%), overweight and obesity (4.8%) are among the five leading global risks of mortality in the world. These risk factors raised the risk of chronic diseases (WHO, 2009). In Lebanon, the Global School Health Survey (GSHS), developed in 2001 by the World Health Organization (WHO) to determine the prevalence of important health behaviors and protective factors among students (13-15 years old) in all countries, was conducted for the first time in 2005 (Lebanese MoEd, 2007) and repeated in April 2011 in the Lebanese schools (LS), and in November 2010 for the first time in UNRWA[1] schools. The results among school children in grades 7-9 revealed that the percent of underweight students in 2011 was 5.3% (4.2% boys and 6.5% girls) in the LS and 4.7% (6.0 boys & 3.5% girls) in UNRWA schools. The percent of overweight school children were 23.3% (30.4% boys & 15.3% girls) in 2005 and 24.1% (34.0% boys & 14.1% girls) in LS and 28.1% (28.6% boys & 27.6% girls) in UNRWA schools. Whereas, 5.0% (6.8% boys & and 3.0% girls) and 6.7% % (9.1% boys & 4.2% girls) were obese in 2005 and 2011 respectively in LS and 8.7% (10.7% boys & 6.9% girls) in UNRWA schools. Looking at the GSHS results for UNRWA schools (2010) and those for LS (2011), there are relatively similar percentages of high risk behaviors related to nutrition (overweight, underweight, and obesity) and the results of the LS in 2005 were not even improved in 2011. The concern of health is not only to focus on disease prevention and treatment, but also to empower people to make informed choices towards healthy habits. In the health promotion (HP) perspective, health is seen as a bio-psycho-social unit with permanent interaction with the environment including other persons. WHO says that health is *"a resource for everyday life, not the objectives of living; it is a positive concept emphasizing social and personal resources, as well as physical capacities"* (WHO, 1986, para1). School health education can effectively help reduce the prevalence of health risk behaviors among students and can

[1] *UNRWA: United Nations Relief and Works agency for Palestinian refugees in the near east: Jordan, Lebanon, Syria and occupied Palestinian territory. In Lebanon, 425,000 Palestinian refugees are registered with UNRWA in twelve official camps and 42 gatherings across the country. They depend on UNRWA to provide for basic health, education and relief needs (UNRWA, 2012).*

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have a positive influence on students' academic performance. For example, a comprehensive health education curriculum showed health improvements for Hispanic students who were overweight or at risk of becoming overweight when it was implemented in elementary schools in a low-income community in Texas (Colemann *et al*., 2005; Kann *et al*., 2007). In addition, a culturally appropriate nutrition education on students' knowledge about food and nutrition targeted students in grades 4, 5, and 6 enrolled in three private schools in greater Beirut proved to change the students' nutrition knowledge, and may in the long term improve children's attitudes towards making better food choices (Itani, 2010). Similarly, an eight-week culturally appropriate nutrition educational program on nutrition knowledge, food choice selection, sedentary activity and physical activity, implemented in three schools from each of the private, free private and public sectors for 160 randomly selected students in grades 3, 4 and 5, proved the effect of nutrition education program on improving nutrition knowledge, enhancing meat consumption, decreasing sedentary activity for the overall sample. However, the increase in overall knowledge was retained six month post intervention (Maatouk, 2008).

In Lebanon, in 1994, as part of the Education Reform Plan, the Lebanese Ministry of Education (MOE) have added several objectives in the curricula of six disciplines (Fuddah, 2014) to enable the students verify the curriculum health aim: "make healthy practices that lead to physical, psychological, and mental development". In 1997, a new curriculum from grade one to twelve was developed and started being implemented in October 1999 in the elementary, preparatory, and secondary schools. While the new curriculum has been introduced, health education was integrated in different disciplines. In addition, other improvements have been prepared but not yet enforced. Health education curricula in different countries including USA (Kann *et al*. 2007), Japan (Watanabe *et al*., 1990), and the gulf region (AlRiadh, 2004) have been variously tested to see their impact on students' health literacy. This research aims to analyze health lessons' content and their teaching sequences in a coeducational elementary public school and a neighboring coeducational elementary UNRWA school which adopts the Lebanese curriculum and the national textbooks.

THEORETICAL BACKGROUND FROM A REVIEW OF LITERATURE

To proceed in our analysis, we looked for the latest approaches to effective school health education and promotion, the notion of skills based health education including life skills and then the most widely used health behavior theory that lead to behavior change. The next paragraphs will briefly discuss each. In 1995, the WHO's Global School Health Initiative encouraged health promotion and education activities at the local, national, regional, and global levels. The aim is to improve the health of students, school personnel, families, and other members of the community through school education. Lately, many programs and curricula and inputs from experts in USA in the field of health education have identified the following factors of health education to be effective. The content: "a) focuses on specific behavioral outcomes; b) is research based and theory driven; c) addresses individual values and group norms that support health-enhancing behaviors; d) focuses on increasing the personal perception of risk and harmfulness of engaging in specific health-risk; e) addresses social pressures and influences; f) builds personal competence, social competence, and self-efficacy by addressing skills; g) provides functional health knowledge that is basic, accurate, and directly contributes to health-promoting decisions and behaviors". However the implementation requires teachers who: "a) use strategies designed to personalize information and engage students; b) provide age-appropriate and developmentally appropriate information, learning strategies, teaching methods, and materials; c) incorporate learning strategies, teaching methods, and materials that are culturally inclusive; d) provide adequate time for instruction and learning; e) provide opportunities to reinforce skills and positive health behaviors; provide opportunities to make positive connections with influential persons; f) include teacher information and plans for professional development and training that enhances effectiveness of instruction and student learning" (Kann *et al*., 2007, p. 409; CDC, 2007).

