Assessment of Primary School Science Teachers' Knowledge towards Health Promotion in Baghdad City

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الخلاصـة

الهدف: تقييم معارف معلمي العلوم في المدارس الابتدائية تجاه تعزيز الصحة في بغداد.

المنهجيـة: أجريت دراسة وصفية في (١٠٠) مدرسة ابتدائية شملت مدارس قطع الكرخ والرصافة في بغداد للمُدّة من (٢٩) تشرين الثاني (٢٠٠٧) ولغاية (٢٠) كانون الثاني (٢٠٠٩) لغرض تقييم معارف معلمي مادة العلوم للمدارس الابتدائية تجاه تعزيز الصحة. اختيرت عينة احتمالية طبقية عشوائية تكونت من (١٠٠) معلم ومعلمة يعملون في مجال تدريس مادة العلوم ولهم خدمة لا تقل عن سنةٍ تمّ استعمال استبانة مصممة تكونت من جزءين وبواقع (٢٠٥) فقرة. تعامل الأول مع الخصائص الديموغرافية للعيّنة، أمّا الثاني فقد تضمّن (٦) أقسام تعاملت مع معارف المعلمين فيما يخص تعزيز الصحةِ تمّ تحديد ثبات ومصداقية الاستمارة من خلال إجراء دراسة استطلاعيّةٍ تمّ تحليل البيانات باستعمال الإحصاء الوصفي الذي تضمّن التكرارات والنسب المئوية،فضلاً عن استعمال الإحصاء الاستنتاجي الذي شمل الوسط الحسابي، معامل ارتباط بيرسون، ومربع كاي.

النتائـج: أظهرت الدراسة أنّ المعلمين اكتسبوا معارف متوسطة فيما يخص التغذية، الأمراض المعدية، التحصين واللقاحات، الجروح والحوادث، السمنة، الأمراض الحادّة، مشكلات الأسنان، المشكلاتالاجتماعية والنفسية، تلوّث الماء، التلوّ ث بالرصاص، الإشعاعات، مشكلات الضوضـاء، التعامل مع الفضلات، ومشكلات النباتات. في حين أنّ معارفهم كانت جيدة فيما يخص الرياضة والتمارين، العادات الغذائية، عادات النظافة، عادات النوم، التلوّ ث بالغبار، ومشكلات الحشرات والحيوانـات المنزلية. وفيمـا يخص العلاقـة بين معارف المعلمين وبعض الخصـائص الديموغرافية، فقد أظهرت الدراسة عدم وجود دلالة إحصائية بين معارفهم والعمر، الجنس وقطاعي مدينة بغداد. بينما أظهرت الدراسة بأنّ هناك دلالة إحصائية ما بين معارفهم ومستواهم الثّقافي وسنوات الخدمة والدورات التدريبيّة.

التوصيات:بناءً على النتائج الآنفة، فإن الدراسة توصي بضرورة الحاجة إلى تصميم برنامج تعليمي لتعزيز الصحة يمكن أن يبنى ويُقدّم لمعلمي المدارس الابتدائية، يركز على كل الجوانب التي تعنى بتعزيز الصحة. فضلاً عن إمكانية ترشيح المعلمين وتشجيعهم للاشتراك بشكل فعال في الدورات التدريبية التي تعنى بتعزيز الصحة. كذلك توصي الدراسة بأهميّة التعاون ما بين وزارتي التربية والصحة من أجل خلق وإنشاء تسهيلات لتنفيذ برنامج التعزيز الصحي التعليمي.

Abstract:

Objective: Assessment of primary schools science teachers' knowledge towards health promotion in Baghdad City.

Methodology: A descriptive study was conducted at (100) primary school at Al-Rasafa, and Al-Karkh sectors in Baghdad City, from November 29th 2007 to January 20th 2009. A probability stratified random sample of (100) teachers who teach science subject was selected, and had at least one year of employment in the teaching field. A questionnaire format was used which was consisted of (2) parts. The overall number of the items included in the questionnaire were (205) items. The first part was related to the demographic data of the teachers, the second part (six sections) was concerned with teachers' knowledge about health promotion. Reliability and validity of questionnaire was estimated through a pilot study. Data were analyzed through the application of descriptive statistical analysis which included; frequency and percentage, and the application of inferential statistical analysis which included; mean of score, Pearson correlation coefficient and Chi-square test.

