

## Knowledge, attitude and Practice on cholera epidemic in AL-Diwaniya Province

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### الخلاصة:

الكوليرا مرض معوي جرثومي حاد يتميز فيه شكل حاد من قبل ظهور مفاجئ ووافر من البراز المائي الغير المؤلم، والغثيان والقيء في وقت مبكر من مسار المرض. في حالة عدم وجود العلاج يحدث الجفاف السريع، تحمض الدم، وانهيار الدورة الدموية، ونقص السكر في الدم في الأطفال، والفشل الكلوي ويمكن أن يؤدي بسرعة إلى الموت. الهدف من الدراسة للحصول على مستوى المعرفة والممارسة وموقف سكان محافظة الديوانية وعلاقتها معهم الخصائص الاجتماعية والديموغرافية. دراسة المقطع العرضي للحصول على المعرفة والمواقف والممارسات من سكان الديوانية من خلال مقابلة لهم وملاء الاستبيان باستثناء الذين يعملون في القطاعات الصحية. أظهرت نتائج الدراسة تأثير كبير في مستوى التعليم على درجة المعرفة وأنه كلما ارتفع المستوى التعليمي، وتحسنت المعرفة كلما تمت السيطرة على مرض الكوليرا ويمكن تفسيرها من خلال فهم أفضل لعملية المرض التي يعاني منها الشخص تعليماً جيداً والتفكير العلمي أكثر من الأشخاص حول الوقاية من الأمراض وعلاجها. الأشخاص المتعلمون أقل تأثراً المعرفة الخاطئة التي قدمها المجتمع ووسائل الإعلام العامة. وينبغي اعتماد برامج تعليمية وطنية من قبل السلطات الصحية أهداف الدراسة وتركز على الأمراض المعدية، ومكافحة المعرفة المضللة من قبل وسائل الإعلام غير المنضبطة.

### Abstract

Cholera is an acute bacterial enteric disease characterized in a severe form by sudden onset, profuse painless watery stool (rice water stool) <sup>1</sup>, nausea and profuse vomiting early in the course of illness. In untreated case, rapid dehydration, circulatory collapse, hypoglycemia in children, and renal failure can lead to death.

The aim of study was to get the level of Knowledge, practice and attitude of the population of Al-Diwaniya Province and their relation with them socio-demographic characteristics.

Cross sectional study from 1<sup>st</sup> November 2015 to 1<sup>st</sup> march 2016 to get the knowledge, attitude and practice of dewaniyah population by interviewing them and filling the questionnaire excluding who worked in health sectors.

The results of study showed significant impact of level of education on the knowledge score in such a way that the higher the educational level, the better the knowledge; this finding agrees with Wahed T. *et al.* (2013) <sup>1</sup>. This significant association may be explained by better understanding for disease process experienced by well-educated person and the more scientific thinking of those persons about disease prevention and treatment.

The educated persons were less affected by faulty knowledge presented by the society and general media like facebook and other social media technology.

National educational programs should be adopted by health authorities to satisfy two objectives; the first being global insight focused on the communicable diseases and the second being a fight against misleading knowledge adopted by uncontrolled media.

## Introduction

Cholera is an acute bacterial enteric disease characterized in its severe form by sudden onset, profuse painless watery stool (rice water stool) <sup>1</sup>, nausea and vomiting early in the course of illness. If untreated, rapid dehydration, acidosis, circulatory collapse, hypoglycemia in children, and renal failure can rapidly lead to death <sup>(1)</sup>. In most cases infection is asymptomatic or causes mild diarrhea, especially with organisms of the El Tor biotype, asymptomatic carriers can transmit the infection <sup>(2)</sup>. In severe dehydrated cases (cholera gravis), death may occur within a few hours, and the case-fatality rate may exceed 50%. <sup>(3)(4)</sup>

## Diagnosis

Fecal culture is the standard method for confirming a cholera case and a positive result from several patients with diarrhea needed to declare an outbreak. Although not difficult to carry out, it does require specialized media, trained technicians and a well-equipped microbiological laboratory. These are not always available in regions with cholera, and when cultures are performed, results are often delayed <sup>(5)</sup>.

New rapid diagnostics are now becoming available which should allow more rapid detection of outbreaks as well as monitoring the course of the outbreak. Polymerase chain reaction (PCR) methods are becoming more widely used which provide more accurate diagnosis. Though PCR is not a "rapid test", PCR methods are often useful for confirmation when evaluating cholera interventions <sup>(6)</sup>

**Infectious agent** Only *Vibrio cholera* serogroups O1 and O139 are associated with the epidemiological characteristic and clinical picture of cholera. Serogroup O1 occurs as two biotypes-classical and El Tor- each of which occurs as 3 serotypes (Inaba, Ogawa and rarely Hikojima) <sup>(7,8)</sup>.