Regarding the acknowledgement of the importance of skills in changing behaviors, the most recent scholarship in health education including school health education is the concept of life skill education. This study relies on the 10 generic life skills for psychosocial competence that have been identified by WHO (2001) as core life skills applicable across a wide range of contexts in daily life and risk situations within each culture. These are: empathy, communication skills, interpersonal skills, decision-making, problem solving, creative thinking, critical thinking, coping with emotions, and coping with stress (p. 8). According to WHO (2001), skills-based health education has been shown by research to "Improve health-related behaviors, self-esteem, and academic performance" (p. 30). Skills based health education is important as it emphasizes the use of effective learning methods including modeling, observation, and social interactions. Interactive, or participatory teaching and learning methods are an essential part of skills based health education because they develop "*the students' knowledge, attitudes and skills together, and enable them to make healthy choices*" (WHO, p. 20). Participatory teaching methods for building skills and influences include: "*class discussions, brainstorming, demonstration and guided practice, role play, small groups, educational games and simulations, case studies, storytelling, debates, practicing life skills specific to particular context with others, audio and visual activities, and decision mapping or problem trees*" (WHO, p. 20).

In addition to the importance of life skills, the Health Belief Model (HBM) is one of the most widely used health behavior theories that have identified constructs critical for behavior change. The underlying concept of the HBM is that health behavior is determined by personal beliefs for perceptions about a disease and the strategies to decrease its occurrence. The following perceptions serve as the main constructs of the model: "*Perceived susceptibility (one's belief regarding the chance of getting a condition), perceived severity (one's belief of how serious a condition and its sequelae), perceived benefits (one's belief in the efficacy of the advised action to reduce risk*

or seriousness of impact), perceived barriers (one's belief about the tangible and the psychological costs of the advised action), cues to action (strategies to activate one's readiness), modifying variables (demographic, socio- psychological), and self efficacy (one's confidence in one's ability to take action)". According to the Health belief Model, modifying variables, cues to action, and self efficacy affect our perception of susceptibility, seriousness, benefits and barriers, therefore, our behavior (Glanz *et al*., 2002, p. 47-48 & National cancer Institute, 2003).

Researches, as the one applied by Jourdan *et al*. (2010), showed that teachers depend on the materials found in the curricula and textbooks. This stresses the importance to have well presented health lessons in the textbooks and the syllabi of the curricula that are delivered effectively. In addition, teachers' perceptions and social values also affect teaching practices (Yammine, 2008). Effective pedagogy develops student learning and leads to creative, emotional, and social development as mentioned in 2005 Global Monitoring Report on quality (UNESCO, 2005). Effective teaching and learning should be designed to influence this interaction (Lohrmann, 2010). In teaching health education, interactive and empirical health education pedagogies are essential (Nutbeam, 2008). The processes of learning through practice can be described as being inter-psychological (between the person and the world beyond them) and lead to intra-psychological outcomes (change within individuals) (Ormrod, 2006). Hence, this research aims to investigate about health education in the textbooks and teaching sequences in Lebanon.

METHODOLOGY

This is a case study design where nutrition lessons in the national textbooks and some teaching sessions in the upper elementary cycle (the cycle prior to the preparatory cycle that showed high prevalence of nutrition related problems in the GYTS) were analyzed according to the developed criteria based on WHO and CDC definitions of effective health education. It will determine if health education in the textbooks and their teaching sequences meet the following skills: a) focus on increasing the personal perception of risk and harmfulness of engaging in specific health-risk behaviors, b) address social pressures and influences, c) build personal competence, social competence, and self-efficacy by addressing skills, d) provide functional health knowledge that is basic, accurate, and directly contributes to health-promoting decisions and behaviors, and e) teaching strategies designed to engage students.

We proceeded as follow: **First**, the first researcher looked in the national textbooks for the upper elementary cycle (Grades 4-6), located the health related unit or chapter, and identified the nutrition health topics and subtopics. It was found that nutrition topic exists mainly in science and English language textbooks for grades 4 and 5. We found that the science national textbooks allocate one unit for health education titled "Man and his health". In grade 5 textbook, the "Man and his health" unit includes 5 chapters. Three of them are related to nutrition: Nutrition and health; the food journey; food preservation and safety. The English language textbook for Grade 4 includes a unit about healthy food. The analyzed health lessons are mentioned in table 1 below along with textbooks titles, unit/ theme, chapters, lessons and number of pages.