Results. The study revealed that teachers have acquired moderate level of knowledge about nutrition, communicable diseases, immunization and vaccination, injuries and accidents, obesity, acute illness problems, dental problems, social and psychological development, water and lead pollution, radiation, noise problems, waste disposal and plants problems. Concerning the relationship between teachers' knowledge and their demographic characteristics, data analysis has showed that there is no association between teachers' knowledge and their ages, gender, and sectors. While, there is a significant associations between teachers' knowledge and their educational level, years of employment and training sessions.

Recommendations: The study recommends that there is a need for health promotion-oriented education program which can be designed, constructed and presented to primary school teachers with great emphasis on all aspects of health promotion. Furthermore, teacher can be nominated and encouraged to actively participate in health promotion training sessions. Also, the importance of a collaborative work which can be initiated between the Ministry of Education and the Ministry of Health to create facilities for the implementation of health promotion oriented education program.

Keywords: **Assessment; Knowledge; Primary School Science Teacher; Health Promotion**

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Introduction:

Health promotion can be defined as those activities that assist individuals in developing resources that will maintain or enhance well-being and improve their quality of life [1]. Teachers in all settings can meet health promotion needs of students, whether at their home or at school or community setting. Health promotion is primarily accomplished through student education, it should occur throughout the lifecycle, with topics focused on infancy, childhood, adolescence, adulthood, and older adult. Teachers have played key roles for childhood in the importance of immunization programs; proper nutrition to enhance growth and development; safety practices, such as using seatbelts, fire prevention, and poison proofing at home [2]. To analyze the decision–making process that leads a teacher to address health promotion at school. In primary schools, this ranges from education about healthy eating, dental care, and physical exercise to the prevention of smoking, social skills training, overweight and obesity, mental health, injury and violence, environmental quality, immunization and access to health care [3].

Methodology:

A descriptive design, which was using the assessment approach, was conducted in primary schools of Baghdad City in order to assess primary school teacher's knowledge towards health promotion from November 29th 2007 to 20th of January, 2009. The study is conducted at primary schools for boys and girls in Al–Rasafa and Al–Karkh Education Directorates of Baghdad City. A probability stratified random sample of (100) teachers was selected, (50) from Al–Rasafa sector and (50) from Al–Karkh sector. The items concerning teachers' knowledge were measured on three- level type Likert scale of I know, I am uncertain, and I do not know and rated on a score of 3, 2 and 1 respectively. Data were collected through a direct interview with the primary school teachers through the use of the constructed questionnaire. Content validity of the constructed questionnaire was determined through the use of a panel of 14 experts to investigate the content of the questionnaire. A pilot study was carried out for the period extended from the February 15th 2007 to February 30th 2007. The reliability estimation of Test– retest was determined. Descriptive and inferential statistical approaches which include frequency, percentage, and mean of scores, Pearson correlation coefficient, and Chi-square were applied.

Results:

Part I: Demographic characteristic:

Table 1. Distribution of teachers by their demographic characteristics

Demographic characteristics	Frequency	Percent
1. Gender		
Male	34	34
Female	66	66
Total	100	100%
2. Age (years)		
18-22	6	6
23-27	13	13
28-32	18	18
33-37	21	21
38-and more	42	42
Total	100	100%

Table 1. (Continued)

Demographic characteristics	Frequency	Percent
3. Level of education		
Secondary graduate	21	21
Institute graduate	49	49
College graduate	30	30
Total	100	100%
4. Years of employment		
1-5	12	12
6-10	17	17
11-15	19	19
16-20	13	13
21- and more	39	39
Total	100	100%
5. Sector		
Karkh	50	50
Rusafa	50	50
Total	100	100%
6. Training courses		
None	72	72
One course	17	17
Two course	6	6
Three or more courses	5	5
Total	100	100%

This table reveals that more than half of the sample (66%) is female, (42%) of them their ages were (38) years and over, (49%) of them were institute graduates, (39%) of them is employed for (21) years and more, (50%) of them from Al Karkh Directorate , (72%) of them had no opportunity to be involved in training courses

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Part II: Assessment of Teachers' Knowledge

Table 2. Mean of scores for teachers' knowledge concerning immunity and vaccination

