

# **Health concepts that included in the elementary stage students' science books in Jordan**

By

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## **Abstract**

*This study aimed to reveal the concepts that been involved in health science books for elementary school stage level in Jordan. This was done through the analysis of the content of the science textbooks for first, second, and third grads. For the purpose of this study a list of proposed health concepts was prepared; it was included 63 health concept that was divided into six areas: Healthy nutrition, Human body, First Aid, Health problems, Healthcare, and Health and Sickness. Two methods were used in the analysis process: the word and the idea. The study found that there were an existence differences between the total occurrences of health concepts in science textbooks, in favour of the first grade science textbook. Also, the result revealed that the field of the health care was ranked first position and the first aid field was ranked last position.*

**Keywords:** *Health Concepts, Science Textbooks, Elementary School, Health Education*

## **1. Introduction**

Textbook is the most important source of student learning, evaluation, reviewing, and increasing student experiences. It is easy to use when compared to other alternatives teaching resources (Harahsheh, 2014). The curriculum is one of the elements that the educational process outputs depend on the quality of the school curriculum can be measure based on the planning, content area, assessment, teaching methods, and students' motivation (Al Khatib and Al Zoubi, 2009). The familiarity with the facts and scientific concepts such as health concepts in a functional way considered an outline goal that the science curriculum planers want to reach in elementary education level curriculum in Jordan (Ministry of Education, 1999). As stated by Kauffman (1976) that was referred to in Tweissi and Majali (2010), that the curriculum planner in the future should be based on the values, skills and knowledge appropriate to make their science future.

The cognitive structure of knowledge is the thinking period that prevails in the mind of the student at one stage of their cognitive development. Therefore, more attention to education and its quality through the qualitative development of the science curriculum, and more focus on the content of science books that focusing on scientific concepts in general (Ghazal, 2010). The scientific concepts are the basic step for constructing the new knowledge to explain natural phenomenon, lead to more predictable to reach new finding (Agha, 2007). The issue of health awareness is the first priority in health education area because in this period of our life the human health and the environmental frame works growing increasingly to be accelerated with the technical and industrial progress (Ahmadi, 2004).

The health education is defined as an important part of public education that not limited to the individual live in an environment that matches the modern life, but beyond that it gives people an understanding and recognition of the best health services available in his community (Salameh, 2007). The importance of health education for everyone it comes from the increase of health problems that faced most of the members of the community that has a bad effect on their health (Slimani, 2011). One of the objectives of

health education field is to make the health topic of interest of all students, and help them to make more efforts to improve their health conditions (Mkhalil, 2005; and Titi and Abu Harikh, 2007). In line of the recommendations of the Educational Development Conference 1987 in Jordan, the Ministry of Education has focused on introducing the health education concepts in a different school curriculum for all age levels such as: personal hygiene, the human body, nutrition, water and sanitation, first aid, and the common health problems (Al Massad and others, 2002). The Ministries of Education and the Ministry of Health in Jordan adopted the National Accreditation Health Schools program, in order to create an enhance students' health environment (Ministry of Education, 2005).

## 2. Related Studies

Fara and Abu Hadros (2007) study aimed to investigate the availability of health education requirements in basic education stage science textbooks stage. The study was applied to a random sample of sixth grade primary schools students (105 male students and 124 female) in Khan Yunis Distrect. The study concluded that deficiencies in curricula in contain some health enlightenment standards, and lack of continuity in the growth of all the basic concepts and they contain uncorrelated and unclear healthy concepts.

Egan et al. (2008) study aimed to explore teacher's opinions about healthy food culture in secondary schools curriculum. The results showed that teachers use a combination of teaching methods to teach food culture and health education. They stressed that the most important health concepts that they are taught were: healthy food, food storage and prevention of contamination of foods. Omari (2009) study aimed to identify the degree of the use of Health Education concepts in first grade secondary Biology subjects. The study found that the biology textbook for first grade secondary to contain many topics related to health education such as: personal health, nutritional health, mental health, alcohol, drugs and smoking. It also concentrated on health education such as: environmental health, the body's organs and functions. Al-Shaweesh (2010) study aimed to explore the health concepts that included in sixth and seventh Grade students science textbooks in Jordan. The study concluded the following results: the field of environmental health received the highest frequencies, in the other hand; the field of community health received the lowest frequencies. Comparing of the degree of having health concepts between sixth and seventh grades, the sixth grade science textbook received the highest frequencies. Sulimani (2011) study aimed to recognize the concepts of health education, which should be included in science textbooks the first and second primary grades. The results indicated that it is very clear that the science textbooks did not cover all the needed concepts that related to community health and the field of Disease Control and prevention.