Second, the nutrition lessons' content in the national textbooks was analyzed using grid (1) which was developed according to the established criteria. The content of each health lesson was read and matched with the items listed in the grid. Comparative tables for the nutrition health related lessons in the two subjects (science and English) were prepared. **Third**, classroom observations were conducted to the lessons directly related to health practices: English (Grade 4): Lesson 1: Body's basic needs; Science (Grade 5): chapter 2, Lesson 3: Taking care of the digestive system in each of the two selected schools: a Lebanese public school (LPS) and a neighboring UNRWA school in Beirut. Both are elementary, co-educational, use the national textbooks, and the students have approximately the same socioeconomic status. This means that all the effects related to these variables are controlled. The schools were chosen randomly from a list of schools in the great Beirut district. For observing the health sessions in the selected schools, we took written permission from the Ministry of education and high education (MEHE) for the Lebanese public school and the Chief Field Education Program for the UNRWA school. The school principals of the two schools were met and they showed interest to participate in the research. Then arrangements were done with the administration to meet the concerned teachers and have their agreements.

During the observation of the teaching session, all the incidents that took place, including the interventions given by the students and the teachers were taken on a note book along with the time of interventions. At the same time, the teaching sessions were recorded using audiotapes.

Table 1 Information about the analyzed health lessons: grade, discipline, textbook, location

Grade	Grade 4 basic education	Grade 5 basic education
Discipline	English	Science
Topic	Nutrition	Nutrition
Textbook	English in progress	Science for Life
Theme/Unit	Theme 2/ Unit 4	Unit 3
Unit title	Healthy Food	Man and his Health
Chapter	---	Ch.1: Nutrition and health; Ch. 2: food Journey; Ch.5: Food: Preservation and Safety
Lesson	Lesson 1: Body's basic needs Lesson 2: Food for energy Lesson 3: water in our food	**Chapter 1**: Lesson 1: Eat Smart, Lesson 2: Nutrients: A Close- Up View **Chapter 2**: Lesson 1: The digestive system, Lesson 2: Process of Digestion, Lesson 3: Taking care of the digestive system **Chapter 5:** Lesson 1: Food Safety, Lesson 2: Food Preservation, Lesson 3: The Information System on Food labels.
Pages	pp: (120-129)	pp: (89-112 & pp137-147)

The teachers used the English language in teaching the health lessons in both schools. The students' interventions were in English language with the use of some phrases in Arabic language. The transcription of the sessions was carried out immediately in order to remember all the details. Transcriptions were made in English and the Arabic phrases were directly translated into English. The interventions were indicated by the letters (T) for teachers and (S) for students, followed by the number of intervention. The data was rechecked, by listening to the audiotape and compared with the notebook, twice for reliability (Gibbs, 2010, p.98). The transcriptions of the same health lessons of both teachers in the two schools were read carefully, and the interventions were analyzed and filled in another grid (2). Grid 2 includes the items of grid 1 and some items related to pedagogical styles: informative and injunctive, informative and persuasive, informative and participative, only informative. For these terms, the definitions given by Berthou *et al*. (2008) were adopted. The informative style describes and presents the knowledge in form of data and facts. The teaching practice is only concerned with instructions and questions that lead to knowledge acquisition without any problem solving or reflections thinking. The injunctive style presents the knowledge in the form of orders that are mandatory for example: "you must do this ... try like that ... because science shows ...". The message is informational type, with guidelines to apply. The teaching in injunctive style, dictates behaviors and the information is transmitted by authoritative dogmatic arguments without any participatory approach. The participatory style induces an individual choice to make possible solutions related to contradictory arguments. It includes phrases that lead students to read, question, reflect and express their own ideas.

The persuasive style uses sentences that clarify the answers for the arguments that have mixed solutions for example: "... you might conclude you should do this, ... see the benefits of taking this solution ... it seems certain that ... ". Comparative tables were then produced to help compare the content of health lessons in the national textbooks to their teaching in classrooms in the UNRWA and Lebanese public school. This helped to: a) compare teachers' lesson implementation to what is present in the national textbooks b) compare the implementation of health lessons in Lebanese public school to those in a neighboring UNRWA school c) determine if the subject teachers teach health lessons according to the criteria of effective health education. This study aims to answer the following research questions: (1) Does the Lebanese school health education (national textbooks and teaching sequences) conform to the criteria of effective health education defined by WHO and CDC? (2) Does the implementation of chosen health lessons agree with the criteria of effective health education set by WHO and CDC? (3)What possible differences can be observed, from some examples, between a Lebanese public school and an UNRWA school?

RESULTS

To better analyze the nutrition health topic and the teaching sequences, the phrases or statements related to the different items in the criteria were only selected and written in separate tables (Tables 2- 7). Then they were studied and commented below.