List	Teachers' knowledge concerning immunity and vaccinations	I know f	I'm Un certain f	I do not know f	M.S	Sig.
1.	Immunity is the ability of the host to withstand infection	32	22	46	1.86	S
2.	Immunity to measles virus is acquired immunity	19	11	70	1.49	N.S
3.	Acquired immunity may be induced by active or passive immunization	11	14	75	1.36	N.S
4.	Active immunization refers to the immunization of an individual by administration of an antigen (infectious agent or vaccine) and usually is characterized by the presence of antibody produced by the individual host	16	16	68	1.48	N.S
5.	Vaccinating children against disease of childhood is an example of inducing active immunity	12	11	77	1.35	N.S
6.	Passive immunization is transfer of specific antibody from immunized person	20	6	74	1.46	N.S
7.	Transference of antibody from mother to infant is passive immunization	45	22	33	2.12	H.S
8.	Vaccines are suspensions of attenuated (live) or inactivated (killed) micro-organism which inter immune system to the individuals	72	22	6	2.66	H.S
9.	Vaccines should be taken in preschool age arcs whopping cough tetanus poliomyelitis measles, Rubula, mumps, with active dose	38	16	46	1.92	S
10.	Vaccines should be taken in school age are: Rubella, viral hepatitis, mumps, tetanus, poliomyelitis and measles	18	11	71	1.47	N.S
11.	Total	360	171	569	1.81	S

F= Frequency; H.S= Highly significant; M.S= Mean of scores; N.S= Not significant; S.= significant; Sig.= significance

This table depicts that the mean of scores is highly significant (high score) on 2 items (2 and 9); significant (moderate score) on 3 items (1, 8 and 10); and not significant (low score) on items (3, 4, 5, 6, 7 and 10).

Table 3a. Mean of scores for teachers' knowledge concerning obesity

List	Teachers' knowledge concerning obesity	I know	Uncertain	I do not know	M.S	Sig
		f	f	f		
1.	Large numbers of children are suffering from obesity because of bad eating habits	80	15	5	2.75	H.S
2.	The preventive measure of obesity are:					
2.1	Encourage breast feeding	38	16	46	1.92	S
2.2	Avoid over feeding	78	14	8	2.70	H.S
2.3	Teach nutritional needs to parents	57	24	19	2.38	S
2.4	Encourage healthful eating habits	61	33	6	2.55	H.S
2.5	Avoid extra caloric food (sweets)	75	15	10	2.65	H.S
2.6	Encourage home prepared baby food and meal for older children	45	22	33	2.12	S
2.7	Encourage physical activity in schools and home	80	12	8	2.72	H.S
	Total	514	151	135	2.47	S

F= Frequency; H.S= Highly significant; M.S= Mean of scores; N.S= Not significant; S.= significant; Sig.= significance

The finding of this table reveal that the mean of scores for teachers' knowledge concerning obesity problem was highly significant (good knowledge) in 5 items (1, 2-2, 2-4, 2-5, and 2-7), and significant (moderate knowledge) in other 3 items (2-1, 2-3, and 2-6).

Table 3b. Mean of scores for teacher' knowledge concerning dental problems

List	Teachers' knowledge concerning health problems (i.e., dental problem)	I know	I am Uncertain	I do not know	M.S	Sig.
		f	f	f		
1.	The following foods are recommended for dental health:					
1.1	Milk	85	10	5	2.80	H.S
1.2	Cheese	86	11	3	2.83	H.S
1.3	Raw fruit and vegetables	73	13	14	2.59	H.S
1.4	Corn chips	60	15	25	2.35	S
1.5	Unsweetened fruit juices	46	39	15	2.29	S
1.6	Meats	62	14	24	2.38	S
1.7	Eggs	63	31	6	2.57	H.S

Table 3b. (Continued)

List	Teachers' knowledge concerning health problems (i.e. dental problem)	I know	I am Uncertain	I do not know	M.S	Sig.
		f	f	f		
2.	Food to be avoided for dental health are:					
2.1	Food with added sugar	79	17	4	2.75	H.S
2.2	Cake	49	17	34	2.15	S
2.3	Ice cream	55	25	20	2.35	S
2.4	Lemons or acidic fruits those are sucked or eaten	18	10	72	1.46	N.S
2.5	Immature fruits	71	17	14	2.55	H.S
3.	An adequate fluoride supply is essential for dental health	69	17	14	2.55	H.S
4.	A brush tooth after meal is very important to protect teeth	73	15	12	2.61	H.S
5.	Annual dental examination and prophylaxis	83	16	1	2.82	H.S

F= Frequency; H.S= Highly significant; M.S= Mean of scores; N.S= Not significant; S.= significant;
Sig.= significance

This table depicts that the mean of scores for teachers' knowledge concerning dental problems is highly significant (good knowledge) on items (1-1, 1-2, 1-3, 1-7, 2-1, 2-5, 3, 4 and 5); significant (moderate knowledge) on items (1-4, 1-5, 1-6, 2-2, and 2-3); and not significant (low knowledge) on item (2-4).