Some of the previous studies dealt with health skills concepts through the (HEAP) project such as the study (Hubbard, Rainey, 2007). Some are focused on healthy food concepts such as the study of: Fara and Abu Hidroos (2007) and Imami (2007), and Shehadeh (2009), and others dealing with health education concepts such as the study of: Omary (2009), and Al-Shaweesh (2010). However, none of these previous studies focused on the health concepts in new science textbooks in Jordan, which were applied in the year (2014/2015). This is one of the first studies to the knowledge of researchers focused on these new textbooks, so this is what distinguishes this study from other previous studies. In addition, the previous studies mostly focused on the upper stage of basic and intermediate education, while this study focused on the minimum essential stage in Jordan.

The researchers took advantage of the previous studies in the process of preparing the study tool, the theoretical framework, and the discussing the results. This study agreed with previous studies in the investigated the list of the health concepts that should be included in science textbooks. The researchers did not find studies that focused on the health education on the new science textbooks in Jordan. For that,

this study is to strengthen the role of the curriculum in the basic stage level in the area of development of health concepts among students.

### 3. The Study

#### *The study problem*

It is an urgent need for more attention to health education in the presence of many diseases and health problems taking place in Jordan. There are many health problems such as: obesity, diabetes, high blood pressure, tooth decay, and high rate of pollution. It is impossible in light of these problems that the individual can be physical, mental, psychological and social healthy lives if the environment is healthy. Since there is no independent platform for health education area, and science curriculum in terms of the standards of health and education, it ignored many health concepts, issues, weakness, and treatment of health problems locally and globally. As it is shown by several studies such as: Shaweesh (2010), Fara and Abu Hadros (2007), and the World Health Organization (1988) study. Taking in the recommendations of the conferences, this calls for constructing of approaches to achieve health education and health awareness goals. So we had to find out the health concepts that being provided to students in science textbooks, this study goal was to look for the health concepts that being provided to students in science textbooks in elementary school stage in Jordan, and the problem of the study was represented by the following questions:

#### *Research Questions*

What are the appropriate health concepts for the minimum essential stage science textbook in Jordan?

It divided into the following sub-questions:

1. What are the proposed health concepts to be included in the for the minimum essential stage science textbook in Jordan?
2. What are the health concepts that included in the minimum essential stage general science textbook in Jordan?
3. What are the percentages and rankings of the health areas that included in the for minimum essential stage science textbook in Jordan?

#### *Objectives of the study*

1. To determine the availability of health concepts in minimum essential stage science in Jordan through content analysis:
2. Build a list of healthy concepts that consider suitable for
3. Understand the differences between minimum essential stage science textbooks in Jordan in term of the inclusion of health concepts.

#### *Procedural Terminologies and definitions*

- Health concept: a collection of information, facts, and concepts that are related to the learner life health aspect in the various health areas, which represented for the purpose of this current study, in the following key concepts (healthy nutrition, the human body, first aid, health problems, health care, health and illness).
- Minimum essential stage: the first stage of basic education in Jordan, and include the ranks of the first, and the second and the third, and the fourth grade.
- The Science textbooks minimum essential phase: Are the general science books for the first, second, and third grade, which was adopted as a textbook for the academic year (2015/2016) in public schools in the Hashemite Kingdom of Jordan.

## 4. Research Methodology

### *Population and Sample*

The study population, which is the sample of this study was the first, second, and third grade science textbooks (two semester), for the academic year 2015/2016.

### *Research Instruments and procedure*

In order to achieve the objectives of the study, and answer the research questions, the researchers prepared a list of proposed health concepts that should be included in science textbooks according to the following steps:

- The goal of preparing the list of health concepts was determined, which was the main reference during the research process.
- Identify the sources of the derivation of health concepts, has been relying on previous studies, such as the study of: Slimani (2011), and Al-shaweesh (2010), and Shehadeh (2009), al-aumary (2009).
- The health concepts area that included in the science textbooks were divided into the following areas (health nutrition, the human body, first aid, health problems, health care, health and disease). Each area has a set of sub-concepts that are integrated with each other.
- The first draft of the initial health concept list included (6) areas, and (68) of a sub- concept
- Verified the Stability of the study tool. To do so, this was presented to (16) arbitrators who were faculty members in Jordanian universities specialized in the fields of health education, science education, and teaching methods, as well as science teachers supervisors and science teachers. They were asked to give their opinion about the tool in terms of the appropriateness: of the health concepts to students' level, of the written language, and of the concepts if it belongs to the field. According to their responses, the researchers mad the suitable changes on the study tool.
- The researchers using content analysis to analyze, then by correlation coefficient was calculated.
- Statistical treatment was applied to answer the study questions, to find the percentages and the arrangement to put the health concepts in order .

