# MUMPS CONTROL AND PREVENTION KNOWLEDGE IN THE PRIMARY SCHOOL IN BALAD CITY

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## Abstract

Introduction: Mumps (Parotitis) is an acute salivary glands viral infection due to a paramyxovirus family species. Paramyxovirus, mainly mumps, has an important effect in the etiology and pathogenesis of multiple sclerosis (MS) [1-3]. Characteristic clinical features are; parotid salivary glands swelling with a characteristic "hamster-like" face. Mumps' symptoms include: high temperature, headache, muscle aches, tiredness, and loss of appetite. Symptoms frequently appear 2 weeks after infection, and may continue 2-3 weeks after infection. Clinically symptoms range from severe to asymptomatic in some mumps patients. This study aims to identify mumps control and prevention measures and knowledge in the primary school in Balad city.

Materials and methods: A descriptive, cross-sectional study was done in the primary school in Balad city from 1st December 2018–3rd April 2019. A convenient sample was chosen composed of (60) teachers (30 males and 30 females) who are working in schools in Balad City. A constructed questionnaire was designed by the researchers to collect information about socio-demographic information and mumps control and prevention knowledge of teachers.

Results: The sample consisted of 30 male and 30 females, 35 (58.3%) from the institute and the remaining graduated from education colleges. Teacher age groups were as following; 20-29.9 years were 8 (13.3%), 30-39.9 years 17 (28.3%), 40-49.9 years 19 (31.7%), above 50 years 16 (26.7%). Teachers were classified according to years of experience as follows, less than 9.9 years 11 (18.3%) 10-29.9 years 32 (53.3%), 30-39 6 (10%). Teachers were classified according to source of teacher's knowledge as follows; from books 7 (11.7%), newspapers and magazine 4 (6.7%), internet 27 (45%), previous study 14 (23.3%), and others (group discussion, workshops) 8 (13.3%).

Key words: Mumps Control and Prevention Knowledge, Primary School in Balad city.

## Introduction

Mumps (Parotitis) is an acute salivary glands viral infection due to a paramyxovirus family species. Paramyxovirus, mainly mumps, has an important effect in the etiology and pathogenesis of multiple sclerosis (MS) [1-3]. Characteristic clinical features are; parotid salivary glands swelling with a characteristic "hamster-like" face. Mumps' symptoms include: high temperature, headache, muscle aches, tiredness, and loss of appetite. Symptoms frequently appear 2 weeks after infection, and may continue 2-3 weeks after infection. Clinically symptoms range from severe to asymptomatic in some mumps patients [4]. Transmission of Mumps occurs through mucus or saliva. The child can get mumps virus by coughing, sneezing, talking, sharing items and touching of other patients. Transmission of mumps occurs rapidly even before appearance of signs and symptoms. Complications may occur 5 days after acquiring mumps [5]. Encephalitis and meningitis are the worst complications of mumps accompanied by orchitis, mastitis and oophoritis. Complications may affect both males and females. Other complications include the following; deafness, pancreatitis and orchitis . Mumps infections give permanent immunity for life [6]. MMR vaccine (measles, mumps and rubella vaccine) is used in controlling these 3 diseases and used globally. MMR is given in multiple doses to children according to WHO recommendations. MMR 1st dose administration should be from 12 to 15 months of birth. MMR 2nd dose must be given at 4 -6 years. Active MMR vaccination should be re-administered to children from 1-12 years. Active MMR vaccination is given to adolescents, specially females. Now MMRV vaccine has been developed (measles, mumps, rubella and varicella), it must be given to children from 1-12 years [7].

Mumps prevention measures are: hands washing with soap and water, bed rest and sick leave from school for 5 days after the symptoms start, and covering the nose and mouth with a tissue when sneezing or coughing. The treatment is only symptomatic treatment because of the absence of a specific antiviral drug for mumps [8]. Commonly recovery from mumps occurs within 2 weeks. Treatment includes sufficient rest and sleep and taking of painkillers, such as acetaminophen or ibuprofen [9, 10]. The aim of this research is to determine the knowledge and awareness of mumps disease in educated Iraqi teachers.

## Subjects and Methods

A descriptive cross sectional study was carried out concerning mumps control and prevention knowledge at a primary school in Balad city, after making official administrative arrangements from Tikrit Nursing College & Ministry of education for data collection. An assessment tool was designed by the researchers which included socio-demographic information on teacher's knowledge about mumps disease. The Validity of Questionnaire was assessed by 12 experts from Tikrit Nursing college and Salah-Aldeen Health Directorate. A pilot study was conducted at the primary schools in Balad city on (10) teachers and it revealed that the Questionnaire was reliable. A convenient sample of (60) teachers were randomly chosen to cover all geographical areas of primary schools in Balad city. Data collection was started on 1st December 2018 to 3rd of April 2019 through use of the questionnaire and by direct interview. Data analysis was done through different approaches.