Table 4a. Mean of scores for teachers' knowledge concerning dietary habits

List	Teachers' knowledge concerning dietary habits	I know	I am uncertain	I do not know	M.S	Sig.
		f	f	f		
1.	Choose a diet moderate in sugars	81	7	12	2.62	H.S
2.	Choose a diet moderate in salt	72	20	8	2.61	H.S
3.	Periodical advice students to eat a variety of food	80	17	3	2.77	H.S
4.	Advice people to choose a diet low in fat, saturated fat and cholesterol	61	19	20	2.41	S
5.	Choose a diet with plenty of grain products, vegetables and fruits	70	6	24	2.46	S
6.	Balance the food you eat with physical activities	55	15	30	2.25	S
7.	Advice my students to wash their hands before and after eating with soap and water	86	11	3	2.83	H.S
	Total	505	95	100	2.57	H.S

f= Frequency; H.S= Highly significant;   M.S= Mean of scores; S.= significant; Sig.= Significance

Table (4a) indicates that the mean of scores for teachers' knowledge concerning dietary habits is highly significant on items (1, 2, 3 and 7); and significant on the other items (4, 5 and 6).

Table 4b. Mean of scores for teachers' knowledge concerning hygiene habits

No.	Teachers' knowledge concerning hygiene habits	I know	I am uncertain	I do not know	M.S	Sig.
		f	f	f		
1.	Advice the students the important of wash hands before and after eating	80	12	8	2.72	H.S
2.	Advice children the important of bathing at least two times a week	80	15	5	2.75	H.S
3.	Advice children the important of brushing teeth after going to sleep and after wake up	78	14	8	2.70	H.S
4.	Periodic observation to the student concerning keep nails short and clean and frequent hand washing as prevention methods to prevent bacterial infections	85	10	5	2.80	H.S
	Total	323	51	26	2.74	H.S

f= Frequency; H.S= Highly significant;   M.S= Mean of scores; S.= significant; Sig.= Significance

This table demonstrates that the mean of scores for teacher's knowledge concerning hygiene habits is highly significant (good knowledge) on all items.

Part 111: Association between teachers' knowledge concerning health promotion and their demographic characteristics

Table 5. Association between teacher's knowledge concerning health promotion and their level of education

Level of education		I know	I am uncertain	I do not know	Total
Secondary graduate	f	2140	641	1398	4179
	%	51.21	15.34	33.45	100.00
Institute graduate	f	5273	1464	3014	9751
	%	54.08	15.01	30.91	100.00
College graduate	f	3328	875	1767	5970
	%	55.74	14.66	29.60	19900
Total	F	10741	2980	6179	19900
	%	53.98	14.97	31.05	100.00
χ^2obs = 22.081 df = 4 χ^2crit =9.488 P<0.05					

df= Degree of freedom; F= Frequency; P= Probability Level; χ2crit= Critical Chi-square;

χ2 Obs.= Observed Chi-square

Table (5) reveals that there is a significant association between teachers' knowledge and their educational level concerning health promotion.

Table 6. Association between teachers' knowledge concerning health promotion and their training session

Training session		I know	I am uncertain	I do not know	Total
None	f	7640	2134	4554	14328
	%	53.32	14.90	31.78	100.00
One	f	1842	494	1047	3383
	%	54.45	14.60	30.95	100.00
Two	f	662	188	344	1194
	%	55.44	15.75	28.81	100.00
Three and more	f	597	164	234	995
	%	60.00	16.48	23.52	100.00
Total	f	10741	2980	6179	19900
	%	53.98	14.97	31.05	100.00
χ^2obs =33.406　　　　df=6　　　　χ^2crit =12.592　　　　P<0.05					

df= Degree of freedom; F= Frequency; P= Probability value; χ^2crit= Critical Chi-square;

χ^2 Obs.= Observed Chi-square

This table depicts that there is a significant association between teachers' knowledge and their training session.

Discussion:
Part 1: Discussion of the demographic characteristic

The study indicated that female teachers are accounted for more than half of the study sample (66%) (Table 1). Due to sociocultural issue, this evidence has emerged. Females are more likely to have desirability towards the teaching occupation than men. More than one third 42% of the teachers is (38) years old and more. This finding presents a fact that these teachers have been in the education system for a while.