## 5. Results and Discussions

The main goal of this study was to determine the availability of health concepts in minimum essential stage science in Jordan through content analysis.

### *Result Related to the First Research Question*

“What are the proposed health concepts to be included in the for the minimum essential stage science textbook in Jordan? “ To answer this question, the researchers reviewed the former educational literatures that relevant to health concepts, health education, and global health education standards. The researcher after that prepared a proposed list of health concepts to be included in the for the minimum essential stage science textbook in Jordan. This list was divided into six areas: healthy nutrition, the human body, first aid, health problems, health care, and health and disease. It also included sub-concepts for each of the above area (63) concepts, as shown in the Table 1.

**Table 1: Distribution of Health Concepts According to Various Health Fields**

#	Field name	Number of concepts	The concepts# according to the list
1	healthy nutrition	10	1-10
2	human body	9	11-19
3	first aid	9	20-28
4	health problems	10	29-38
5	health care	12	39-50
6	health and sickness	13	51-63
<b>Total</b>		<b>63</b>	

Including this list of the health concepts in the planning process of the science textbooks for the minimum essential phase of the basic education, it will help to achieve the goals of health education that recommended by seminars and conferences proceedings. The existence of such health concepts in the science curriculum is necessary to provide the school curriculum with the health dimension. This will provide students with the health knowledge and health enlightenment that will help them to understand the health problems and diseases that individuals in our society suffered from. In addition, these concepts help to give the students a healthy awareness about personal self-care, healthy food, and health habits. It also, learns how to protect themselves from disease and viruses. The majority of school children in many countries, do not receive a proper health care education, for that the health science concepts is an important part of the science textbooks. This result was consistent with the other studies such as: Alimami (2007), and Shehadeh (2009), and Sulaimani (2011), and Al-Shaweesh (2010).

#### ***Result Related to the Second Research Question:***

“What are the health concepts that included in the minimum essential stage general science textbook in Jordan?” “ To answer this question the researchers analyzed the science textbooks for the minimum essential stage in Jordan (the first, second, and third grade). They used the analysis form which has been prepared by the researchers for this purpose. The health concepts in these textbooks were contracted. It also included the number of repetition for each concept and classified each concept in the suitable field as shown in Tables 2.3, 4.

**Table 2: Analysis of the for Third Grade Science Textbook**

#	Concept	Duplication	Field	Total of Duplication	The percentage of the area	Rank
1	Food	5	healthy nutrition	10	31.2%	Second
2	The importance of food	2				
3	Essential nutrients	2				
4	Meal	1				
5	Types of pollution	5	health problems	12	37.5%	First
6	Lack of proper health behavior	5				
7	tooth decay	2				
8	Proper health behavior	3	health care	10	31.25%	Second
9	adequate drinking water	6				
10	Cleanliness	1				
<b>Total</b>				<b>32</b>	<b>100%</b>	

As shown in Table 2, a list that describes the health concepts that included in third grade science textbook. It is clear that the field of health problems came in first place among the rest of the concepts.

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The number of duplicate for this area was (12), with percentage (37.5%). The sub-concepts for this area were (3) concepts out of 10 sub-concepts in the health concepts list that have been adopted in this study. The second place was the field of health nutrition and the field of health care, with the number of duplicate for these areas was (10) and percentage (31.25%) for each field. The number of fields that contained in their science textbook was three fields out of six fields. The fields (human body, first aid, and health and disease) ranked last with 0% of duplicates. It also found (10) sub-concepts out of (63) sub-concepts with verification (16%).