In this study, the teachers needed to know the signs and symptoms of mumps disease because the children in the primary school may have weaning of immunity due to vaccination. The school children may suffer from outbreaks of mumps disease. The presence of well trained teachers is an important aspect of treatment and prevention of mumps disease. In such circumstances, they will suffer from severity of mumps disease. Symptoms of mumps disease consist of the following; fever, headache, muscle pain, malaise, loss of appetite, salivary glands swelling and tenderness.

Many cases suffer from further symptoms due to involvement of other systems and organs such as headache, fever, neck stiffness, sensitivity to light, and vomiting. However, high temperature may last more than 6 days, and the swelling of salivary glands can last for 10 days or more [11].

## Results

The sample consisted of 30 male and 30 females, 35 (58.3%) from the institute and the remaining graduates from education colleges. Teachers' age groups were as following; 20-29.9 years were 8 (13.3%), 30-39.9 years 17 (28.3%), 40-49.9 years 19 (31.7%), and above 50 years 16 (26.7%). Teachers were classified according to years of experience as follows, less than 9.9 years 11 (18.3%) 10-29.9 years 32 (53.3%), 30-39 6 (10%). Teachers were classified according to source of teacher's knowledge as follows; from books 7 (11.7%), newspapers and magazine 4 (6.7%), internet 27 (45%), previous study 14 (23.3%), and others (group discussion, workshops) 8 (13.3%).

Table 1 reveals that teachers' knowledge about the Mumps virus, was above average apart from about the spread of infection in primary school (86.7%) and this represents a good point in the control of the disease. This is a cornerstone in Mumps prevention.

**Table 1: Items of teachers' knowledge about the Mumps virus**

| Do you know that mumps is caused by virus not by bacteria? | | | | |
|---|---|---|---|---|
| | Yes | I not sure | No | Total |
| Frequency (%) | 53 (88.3) | 5. (8.3) | 2 (3.3) | 60 |
| Do you know that mumps is caused by a virus called (paramyxoviridae) | | | | |
| Frequency (%) | 32 (53.3) | 24 (40%) | 4 (6.7%) | 60 |
| Do you know that mumps symptoms do not appear sometimes | | | | |
| Frequency | 29 (48.3%) | 12 (20%) | 19 (31.7%) | 60 |
| Do you know that humans are considered as a source for the disease | | | | |
| Frequency | 33 (55%) | 21 (35%) | 6 (10%) | 60 |
| Do you notice that serious mumps spreads among primary school students? | | | | |
| Frequency | 52 (86.7%) | 8 (13.3%) | | 60 |

**Table 2: Items of teachers' knowledge about the Methods of Mumps transmission**

| Do you notice that this disease is contagious? | | | | |
|---|---|---|---|---|
| | Yes | I not sure | No | Total |
| Frequency (%) | 52 (86.7%) | 6 (10%) | 2 (3.3%) | 60 |
| Do you notice that this disease spreads quickly? | | | | |
| Frequency (%) | 47 (78.3%) | 11 (18.3%) | 2 (3.3%) | 60 |
| Do you notice that this disease virus is transferred by breath | | | | |
| Frequency | 44 (73.3%) | 15 (25%) | 1 (1.7%) | 60 |
| Can mumps can be transferred directly by contact with a diseased person | | | | |
| Frequency | 49 (81.7%) | 9 (15%) | 2 (3.3%) | 60 |
| Do you notice that the season for spreading this disease is spring and winter? | | | | |
| Frequency | 45 (75%) | 12 (20%) | 3 (5%) | 60 |
| Can mumps be transferred by contact with respiratory secretion of a person with Mumps | | | | |
| Frequency | 50 (83.3%) | 8 (13.3%) | 2 (3.3%) | 60 |
| Do you notice that this disease could be transferred by the afflicted person's cough? | | | | |
| Frequency | 42 (70%) | 18 (30%) | | 60 |
| Do you notice that this disease could be transferred by the afflicted person's nose | | | | |
| Frequency | 47 (78.3%) | 11 (18.3%) | 2 (3.3%) | 60 |
| Do you notice that mumps can be transferred by eating with a diseased person? | | | | |
| Frequency | 53 (88.3%) | 6 (10%) | 1 (1.7%) | 60 |
| Do you know that this disease could enter the body through breathing? | | | | |
| Frequency | 45 (75%) | 12 (20%) | 3 (5%) | 60 |
| Can mumps can be transmitted through eye secretions of an infected person's eye? | | | | |
| Frequency | 19 (31.7%) | 25 (41.7%) | 16 (26.7%) | 60 |

Regarding Teachers' knowledge about transmission methods of Mumps, the study stated that most of them with knowledge of 70-84% excepts for the statement of (Do you know that this disease can enter through membranes and eye secretions of the infected eye?) was yes in 31.7% of cases. This point needs to be taken into account in future workshops and training courses.