**Occurrence** Cholera is one of the oldest and best understood epidemic disease. Epidemics and pandemics are strongly linked to the consumption of unsafe water, poor hygiene

, poor sanitation and crowded living conditions <sup>(9)</sup>.

In 2015 an estimated 2.4 billion people still lack improved sanitation facilities <sup>(10)</sup>. In Iraq the number of confirmed cases by CPHL is 2742 and the number of suspected cases is 4926 in particular in Al-Diwaniya. Total confirmed cases of cholera for 2015, is 463, and the number of suspected cases is 238 <sup>(11)</sup>

**Mode of transmission** Cholera is acquired through ingestion of an infective dose of contaminated food or water and transmitted through many mechanisms. Water usually contaminated by feces of infected individuals and can itself contaminate, directly or through contamination of food <sup>(12)</sup>. Contamination of drinking water occurs usually at source, during transportation or during storage at home.

**Incubation period** from a few hours to 5 days, usually 2-3 days

**Period of communicability** As long as stools are positive, usually only a few days after recovery <sup>(13)</sup>. Occasionally the carrier state may persist for several months. Antibiotics known to be effective against the infecting strains (e.g. tetracycline and doxycycline) <sup>(14,15)</sup>.

## Method of control

**A-preventive measures:** prevention based on access to safe water and proper sanitation as well as adherence to safe food handling practice

- 1-Educate the public regarding the importance of hand washing. Provide suitable hand washing facilities, particularly for food handlers and attendants involved in the care of patients and children <sup>(16)</sup>

- 2-Dispose of human feces safely and maintain fly-proof latrines. Where culturally appropriate encourage use of sufficient toilet paper to minimize finger contamination. Under field conditions, dispose of feces by burial at a site distant and down stream from the source of drinking water <sup>(17)</sup>

- 3-protect, purify and chlorinate public water supplies, provide safe privet supplies, and avoid possible back flow connections between water and sewer systems. For individual and

small group protection ,and during travel or in the field ,treat water chemically or by boiling  
4-Control flies by screening and use of insecticides .Control fly-breeding through frequent garbage collection and disposal and through fly control measure in latrine construction and maintenance <sup>(18)</sup>.

5-Use scrupulous cleanliness in food preparation and handling refrigerate as appropriate .Pay particular attention to the storage of salads and other foods served cold  
6-pasteurize or boil all milk and dairy products

.Supervise the sanitary of commercial milk production, storage and delivery

7-Enforce suitable quality –control procedures in industries that prepare food and drink for human consumption .Use chlorinated water for cooling during canned food processing

8-Instruct the community, patients, convalescents and carries in personal hygiene .Emphasize hand washing as a routine practice after defecation and before preparing, serving or eating food <sup>(19)</sup>.

#### **B-control of patient, contacts and the immediate environment:**

1-Report to local health authority: case report universally required by International Health Regulations class 1.

2-Isolation: Hospitalization with enteric precautions is desirable for severely ill patient; strict isolation is not necessary .Less severe cases can managed on an outpatient basis with oral rehydration and an appropriate antimicrobial agent to prevent spread.

3-Concurrent disinfection: Of feces and vomit and of linens and articles used by patients, using heat, carbolic acid or other disinfection.

4-Specific treatment: The cornerstone cholera treatment is timely and adequate rehydration .patient presenting mild dehydration can treated successfully by oral rehydration therapy using ORS.

Adult are given tetracycline 500 mg 4 times a days and children 12.5 mg/kg 4 times daily, for 3 days. For adults a single dose of 300 mg of doxycycline is a good alternative treatment <sup>(20)</sup>.

#### **Aim of study**

The aim of study was to assess the level of Knowledge, practice and attitude of the population of Al-diwaniya Province and the relation of their socio-demographic characteristics

#### **Method:**

**Study design:** cross- sectional study

**Time of the study:** the data collection carried out during the period from the 1<sup>st</sup> of November 2015 to 1<sup>st</sup> march 2016

**Place of the study:** the study conducted at Al-Diwaniya province including the center and the sectors.

**Approval and official permission:** was obtained from Al- qadissiyah university and it was handed to the manager of the AL-Diwaniya Teaching hospital with explanation of the aim of study.