Social pressures and influences item

The above table shows that social pressures and influences as the influence of family, technology and culture are mentioned

Table 2 Addressing social pressures and influences in the textbooks and teaching sequences

Health unit/ discipline and grade	*"Man and his Health" unit in the national textbook of science discipline for grade 5, and the implementation of "Taking care of the digestive system" lesson at one UNRWA school and one LPS.*			*"Healthy food" unit for grade 4 in the national textbook of English discipline and the implementation of "Body's basic needs" lesson at one UNRWA school and one LPS.*		
Skills	**National Science textbook for G5**	**LPS teacher**	**UNRWA School teacher**	**National English Language textbook for G4**	**LPS teacher**	**UNRWA School teacher**
Analyzes the influence of family	Explore the cause of food spoilage (mother and her children experience)	None	none	None	T 72: when you get flu, they tell us to eat an orange or drink lemon juice. T48: my mother takes care of me. T56: parents tell us to eat spinach because it contains iron and makes muscles strong.	T78: Mom cooks for us, while father buys food. We may tell father that a certain food is important because it contains nutrients, and tell mom to cook it due its nutritional values as the teacher taught us.
Analyzes peer pressure	None	None	None	None	None	None
Analyzes media	None	None	None	None	None	Spinach is rich in iron and puppy eats it to become strong
Analyzes technology	New methods for preserving food depend totally on technology. Sterilization, Pasteurization, Adding preserving, canning meat, preservation of agricultural production in refrigerators, freezing meat and Vegetables	None	None	None	None	T71: This food has synthetic material. Since these food is industrial, then it is not good for our body
Analyzes culture	Picnic, traditional and some modern methods of food preservation	None	None	Grandma prepares dry fruits, wedding cake	None	None
Social barriers	None	None	None	None	None	None

Table 3 Addressing skills to builds personal competence, social competence and self efficacy the textbooks and teaching sequences

Health unit/ discipline and grade	*"Man and his Health" unit in the national textbook of science discipline for grade 5, and the implementation of "Taking care of the digestive system" lesson at one UNRWA school and one LPS.*			*"Healthy food" unit for grade 4 in the national textbook of English discipline and the implementation of "Body's basic needs" lesson at one UNRWA school and one LPS.*		
Skills	**National Science textbook for G5**	**LPS teacher**	**UNRWA School teacher**	**National English Language textbook for G4**	**LPS teacher**	**UNRWA School teacher**
			a- Communication and interpersonal skills Verbal-nonverbal communication			
i. Communication skills	None	None	None	None	None	None
ii. Refusal skills	None	None	None	None	None	None
iii. Advocacy skills	None	None	Yes	None	None	None
- Students observe ways to present messages of healthy behaviors to others through posters, ads, performances, and presentations.	None	None	T: 30: Now let me give you another behavior: Abou Ibrahim sells candies and sweets. I bought many and ate all of them. Miss Bahia told me that I have to eat fruits. I told her I prefer candies. Will you give me happy or sad face for this?	None	None	None
			b-Decision making and critical thinking skills			
i. Decision Making skills:	None	None	T: 30: Now let me give you another behavior: Abou Ibrahim sell candies and sweets. I bought many and ate all of them. Miss Bahia told me that I have to eat fruits. I told her no I prefer candies. Will you give me happy or sad face for this?	none	Teacher wrote a list of words on board: milk-chocolate- eggs-potato chips-grapes-candies-orange juice-chewing gum- meat-vegetables-cheese-lollypops. to fill in this chart by healthy or unhealthy.	None
-Students observe ways to choose healthy over those less healthy practices	Read labels on canned and packaged food. Conduct scientific experiments			None		None
ii. Critical Thinking Skills	None	None	None	None	None	None
			c- Coping and self-management skills			
Self awareness and self-management skills	None	None	None	None	None	None

in the "Man and his Health" unit in science textbook for grade 5. However, for the "Taking care of the digestive system" lesson in textbook and its implementation in classrooms, social influences were not addressed. The Healthy Food unit in English discipline for grade 4 did not address the influence of social pressure. Culture was neither addressed in the health lesson, in terms of healthy aspects, nor by the teachers in both schools. Conversely, the teachers in both schools addressed the influence of parents on eating healthy food even though it is not mentioned in the textbook. The teacher in UNRWA school related the lesson to technology and media while the teacher at LPS did not.

Builds personal competence, social competence and self efficacy item

The "healthy food" unit in the science textbook for grade 5 lacks communication skills activities. However, there is an activity for decision making skills. In explaining the "taking care of the digestive system" lesson, the UNRWA teacher tried to use decision making skill and advocacy skill, there were no attempts to practice with students the steps that promote communication skills, refusal, critical thinking and coping and self management skills by both teachers. In the G4 English discipline, the healthy food lesson did not focus on any of the social skills, self efficacy or personal skills. The teacher in the Lebanese public school did an activity to promote communication skills.

Perception of risk and harmfulness of engaging in specific health-risk behavior

The "Man and his Health" unit in grade 5 textbook for science discipline included some personal risks as susceptibility, severity, benefits, and self efficacy. The teacher in the Lebanese school mentioned severity and benefits of the risk behavior, while the teacher at UNRWA school focused only on the benefits. This health lesson needs also to focus on personal perception. In the English discipline, the textbook mentioned the benefits and cues to action related to healthy food. Both teachers focused on the perception of benefits related to healthy food. However, only the teacher at UNRWA school emphasized the severity of eating unhealthy food.