**Table 3: Items of teachers' knowledge about Mumps symptoms**

| Do you notice fever in the afflicted person or not? | | | | |
|---|---|---|---|---|
| | Yes | I not sure | No | Total |
| Frequency | 50 (83.3%) | 5 (8.3%) | 5 (8.3%) | 60 |
| Does mumps cause difficulty of swallowing as a symptom of the afflicted person? | | | | |
| Frequency | 46 (76.7%) | 9 (15%) | 5 (8.3%) | 60 |
| Do you know that the period of appearance of this disease is from 2 weeks at least | | | | |
| Frequency | 33 (55%) | 20 (33.3%) | 7 (11.7%) | 60 |
| Do you notice that there are pains in muscles in students afflicted with mumps | | | | |
| Frequency | 30 (50%) | 23 (38.3%) | 7 (11.7%) | 60 |
| Do you notice that the afflicted students feel headache? | | | | |
| Frequency | 43 (71.7%) | 13 (21.7%) | 4 (6.7%) | 60 |
| Do you notice that the afflicted students feel fatigue and tired? | | | | |
| Frequency | 49 (81.7%) | 8 (13.3%) | 3 (5%) | 60 |
| Do mumps students suffer from draughts and copiously drink water? | | | | |
| Frequency | 35 (58.3%) | 17 (28.3%) | 8 (13.3%) | 60 |
| Do you notice the swelling of the salivary gland in afflicted persons? | | | | |
| Frequency | 53 (88.3%) | 4 (6.7%) | 3 (5%) | 60 |
| Do you notice unilateral salivary gland swelling in mumps disease students? | | | | |
| Frequency | 57 (95%) | 3 (5%) | | 60 |
| Do you notice bilateral salivary gland swelling in mumps disease students? | | | | |
| Frequency | 45 (75%) | 11 (18.3%) | 4 (6.7%) | 60 |

**Table 4: Items of teachers' knowledge about the side complications of Mumps**

| Do you know that mumps virus could reach the blood if not treated? | | | | |
|---|---|---|---|---|
| | Yes | I not sure | No | Total |
| Frequency | 31 (51.7%) | 19 (31.7%) | 10 (16.7%) | 60 |
| Does mumps cause testicular pain and swelling in males and infertility | | | | |
| Frequency | 33 (55%) | 19 (31.7%) | 8 (13.3%) | 60 |
| Do you know that mumps virus leads to abdominal pain? | | | | |
| Frequency | 22 (36.7%) | 28 (46.7%) | 10 (16.7%) | 60 |
| Does mumps virus cause pancreatitis? | | | | |
| Frequency | 20 (33.3%) | 24 (40%) | 16 (26.7%) | 60 |
| Does mumps cause females ovarian inflammation and affect pregnancy? | | | | |
| Frequency | 24 (40%) | 22 (36.7%) | 14 (23.3%) | 60 |
| Do you know the virus leads to neck pain? | | | | |
| Frequency | 45 (75%) | 12 (20%) | 3 (5%) | 60 |
| Do you know the virus leads to inflammation of the brain membranes? | | | | |
| Frequency | 22 (36.7%) | 28 (46.7%) | 10 (16.7%) | 60 |
| Do you know the virus leads to inflammation of meninges? | | | | |
| Frequency | 20 (33.3%) | 27 (45%) | 27 (21.7%) | 60 |

Regarding the results of Table 4 the study indicates that overall of teachers' knowledge about the Mumps symptoms were answered yes.

In relation to the items of teachers' knowledge about clinical features of Mumps disease the (Yes) responses ranged from 55-95%. This is important in the recognition of disease and taking the precautionary measures and giving sick leave for children and reporting the case to the PHCC.

Mumps complications: regarding the items of teachers' knowledge concerning the complications of Mumps, there was deficiency of knowledge regarding (oopheritis, meningitis, pancreatitis) which ranged from 33-36%. This is an important point in teachers' awareness of dangers of Mumps.