**Sample size:** 100 participants

**Inclusion criteria:** they were

1-Never, have cholera before. 2- Age between (18 -60 years). 3- Both sexes

**Exclusion criteria:**

1-All health care providers including doctor, pharmacist, nurses, Para medical staff and medical students.

2- Previously had cholera

3-below 18 and above 60 years

**Questionnaire information :** information usually taken directly face to face from the participants the questionnaire include the following<sup>(1)</sup>:

1-Socio-demographic characteristics; like age, sex, education state and occupation and family members.

**2-knowledge:** This section included 16 semi-structured items on causes, management, treatment sources, and prevention measures of cholera. We also used one open-ended question in this section, “What do you understand about cholera/what is cholera?”, to capture the respondent’s definition of cholera. We then entered the answers to this open-ended question, as structured responses, into the database, a scoring system was used. Each

correct response was scored as 1 while, other responses, such as ‘incorrect’ or ‘don’t know’, were scored as 0 (zero). The poor knowledge defined as a score of  $\leq 8$  (equal to or less than eight)

While a score of  $\geq 9$  (equal to or greater than nine) considered good knowledge.

**3-Attitude:** This section included statements concerning the risks of cholera and cholera immunization (“cholera is very serious for adult or children”, “there may be side-effects of cholera vaccination”), perceived

efficacy of various preventive measures (e.g. hand washing and proper sanitation practices), and the benefits of cholera immunization (“immunizations are effective in the prevention of disease”)

**4-Practice:** included questions on care-seeking practices for cholera-preventive practices (e.g. use safe water, proper sanitation, health education, food safety, and basic health practice).

Statistical analysis done by SPSS version 13.

**RESULTS Table 1: Socio-demographic characteristics**

Characteristic		N	%
Age	18-23 years	23	23.0
	24-34 years	37	37.0
	35-44 years	12	12.0
	>45 years	28	28.0
Gender	Male	32	32.0
	Female	68	68.0
Education	No education	18	18.0
	Primary	35	35.0
	Secondary	47	47.0
Family size	<5	19	19.0
	$\geq 5$	81	81.0

**Table 2: Respondents knowledge of cholera**

Characteristic		Yes		No	
		N	%	N	%
Recognition of cholera	watery stool with or without vomiting	74	74.0	26	26.0
Causes of cholera	lack of safe drinking water	77	77.0	23	23.0
	eating rotten food / lack	64	64.0	36	36.0
	affected by cholera germ	47	47.0	53	53.0
Type of cholera management	ORS	3	3.0	97	97.0
	Rice saline	0	0.0	100	100.0
	IV fluid	93	93.0	7	7.0
	Home-made saline	4	4.0	96	96.0
	plain water	1	1.0	99	99.0
Place of management	Home	7	7.0	93	93.0

	Health care center	93	93.0	7	7.0
Cholera prevention measures	use of safe water	71	71.0	29	29.0
	proper sanitation	75	75.0	25	25.0
	health education	28	28.0	72	72.0
	Frequency	77	77.0	23	23.0
	basic hygiene practices	66	66.0	34	34.0

**Table 3:** Attitude toward cholera

Parameter	Yes		No	
	N	%	N	%
Believe that we should wash hand	97	97.0	3	3.0
Believe it may cause disease if stool pass anywhere	87	87.0	13	13.0
Believe we should wash our hand before food	98	98.0	2	2.0
Believe we should encourage for cholera vaccine	88	88.0	12	12.0
Believe cholera is very serious disease for adult	93	93.0	7	7.0
Believe cholera is very serious for child	95	95.0	5	5.0
Believe cholera is sever health problem lead to death	86	86.0	14	14.0
Believe cholera can be prevented by vaccine	76	76.0	24	24.0
Believe cholera vaccine may cause harm	36	36.0	64	64.0

**Table 4:** practices of respondents relating to prevention of cholera

Parameter	N	%	N	%
Use of safe water	71	71.0	29	29.0
Proper sanitation	77	77.0	23	23.0
Health education	28	28.0	72	72.0
Food safety	78	78.0	22	22.0
Basic hygiene practice	65	65.0	35	35.0

**Table 5:** scores of KAP

Score	Median	Mean	SD	Minimum	Maximum
Knowledge	8.0	7.8	2.7	0.0	13.0
Attitude	8.0	7.5	1.2	3.0	9.0
Practice	3.0	3.2	1.4	0.0	5.0