Health promotion and disease prevention concepts

The health related lessons in the science textbook for grade 5 follow a mixed approach for health education. It includes both health promotion and biomedical conceptions. However, teachers at both schools followed the biomedical approach. The teacher at UNRWA school had few expressions related to health promotion. The healthy food lesson in the English language discipline for grade 4 is directed toward the health promotion approach. Nevertheless, the teachers in both schools followed both the health promotion and biomedical conception approach.

Pedagogical styles

Table 4 Addressing personal perception of risk and harmfulness of engaging in specific health-risk behavior skills in the textbooks and teaching sequences

Health unit/ discipline and grade	*"Man and his Health" unit in the national textbook of science discipline for grade 5, and the implementation of "Taking caring of the digestive system" lesson at one UNRWA school and one LPS.*			*"Healthy food" unit for grade 4 in the national textbook of English discipline and the implementation of "Body's basic needs" lesson at one UNRWA school and one LPS.*		
Skills	**National Science textbook for G5**	**LPS teacher**	**UNRWA School teacher**	**National English Language textbook for G4**	**LPS teacher**	**UNRWA School teacher**
i.Perceived susceptibility (One's opinion of chances of getting a condition)	Many people decide to buy and take vitamins and mineral salts. This could have a negative effect. Some of the preserving methods require the use of food additives and coloring ingredients that can be dangerous and unhealthy	None	None	None	None	None
ii. Perceived severity (One's opinion of how serious a condition and its consequences are) -Specify consequences of the risk and the condition	Deficiency in vitamin D causes tooth decay and weak bones. Deficiency in Vitamin A causes vision problems. Vitamin C fortifies the immunity against germs. Vitamin B activates the body and fortifies the blood	T32: unscheduled Eating causes loss of appetite. T57: What is the effect on digestive system? Deficiency in vitamins and minerals T59: Eating after playing is wrong behavior. The digestive system will not work properly. T70: Effect on digestive system is tooth decay.	None	Yes	None	S53: If there is no water we will die. T85: We may die
iii.Perceived benefits (One's belief in the efficacy of the advised action to reduce risk or seriousness of impact) -Define action to take; how, where, when; -Clarify the positive effects to be expected	Deficiency in vitamin D causes tooth decay and week bones, eat eggs, milk and milk product. Deficiency in vitamin A causes vision problems, Eat liver, eggs, cabbages and cucumber. Eat lemon, oranges, tomato, and cabbage to fortify the immune system. Eat beans, lentils, liver to fortify the blood	T21: Eat in fewer amounts T34: What should he do? T35: Eating at proper time. T47: Eat food that contains milk product. T59: The correct behavior: Eat vegetables and fruits. T66: The better behavior is don't play football after eating. S31:Clean teeth regularly	T31: What advice to give me? S18: eat bread and fruits because candies and sweets are unhealthy, T32: Only bread and fruits? T33: Eat from all food groups. Eat healthy and balanced food T41: Take care of fingers and trim nails	Eating right amount of different kinds of food help us get all the nutrients. Water makes up? Iron is used for? Mg and Ca are used for? Carbohydrates and fats? Proteins, Fats and Vitamins for? if you eat more food than you need,….; Humans need to take water every day; When humans eat food like fruit, they get some water they need; Eat fruits.	We may eat different kinds of meat every day. One day chicken the next day beef, the third day I can eat salads or vegetables	All people want to stay healthy and stay away from diseases. We should learn the important things we learned today and practice them in our daily life
iv. Perceived barriers						
v. Cues to action Provide how-to information, promote awareness, reminders	none	None	None	We can obtain energy from different foods. Spagatti, bread and cereals are good source. Meat and milk provide us with protein.	None	None
vi. Self efficacy (Confidence in one's ability to take action)	There are many ways to identify the ingredients of these foods, taste, recall previous knowledge, read labels on canned foods or conduct scientific experiments	None	None	None	None	None

The teachers in both schools used the informative pedagogical styles, even though the statements in the textbook combined the informative and other pedagogical styles.

The health lessons in G4 textbook follows the informative and injunctive pedagogical style or the informative style only. The teachers in both schools used different pedagogical styles.

Teaching strategies

The textbook includes role play and problem solving activities related to health. Both teachers did not use interactive learning strategies. Even the role play which was done by the teacher at UNRWA school was done by the teacher herself and can't be considered as a real role play but as a skit because the teacher did it alone. The textbook includes questions in the text (formative) and at the end of the lesson (summative) but no entry behavior questions. The teacher in the Lebanese public school asked short answer questions for formative and summative evaluation while the teacher at UNRWA school asked short answer questions for the entry behavior and formative evaluation as well.

Instructional tools

The teachers for the English and science subjects in the Lebanese and UNRWA schools used only textbooks with no technology integration.

Student learning strategies

Table 5 Health promotion decisions and disease prevention concepts in the textbooks and teaching sequences.