Another evidential fact is that almost nearly half of the teachers 49% have institute or Diploma Certificate education (Table 1). These teachers are not fortunate to continue their education like others and they prefer to stick with this level of education as they do not have any other alternative rather than having or seeking a job opportunity.

It was stated that the mix of levels among the school staff greatly influence the assignment systems used to cover the educational teaching needs [5].

The data analysis depicts that more than one third 39% of the teachers have 21 years and more of employment (Table 1). This finding can be interpreted in a way that these teachers have been in teaching for a while and they are absolutely not new graduates. The majority 72% of them have no opportunity to be involved in training sessions (Table 1). This result provides evidence that the education system lacks training programs for these employees' improvement. This finding disagree with the literature which centered on the enrollment of the teachers in training courses to improve their knowledge, skills and keep them updated to knowledge concerning health promotion [1].

Part 2: Assessment of teachers' knowledge about health promotion:
Teachers' knowledge assessment about immunity and vaccination:
Table (2) indicated that the teachers' knowledge about immunity and vaccination, that from (11) items which included in this table, only (2) items (2 and 9) were highly significant (good knowledge); significant (moderate knowledge) in (3) items (1, 8 and 10); and non significant (low knowledge) in (6) items (3, 4, 5, 6, 7 and 11).
Concerning the total mean of scores in this table, the results indicated that teachers have acquired a moderate level of knowledge M.S= 1.81.

Teachers' Knowledge Assessment about Health Problems; Obesity
Teachers' knowledge about obesity which was included in table (3a) revealed that the teachers have acquired moderate level of knowledge, and the total mean of scores was (2.47).
Table (3a) includes (8) items to asses these knowledge, which was highly significant in (5) items (1, 2-2, 2-4, 2-5 and 2-7); significant in (3) items (2-1, 2-3 and 2-6).
It has been stated in a study conducted in eight Chinese cities that there was an increase in obesity from 3.4% in 1985 to 7.2% in 1996 among 7-18 years old students. The study revealed that the rates of nutritional deficiencies and overweight or obesity in these cities was 17.1% of the primary school population [6].

Dental problems:
Table (3b) demonstrates teachers' knowledge about dental health problems, which was highly significant (good knowledge) in (9) items (1-1, 1-2, 1-3, 1-7, 2-1, 2-5, 3, 4, and 5) and significant (moderate knowledge) in (5) items (1-4, 1-5, 1-6, 2-2, and 2-3), while it was non significant in only one item (2-4).
Moreover, the results revealed that the total mean of scores of this table which dealing with dental health problem was 2.47, what means that teachers have acquired a moderate level of knowledge.
It was stated that dental hygiene should begin as soon as the first tooth erupts. At this time, parents can be encouraged to rub teeth briskly with a dry washcloth. Later, parents can begin to brush the child's teeth with a soft toothbrush [1].

Assessment of teachers' knowledge about health habits:
Dietary Habits:
Table (4a) focuses on teachers' knowledge about dietary habits, which was good knowledge depending on the total mean of scores to this table M.S=2.57
It was mentioned that the aim of this topic is to advice students to eat a diet moderate in sugars, salt and sodium. Eat variety of food, low in fat, saturated fat and cholesterol, and choose a diet with plenty of grain products, vegetables and fruits [1].
It was also stated that teachers play an important role in advising their students to wash their hands before and after eating with soap and water [2].

Hygiene habits:
Table (4b) was designed to assess teachers' knowledge concerning hygiene habits which was focused on the importance of wash hands to the students before and after eating, bathing at least twice time weekly, brushing teeth before going to sleep and after wake up, and the periodic observation to the student to keep their nails short and clean and frequent hand washing as preventive methods. The total mean of scores showed that teachers have acquired a good knowledge towards hygiene habits.

Part III: Discussion of the Association between Teachers' Knowledge and Their Demographic Characteristics
Significant associations are presented between teachers' knowledge and their education, and training (Table 5, and 6).

Recommendations:

The study recommends the following:

1. Health promotion-oriented education program can be designed, constructed and presented to primary school teachers with a great emphasis on all aspects of health promotion knowledge.

2. Teachers can be nominated and encouraged to actively participate in health promotion training sessions.

3. Collaborative work can be initiated between the Ministry of Education and the Ministry of Health to create the facilities for the implementation of health promotion-oriented education program.

.4. Further studies can be conducted on a sample with large size and wide-range characteristics (national type study).

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