**Table 6:** analysis of socio-demographic features and KAP

Parameter		Knowledge	P	Attitude	P	Practice	P
Age	18-23 years	7.6+2.3	0.243	7.6+1.0	0.535	3.0+1.4	0.570
	24-34 years	8.1+2.7		7.4+1.3		3.2+1.5	
	35-44 years	8.8+1.7		8.0+0.7		3.7+1.1	
	>45 years	7.1+3.2		7.4+1.5		3.1+1.6	
Gender	Male	7.8+2.7	0.977	7.9+0.9	0.064	3.2+1.6	0.892
	Female	7.8+2.7		7.4+1.3		3.2+1.4	

Education	No education	7.3±3.6	0.010	6.8±1.6	0.013	3.1±1.8	0.026
	Primary	6.9±2.8		7.6±1.1		2.7±1.5	
	Secondary	8.6±1.9		7.8±1.1		3.6±1.1	
Occupation	No job	7.3±2.9	0.077	7.4±1.3	0.262	3.0±1.5	0.141
	Private	8.6±2.2		7.5±1.2		3.6±1.3	
	Employee	8.6±2.1		7.9±1.0		3.6±1.4	
Family size	<5	8.1±2.6	0.614	7.3±1.4	0.283	3.3±1.5	0.808
	>5	7.7±2.7		7.6±1.2		3.2±1.4	

## Discussion

The mean knowledge score of cholera patients participating in the present study was  $7.8 \pm 2.7$ . This score is regarded poor according to Wahed T. *et al.* (2013) <sup>(1)</sup>. The poor knowledge score might be attributed to the fact of poor educational programs adopted by the national media regarding the general knowledge about infectious disease and cholera in particular; also the little effect of media campaign shared by health institute with this regard. The lack of ideal primary health care may be one of the important factors that directly resulted in such a low education score by the community.

The mean attitude score of the patients enrolled in the present study is highly positive,  $7.5 \pm 1.2$ . This interpretation of a highly positive value is in accordance with Wahed T. *et al.* (2013) <sup>(1)</sup>. Motivation toward this good attitude score explained by the general belief of the population about the adverse outcomes of neglecting such an infectious disease.

The mean practice score recorded by the present work is  $3.2 \pm 1.4$ , according to Wahed T. *et al.* (2013), was good score. This also explained by the general belief of the community regarding the disease and its complications.

Regarding knowledge score, there was no significant impact of variability in age of patients on knowledge score. This finding accordance with Wahed T. *et al.* (2013). The lack of association between age and knowledge

score may be attributed to the fact that with increasing age, the main progress in knowledge is limited to the field of interest of the individual with subsequent poor general knowledge regarding other disciplines especially health education.

This added to the lack of appropriate scientific base health education provided by the social media for example facebook is a main source of non-qualified knowledge for vast majority of the population.

The finding of the present work disagrees with the finding of Wahed T. *et al.* (2013), regarding the association between knowledge score and gender. The general beliefs and knowledge of female and male subjects in our society is mainly determined by education level and since both male and female subjects, nowadays, have the same opportunity for getting involved in pre-graduate and post graduate education programs, one may expect lack of variation in general knowledge in both sexes. The general media is available with equal chance for both sexes; therefore, general knowledge of male and female subjects expected to be statistically equal. On the other hand, cholera well known by most population to be sex independent.

The present study showed significant impact of level of education on the knowledge score in such a way that the higher the educational level, the better the knowledge; this finding agrees with Wahed T. *et al.* (2013). This significant association explained

by better understanding for disease process experienced by well-educated person and the more scientific thinking of those persons about disease prevention and treatment. The educated persons less affected by faulty knowledge presented by the society and general media.

Family size shown, by the present study to have no significant effect on knowledge, so as occupation. These findings agree with Wahed T. *et al.* (2013) regarding family and disagree regarding occupation. These may be attributable to the lack of effect on educational level by these parameters.

It has been shown in the current work that attitude was not affected by any of the studied variables except education.

These findings agree partially with David. L *et al.*, in 2004<sup>(7)</sup>. Who stated that attitude affected neither by age nor by gender of the subject. Despite thorough search, we fail to find a literature that, describe the effect of other variables, education, occupation and family size, on the attitude of subjects regarding cholera.

It appears that the level of education is a prime player in establishment of personal attitude, Practice score proved to be affected by level of education of the person.

#### **Conclusion and recommendation:**

Education is the corner stone in development of well-adapted attitude and practice score regarding cholera by the community.

Recommended national educational programs of preventing cholera epidemic should be done and followed by health authorities in organized way to ensure two objectives; the first being global insight focused on the communicable diseases and the second being a fight against misleading knowledge adopted by uncontrolled media which unfortunately followed by many people

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