Health unit/ discipline and grade	***"Man and his Health" unit in the national textbook of science discipline for grade 5, and the implementation of "Taking care of the digestive system" lesson at one UNRWA school and one LPS.***			***"Healthy food" unit for grade 4 in the national textbook of English discipline and the implementation of "Body's basic needs" lesson at one UNRWA school and one LPS.***		
Skills	**National Science textbook for G5**	**LPS teacher**	**UNRWA School teacher**	**National English Language textbook for G4**	**LPS teacher**	**UNRWA School teacher**
			Health Promotion Concept			
i.Healthy conception Words/expressions "heal th, promotion", "health gain", "healthy lifestyle", "healthy body", etc	Food is one of the basic needs for human beings to survive. Suggest a better behavior that helps in keeping the digestive system healthy.	None	T33: We should eat healthy and balanced food from different types. T36: to take care of our digestive system we should eat healthy and balanced food.	Human need many things to live and stay healthy. Human need to take care of themselves Your body needs many elements to stay healthy Make sure you plan healthy meals	T7 Who can tell me what do we mean by healthy? Look at the pictures and try to think "What are healthy foods"? T10: So healthy food is good for our health. T61: RBC are the cells that make our blood very red and very healthy T54: Iron rich food makes our blood healthy. T67: carbohydrates and fats help our body be healthy. T69: eating the right amount keeps our body healthy. T62: Iron magnesium and calcium are very good for our health.	T78: We are going to talk about important things to keep body healthy. Each one wants to keep his body healthy. T49: They make our body healthy and strong. T51: We call them healthy food.
-Assuming diverse health dimensions: physical, mental, emotional, social, and spiritual.	Safety and preservation of food has always been an obsession of the humankind, since they keep people healthy and save their time and money.	None	None	None		None
ii. Empowerment conception	Yes	None	None	We can obtain energy from different foods as Spagatti, bread & cereals Meat and milk provide us with protein.	None	Y53:Give me certain kinds of food that are not good for our body
-Personal skills development, empowerment, informed healthy choices or decisions	There are many ways to identify the ingredients of these foods, taste, recall previous knowledge, read labels on canned foods or conduct scientific experiments	None	None	Preparing dried fruits for winter	None	none
iii. Environmental conception	Yes	None	Yes	None	None	None
-Social environment (working places, domestic…)	Safety and preservation of food keep people healthy	None	abou Ibrahim having lots of candies and sweets in school canteen	None	None	None
Biomedical Concept ***i. Pathologic conception***	Yes	Yes	Yes	None	None	None
words: "disease", "illness", "sickness", "infirmity", "infection", "disorder"	Many people decide to buy and take vitamins and mineral salts. This could have a negative effect.	T17: non digested food harms the stomach. T18: make the digestive system tired. T20: weight gain fatigue the digestive system	T42: The germs enter the body and the digestive system. When the immune system weakens germs will harm us.	None	T43: eating too much is not good and eating too little is not good	T62:Eating Chips, chocolate and soft drinks in big quantities, make us sick T110:chocolate is rich in fats. This is why it is harmful.

Table 5

- disease name(s)	Deficiency in vitamin D causes tooth decay and weak bones.	T42: Avoiding milk product has negative effects on the general health.	T44: When we go to doctor and take medicine that kill germs. Blood circulates to take all the dead cells and germs. Either they will go to urine or solid wastes outside body. Ok?	None	None	None
- Patient image (photo, drawing, etc.)	Deficiency in Vitamin A causes vision problems.	T57: What is the effect on digestive system?		None	None	None
-Disease symptoms or other disease signals	Vitamin C fortifies the immunity against germs.	Deficiency in vitamins and minerals T66: Eating after playing. This is the wrong behavior. The problem is the digestive system will not work properly T70: Effect on digestive system is tooth decay.		None	T47: Humans need to take care of themselves T49: Everyone should take care of himself.	T78: Who wants to keep his body healthy and safe and away from diseases should learn what we will say today
- Direct causes of diseases mentioned (infectious agents, genetic inheritance, etc.)	Vitamin B activates the body and fortifies the blood			None	None	None
-"Normality" (normal/abnormal,	None			None	None	None
ii. Curative conception	None	None	Yes	None	None	None
-Disease treatment	None	None	S28: I stopped taking medicine for allergy and became fine. T45: May be because you don't need medicine anymore	None	None	None
-Doctor as the expert in disease diagnosis, its prevention or its treatment	It is advisable to consult a doctor before taking vitamins and mineral salts.	None		None	None	None
iii. Preventive conception	Yes	Yes	Yes	None	None	None
- Presence of the words: "prevention", "protection", "caution" (danger).	It is advisable to eat eggs, milk, and milk products.	T66: don't play football after eating. T42: Avoiding milk product has negative effect on the general health.	Label three ways we can do to take care of our digestive system	None	T47: Humans need to take care of themselves T49: everyone should take care of himself.	T78: Each one wants to be healthy without diseases, so we should practice what we learned today.
-Person's image showing risk behavior	It is advisable to eat liver, eggs, cabbages, cucumber.	None	None	None	None	None