**Table 3: Analysis of the for Second Grade Science Textbook**

#	name Concept	Duplication	Field	Total of Duplication	The percentage of the area	Rank
1	Food	4				
2	Essential nutrients	1	health			
3	Healthy food	3	y	11	12.0%	Fourth
4	Eating habits	3	nutriti			
			on			
5	human body	1				
6	The five senses	9	Huma	13	14.0%	Third
7	Digestive	1	n			
8	Respiratory system	1	body			
9	human body parts	1				
10	Types of pollution	12				
11	Harmful effects of smoking	2	health	21	22.9%	Second
12	Lack of proper health behaviour	7	proble			
13	Healthcare	9	ms			
14	Maternal and Child Health	1				
15	health education	5				
16	Proper health behavior	13				
17	Prevention of diseases	3			46.7%	
18	Access to Essential Medicines	1	Health	43		First
19	Medical examinations	2	care			
20	Exercise	1				
21	Prevention of accidents	6				
22	Cleanliness	2				
23	the disease	2	health			
24	Diagnosis and treatment	2	and	4	4.4%	Fifth
			sickne			
			ss			
Total				92	%100	

According to the results that shown in Table 3, which shows the extent of containment of the second grade science textbook of health concepts according to the prepared list, five fields were appeared out of six fields (healthy nutrition, Human Body, health problems, Health care, and health and sickness). The number of sub-concepts that are contained in this textbook was (24) concept out of (63) concepts. The field of health care ranked first with (10) sub-concepts out of (12). The first aid field ranked last, where the sub-concepts of this field completely non-existent (0).

**Table 4: Analysis of the for First Grade Science Textbook**

#	name Concept	Duplication	Field	Total of Duplication	The percentage of the area	Rank
1	food	10				
2	The importance of food	6				
3	Essential nutrients	2	healthy nutrition	23	%20.4	Third
4	Healthy food	1				
5	Eating habits	4				
6	human body	7				
7	The five senses	19	Human body	39	%34.5	First
8	Respiratory system	2				
9	Nervous system	1				
10	human body parts	10				
11	Types of pollution	12				
12	Harmful effects of smoking	1	health problems	17	%15	Fourth
13	Lack of proper health behavior	4				
14	The concept of health care	6				
15	Education on health problems	5				
16	Proper health behavior	5				
17	Secure drinking water	4	Health care	26	%23.0	Second
18	Medical examinations	1				
19	Cleanliness	5				
20	the disease	1				
21	the health	5	health and sickness	8	%7.1	Fifth
22	Diagnosis and treatment	2				
<b>Total</b>				<b>113</b>	<b>%100</b>	

It is clear from the table 4, that the number of sub-concepts that appeared in the first grade science textbook was (22) concepts out of the concept (63) concept. the field of the human body was ranked first in, with sub-concepts duplicates was (39). It contained five sub-concepts contained of nine sub-concepts. In the other side, the first-aid field ranked last rank with zero duplicate.

As shown on Table 2.3, 4, the number of health concepts in science books was (56) concepts, these concepts distribution areas were: health nutrition, the human body, health problems, health care, and health and disease. These concepts were collected from Science textbook for second grade (24) concept, and science textbook for first grade (22) concept, and science textbook for third grade (10) concepts. It shown that first grade science textbook have the lowest number of health concepts. In the other side, the first grade science textbook has highest concepts duplicates (113) depictions. This can be explained by the nature of the lessons included in each textbook. There are some units in the first grade textbook that includes many health concepts during each lesson, such as healthy studied (five senses) and human body and health units. In the other side, there were no whole units or lessons were talking about the health concepts in second and third grade science textbooks. These lessons explain the health topics briefly during the lessons but it was not the main topic. For that, third grade came in the last order as shown in table 2.

We can also interpret the results of this study that the health concepts as part of the scientific concepts are affected by mental development stages that were explained by Piaget. The first and second grade students they are in the mental development stages, so the focus on health concepts that related to their real life is very important to form their healthy habits and behaviors. In the other side, third-grade students at the top of the basic development stage and have more experience in these health concepts that are related to their health, while students first and second grade they do not have sufficient experience in the health concepts related to their health.

Based on the developmental stage for students of the first grade, this stage requires presenting the health concepts in general way, without a lot of details and expansion. While the second grade students stage need more details and examples to understand each concepts for that it will have less health concepts with more details about each concepts.

As a result of this study the third grade science textbook have the least number of health concepts and sub-concepts. As looking at the development stage for the third grade students we expected to found highest number of concepts compare to first and second grade. This suggests that there is an imbalance in the curriculum. It is supposed to have more concepts that built on previous concepts with more details and connection to students' life. We believe that, the imbalance with the health science education in the curriculum for the three stages is due to the curriculum planner's board that none of them was a health education specialist.