**Table 5: Items of teachers' knowledge about control of this disease in schools**

| Does mumps vaccination with a single dose of measles give lifelong prevention? | | | | |
|---|---|---|---|---|
| | Yes | I not sure | No | Total |
| Frequency | 28 (46.7%) | 18 (30%) | 14 (23.3%) | 60 |
| Does mumps vaccination with two doses of measles give life-long prevention? | | | | |
| Frequency | 34 (56.7%) | 18 (30%) | 8 (13.3%) | 60 |
| Does Mumps vaccination with three doses of measles give life-long prevention? | | | | |
| Frequency | 31 (43.3%) | 26 (5%) | 3 (5%) | 60 |
| Do you invite parents to carry out mumps vaccination for their children? | | | | |
| Frequency | 41 (68.3%) | 3 (5%) | 16 (26.7%) | 60 |
| Do you suggest a vaccine program for students by cooperation with PHCC? | | | | |
| Frequency | 37 (61.7%) | 6 (10%) | 17 (28.3%) | 60 |
| Do the students wear masks when this disease spreads? | | | | |
| Frequency | 27 (45%) | 9 (15%) | 24 (40%) | 60 |
| Do they prevent sick leave for diseased students until ending the treatment? | | | | |
| Frequency | 51 (85%) | 8 (13.3%) | 1 (1.7%) | 60 |
| Do they separate the afflicted students from non- afflicted persons? | | | | |
| Frequency | 42 (70%) | 9 (15%) | 9 (%) | 60 |
| Is it unnecessary to isolate mumps students from normal students? | | | | |
| Frequency | 24 (40%) | 4 (6.7%) | 32 (53.3%) | 60 |
| Do you give lectures about mumps in classroom? | | | | |
| Frequency | 27 (45%) | 7 (11.7%) | 26 (43.3%) | 60 |
| Do you contribute to explaining details of this disease and about its transfer? | | | | |
| Frequency | 30 (50%) | 8 (13.3%) | 22 (36.7%) | 60 |
| Is it necessary to send suspicious students to the PHCC as correct process? | | | | |
| Frequency | 49 (81.7%) | 8 (13.3%) | 3 (5%) | 60 |
| Do you distribute sterile materials for hands, masks and soft papers? | | | | |
| Frequency | 30 (50%) | 11 (18.3%) | 19 (31.7%) | 60 |
| Do you encourage the students to wash their hands before eating? | | | | |
| Frequency | 51 (85%) | 8 (8%) | 1 (1.7%) | 60 |
| Do you instruct students not to rub and chafe their eyes only after washing? | | | | |
| Frequency | 49 (81.7%) | 9 (15%) | 2 (3.3%) | 60 |
| Do you contribute to instruct the students to wipe their eyes with soft tissues? | | | | |
| Frequency | 52 (86.7%) | 5 (8.3%) | 3 (5%) | 60 |
| Do you advise students to put soft tissues on their mouths when sneezing? | | | | |
| Frequency | 56 (93.3%) | 3 (5%) | 1 (1.7%) | 60 |

There was a deficiency in teachers' knowledge about MMR vaccination doses, and effect of using face mask to limit the spread. Only 45% of teachers gave lectures about Mumps in classroom.

## Discussion

The majority of the study sample lay in the age group of (40-49) years-old more than 19 (31.7%), with equal frequency in males and females (50). The majority of the study sample (58.3) were graduates from education institutes. Most teachers were found with (10-19) years of experience at (53.3%), while internet was the source of teachers' knowledge about mumps in 45.0%. The results of Table 2 indicated that the teachers' knowledge about the Mumps virus, and the study reveals that most teachers' have knowledge about the Mumps virus in Balad city.

Relative to the teachers' knowledge about the Methods of Mumps transfer, the study indicates that most of them had knowledge except one was not sure (Do you know that this disease could enter through membranes and eye secretions of the infected eye? (41.7) (Table 3).

The results of table 4 showed the study indicates that the overall of teachers' knowledge about the Mumps symptoms is yes. While the results of table (5), indicate that the teachers' knowledge about the sides effects of Mumps sits equal between 'yes' and 'I am not sure'.

Regarding the results of table (6), the study indicates that overall teachers' knowledge about control this disease in schools is 'yes'. Relative to the Table ('7), on the difference in teachers' knowledge among age groups, the study indicates that no statistically significant difference in teachers' knowledge was found among age groups. The results of the table show the study indicates that there was no statistically significant difference in teachers' knowledge between gender groups. The findings of the study revealed that there was no statistically significant difference in teachers' knowledge among level of education groups (table 9). Table 10 on difference in teachers' knowledge among level of education groups, reveals that there was no statistically significant difference in teachers' knowledge between gender groups.

The findings of the study revealed that there was no statistically significant difference in teachers' knowledge among years of experience groups. The study findings indicate that a high deficit in their knowledge which indicated that they needed enough education about this disease and increasing of knowledge among all levels of education such as pupils and teachers especially in private schools through public health lessons (24, 25); the sample study wanted more education about the general characteristic of the virus and these results are different from (26), thus the sample study must increase their information about the symptoms of the disease. (27). So it may be necessary to increase teachers' knowledge about side effect of mumps infection (28). Therefore the sample study must increase their information about the control of mumps disease (29, 30).

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