Table 6 Pedagogical styles in the textbooks and teaching sequences

Health unit/ discipline and grade	***"Man and his Health" unit in the national textbook of science discipline for grade 5, and the implementation of "Taking caring of the digestive system" lesson at one UNRWA school and one LPS.***			***"Healthy food" unit for grade 4 in the national textbook of English discipline and the implementation of "Body's basic needs" lesson at one UNRWA school and one LPS.***		
Skills	**National Science textbook for G5**	**LPS teacher**	**UNRWA School teacher**	**National English Language textbook for G4**	**LPS teacher**	**UNRWA School teacher**
Informative and Injunctive:	People should refer to the information on food labels to stay safe and healthy.	None	None	Your body needs many important elements to stay healthy, so make sure you plan healthy meal. Most living things lose water in many ways. For this reason, humans need to have water every day to replace the water that is lost.	T61: RBC make our blood very red and very healthy and keep our health good. So we should eat iron because it makes RBC.	T126: Good, yes in milk we find magnesium and calcium. So we should drink milk every day. T50: to eat food that makes our blood healthy we should eat food rich in iron.
Informative and Persuasive	It is advisable to: consult a doctor before taking pills; Eat beans, lentils, liver; eat lemon, oranges, tomatoes, cabbages; chew the food very well before swallowing it.	None	None	None	T73: vitamins stop you from getting ill or sick. So they are good for you	None
Informative and Participative:	Have you ever felt hungry/Have you felt embarrassed when your stomach began to make strange noises/ noise	None	T26: tell me if the behavior I will make is correct or wrong. Choose happy face or sad face for the behavior. T29:When my stomach is empty, what do you advice me? To eat slowly?.	None	T69: Eating too much food is not good, but eating the right amount keeps our body healthy.	T131: Carbohydrates and fats give us energy. Where do we find them? T120: Iron is used to make red blood cells where do we find iron? T106: Our body also needs pro, proteins. Where do we find proteins?

Table6

Only Informative	(Many) Digestion is the… There are many ways to identify the gradients… Food is anything that… Safety and preservation of food has….	T59:Eat vegetables and fruits T65: Eating after playing. This is the wrong behavior. T66: The better behavior is don't play football after eating. T70: Effect on digestive system is tooth decay.	When you are used to eat a certain amount of food and then you eat more food, you will have stomach pain.	Yes , many three: humans need to take care of themselves to stay healthy	T14: Fruits are good because they contain vitamins.	many

Table 7 Teaching strategies in the textbooks and teaching sequences.

Health unit/ discipline and grade	***"Man and his Health" unit in the national textbook of science discipline for grade 5, and the implementation of "Taking caring of the digestive system" lesson at one UNRWA school and one LPS.***			***"Healthy food" unit for grade 4 in the national textbook of English discipline and the implementation of "Body's basic needs" lesson at one UNRWA school and one LPS.***		
Teaching strategies	**National Science textbook for G5**	**LPS teacher**	**UNRWA School teacher**	**National English Language textbook for G4**	**LPS teacher**	**UNRWA School teacher**
Group discussions	Yes	None	None	Yes; discuss your ideas with your friends	None	None
Cooperative learning	None	None	None	None	None	None
Problem solving	Yes (be the scientist p.96), puzzle,	None	None	None	None	None
Role playing	Theoretical act of mother and children. The International quarrel Day.	None	Role play of an eating behavior done by teacher. Students tell if it is correct or not.	None	None	None
Peer-led activities	None	None	None	None	None	None
Others	None	Close- questions	Close-questions	None	Short answer questions	Short answer questions

Table 8 Instructional tools used in the teaching sequences

Health unit/ discipline and grade	***"Man and his Health" unit in the national textbook of science discipline for grade 5, and the implementation of "Taking caring of the digestive system" lesson at one UNRWA school and one LPS.***		***"Healthy food" unit for grade 4 in the national textbook of English discipline and the implementation of "Body's basic needs" lesson at one UNRWA school and one LPS.***	
Instructional tools	**LPS teacher**	**UNRWA School teacher**	**LPS teacher**	**UNRWA School teacher**
Manipulative are used	No	No	No	No
Textbooks are used.	Yes	Yes	Yes	Yes
Other printed materials are used	No	No	No	No
Technology is used as a learning tool.	No	No	No	No

The students in both schools asked and answered simple questions about the lesson content and analyzed the presented materials. However, they did not work in small group or apply content knowledge.

DISCUSSION

The information recorded in tables 2 to 7 revealed that **the health lessons' content** about nutrition in the national textbooks of the second learning cycle showed many similarities as they focused on presenting scientific knowledge with little emphasis on social influences (of peers, family, media, culture, technology, social pressures), critical thinking, coping and self management, and communication skills. The health lessons tackled some personal risks and harmfulness of engaging in specific health-risk behavior as susceptibility, severity, and self efficacy, but more focus is still needed on the perception acquisition of these health risk behaviors. This is important because when "the value of the desire to avoid illness or to get well is achieved, the expectation will be to believe in that a specific health action would prevent illness" (Glanz *et.al.* 2002, p 47). In addition, most of the pedagogical style used is informative with little focus on injunctive or persuasive styles.