There is a need for every member of society to take care of his health. There is a need to pay more attention to the human body and health during the essential stage of students' life, because of that the human body concept field came first in the list of health concepts for first grade students. The health care concept field was ranked first for the second and third grade science textbook, because the second phase after the identification of the human body comes the need of information about taking care of their health and their body. Also, they need to have more time to practice and experience the health information concepts. This result is consistent with the study of each of: al-Farra and Abu-Hdros (2007), and Shehadeh (2009).The first-aid field, which came in last ranked in the list with zero duplicates was not been the focus on the content of the science text books. As reported by World Health Organization (1988).The importance of this concept in the light of the increasing accident rates, and the high rate of pollution to be included in science textbook for young students. It is very important to talk about the safety of the students through introducing the concept of First Aid that can play an important role in this direction, because of the importance of this topic of the preservation of human lives. The researchers explained this result that the first aid field ranked



last, because this concept is broad and need for more life experience. So, it will be more important to focus on this concept in higher grade level. This result consisted with the result of Shehadeh (2009), and Sulaimani (2011) study.

### Result Related to the Third Research Question:

“What are the percentages and rankings of the health concepts field that included in the for minimum essential stage science textbook in Jordan? “ The answer for this question is clear in table 5. It shows the percentages and ranks of the health concepts field for the first the primary first, second, and third grads.

**Table 5: Percentages and ranks of the health education fields in the science textbooks as a whole**

#	Field	First		Second		Third		Total of duplicates For all grades level	Percent %	Rank
		duplicates	percent %	duplicates	percent %	duplicates	percent %			
1	Healthy nutrition	23	20.4	11	12.0	10	31.25	44	18.6	fourth
2	The human body	39	34.5	13	14.0	0	0	52	21.9	second
3	first aid	0	0	0	0	0	0	0	0	sixth
4	Health problems	17	15	21	22.9	12	37.5	50	21.1	third
5	Healthcare	26	24	43	46.7	10	31.25	79	33.3	first
6	Health and Disease	8	7.1	4	4.4	0	0	12	5.1	five
Total		113		92		32		237		

The results from the analysis of the science textbooks as a whole, as it is appear from the table (5), the first rank was the health care field, and duplicates of it is sub-concepts was (79) with (33.3%). In the other side, the first aid field was ranked last with zero duplicates. Total of all concepts that have been appeared in all the science textbooks were (30) concepts out of (63) concepts that were in the accredited List. The researchers explained these results that the health care ranked in the first place because the basic minimum phase is the first educational stages in the education system in Jordan. From this perspective curriculum contents included concepts related to healthy growth, adequate health care for young children. Health care concepts for children at this age, It is placed in the first priorities of science curriculum goals. Health care concepts clearly has emerged in the science textbooks for this stage in order to raise health awareness for students by providing them with health knowledge and development trends, and positive health habits that will change in their behaviour. It also, help creating an enhanced environment for health to offer students opportunities to learn in a safe healthy atmosphere reflected positively on their scientific, physical, social, and psychological achievements, and to find solutions to health issues. This result is consistent with the nature of age as we mentioned earlier, where the curriculum focuses on the concepts linked to the learner's health and his reality. This is consistent with Shehadeh study (2009), Shawsesh (2010) and Richards (2008) which concluded that students need good education related to food safety for health care.

The first aid in this study ranked last with zero duplicates, this field all sub-concepts does not appear in all science textbooks (sample). This is consistent with the study of Fara and Abu Hdros (2007) and Shehadeh (2009). This was explained by researchers, this field was not the focus of the of the science textbooks curriculum planner. Students this stage need to learn concepts related to health care, human

body, and health concepts, after their training and their understanding of these concepts their behaviour will be affected positively. After that they can be included health concepts related to first aid field. In addition, the reason may be an imbalance in the distribution of health concepts in science textbooks because of the lack of health education specialists when designing and planning science textbooks as indicated in the study of Shawish (2010).

## 6. Conclusion and Recommendation

In light of the results of this study the researchers recommend the following:

1. Benefit from a list of health education concepts that were the researcher when planning to include health concepts in science textbooks in the basic learning stage.
2. Reconsider the drafting of minimum essential stage science textbooks in Jordan to make more balance between the areas of health education field and the number of health concepts to be combined and included in the textbooks.
3. Introduce the first aid field and it is sub-concepts within the content of science textbooks

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