This means that according to the behaviourist conception, the national textbooks consider children as passive (Clément, 2013). They lack the constructive conception that consider children as participants in their learning by practicing problem solving cooperative learning and inquiries which are important in health education (Lohrmann, 2010; Nutbeam, 2008; Crawford, 2012). On the other hand, the health lessons in the textbooks in English discipline slightly differ from those present in the science discipline. For example, decision-making skills are stressed in science but not in English language. Health related lessons in English language discipline for grade 4 is directed towards health promotion conception, while health lesson in the science discipline for grade 5 follow both the health promotion and biomedical conception to health.

The teaching sequences in the nutrition topics are similar to what is present in the textbook. There is no or rare analysis of the influence of peers, family, media, culture, technology, social pressures. The development of life skills as communication skills, decision making, critical thinking, and coping and self-management skills is disregarded. Regarding the cognitive factors of the health belief model, four affecting health behaviors are highlighted in the textbook and in lesson implementations. However, self efficacy was not focused on by

any of the teachers. More focus should be given to health personal perception and especially on self efficacy. With respect to teaching practices, the teachers in both schools for the two disciplines used the textbooks as the only instructional tool and for images of contrasting colors found. They emphasized the biomedical approach that focus on diseases and their preventions more than the health promotion as stressed on in the health lessons in the textbooks and noticed by Carvalho *et al*. (2008). They mostly used the informative pedagogical styles that are teacher focused, even though the textbook used persuasive and injunctive styles. They tried to make some inquiry by asking many short questions and motivated the students to answer and proceed. This means that they believe that inquiry teaching deepens learning of science concepts and develops higher order thinking skills. However, the problem may be related to the lack of training in inquiry teaching, or to insufficient time as they need to deliver the knowledge needed to be taught (Talaue and Tan, 2011). In addition, they did not use a mix of strategies to deliver effective, skills-based instruction. Most of the questions asked by the teachers in both schools are closed short answer questions rather than open. The questions are mostly of lower order thinking rather than higher order thinking. On the other hand, the teachers at both schools showed little differences in the teaching strategies. They emphasized the health risk behaviors as present in the textbooks, but neglected the personal perceptions that are important in decision making and proper sound practices. The teachers in both schools used the textbook as the main source of information. They did not make use of any audio visual media technology or even tried to explain its impact on the influence of social pressures on health behaviors. The results of the analysis of the health lessons, in science discipline in both schools, are similar to a large extent to the English discipline. The few differences in the health lessons in English discipline are as follow: more focus on health promotion conception in addition to disease prevention even when the textbook is oriented towards the biomedical conception; the influence of media and family was highlighted and analyzed; the teachers used the persuasive, participative and injunctive pedagogical styles in addition to the informative. All the above findings highlight the need to review the national textbooks and to consider all the above mentioned gaps with sufficient and up to date information, as recommended by UNESCO policy within the Education for All Framework (UNESCO, 2005), and to fit with the social context as mentioned by Lebeaume (2007). In addition, teachers need to be trained to infuse active learning in all what they do and to have an eye on assessment as recommended by John *et.al*. (2010).

CONCLUSION

Even if our work is only qualitative and limited to the analysis of few health lessons and their teaching sequences in 2 schools, our results are interesting. The health lessons were selected to be significant for the nutrition topic is dominant in the upper elementary cycle (grades 4 to 6), and health risk behaviors related to nutrition is high in the preparatory cycle as revealed by the GYTS. In addition, the health lessons were identified from the unit title and subtitle of the national textbooks and they represent a significant sample of health education in Lebanon. The teachers who teach the selected lessons in two coeducational schools were free to choose the section and time for classroom observation. There were no important differences among the Lebanese and the Palestinian schools. The teachers in both schools were similar in most of the items of the criteria but the ones in UNRWA schools tried to use more interactive teaching strategies as group work and role play in addition to the use of worksheet. The teachers in the Lebanese public school adhered more with the content of the lesson.

Further recommendations are suggested for the nutrition topic in the **textbooks and teaching practices** to emphasize the following: a) The conceptions related to healthy snacks, junk food, soft drinks and importance of drinking water; b) social, emotional and mental dimensions of health; c) use of demonstrations and experiments; d) students to observe and practice ways to persuade parents and friends to make healthy food and menu choices are also needed; e) teachers to address different skills as decision making and critical thinking skills that help the students make correct choices.

In addition to all of the above, there is a high need to activate the work on the existing school health strategies for the Lebanese public schools and UNRWA schools (2012) which focus on the presence of healthy food in the canteens; involve parents and the community as recommended by (Afifi *et al*., 2009, Recercia e Cooperazione, 2007, Saadeh *et al*., 2008) and which agrees with the Kolbe and Allenworth (1987) model of comprehensive school health program and the comprehensive effective health education curriculum; In-service training for teachers on basic skills for health education including life skill.

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